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2104802

Cover photo: Soldiers, attached to Heavy Company, 3rd Squadron, 3rd Armored Cavalry Regiment, take cover behind their vehicle 17 January 2008 as they hear small arms fire open up in the distance in Mosul, Iraq. (Photo courtesy of the Defense Management Operations Center)

Next page: A marine assigned to the Special Purpose Marine Air-Ground Task Force-Crisis Response-Central Command 19.2, posts security 23 April 2020 during a tactical recovery of aircraft and personnel exercise on Karan Island, Kingdom of Saudi Arabia. (Photo by Sgt. Kyle C. Talbot, U.S. Marine Corps)

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Soldiers of the 4046th Quartermaster Truck Company inspect and remove pieces from a grounded fighter plane found within a bombed-out plant in 1945 in Oschersleben, Germany. (Photo courtesy of the Library of Congress)

The Eighteenth Gap

Preserving the Commander's Legal Maneuver Space on "Battlefield Next"

Lt. Gen. Charles Pede, U.S. Army
Col. Peter Hayden, U.S. Army

In 2017, the Army's premier institution for the study of warfighting, the Combined Arms Center (CAC) at Fort Leavenworth, Kansas, identified seventeen conventional warfighting capability gaps that emerged in the force after years of sustained counterinsurgency (COIN) and counterterrorism (CT) warfighting in Afghanistan and Iraq.[1] These gaps emerged over time as the Army reorganized itself for COIN and CT. Doctrine changed, force structure changed, hardware changed, tactics changed—and so did the rules of engagement (ROE) to win the COIN and CT fights.

We have fought not as corps and divisions on the battlefield but as brigades and battalions. We converted infantry and artillery warfighting units into *advise and assist formations*; we pushed river bridging units out of the active Army—or eliminated them. Even our existing truck companies could not transport the largest vehicles or fuel-heavy formations in the quantities needed in a full-up fight—or in Army parlance, support large-scale combat operations (LSCO).

To the CAC's list of seventeen warfighting capability gaps such as these, we would add what we consider one of the greatest dangers to our future success, *our legal maneuver space*, or what we call the "eighteenth gap."

Twenty years of COIN and CT operations have created a gap in the mindset—in expectations—for commanders, soldiers, and even the public. Army forces suffer our own CT "hangover," having become accustomed to operating under highly constrained, policy-driven rules of engagement. Compounding this phenomenon is public perception. Nongovernmental organizations, academics, and critics consider "smart bombs" and CT tactics to have become normative rules in warfighting. In short, they are not. This gap—the space between what the law of war actually requires, and a growing expectation of highly constrained and surgical employment of force born of our own recent experience coupled with our critics' laudable but callow aspirations—left unchecked, threatens to unnecessarily limit a commander's legal maneuver space on the LSCO battlefield.

The popular misunderstanding of modern warfighting imagines highly precise smart bombs winning the battle, if not the war. Generations of soldiers, including

Lt. Gen. Charles Pede, U.S. Army, is the fortieth judge advocate general of the U.S. Army. He holds an LLM in military law and a master's degree in national security and strategic studies. He previously served as the commander/commandant of the Judge Advocate General's Legal Center and School in Charlottesville, Virginia.

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Soldiers from the 5th Battalion, 20th Infantry Regiment, 3rd Brigade, 2nd Infantry Division, attached to the 3rd Brigade Combat Team, 1st Cavalry Division, conduct their first mission in the Diyala Province 14 March 2007, engaging anti-Iraqi forces in Baqubah, Iraq. (Photo by Staff Sgt. Stacy L. Pearsall, U.S. Air Force)

even our most senior leaders, have consumed a persistent diet of highly restrained policy premised on self-defense in the use of lethal force. Fighting terrorists who hide among innocent women and children has rightly demanded such restraint.

However, the next fight may not be with an asymmetric blend-into-the-market enemy. In a LSCO fight, a commander may have to confront and defeat a large enemy armored column accompanied by infantry supported by warplanes overhead, long-range fires into our rear areas, together with confusion induced by cyber and electronic warfare attacks. Commanders will need to intuitively know and confidently apply the actual rules of war, unhindered by the lingering hangover of constrained COIN ROE. Mastery of the law of war may very well mean the difference between victory and defeat.

This article is written to remind the public and the professional soldier that large-scale ground combat requires a different mindset. What is required in this warfighting world is adherence to the law of war and its fundamental principles: military necessity, distinction, proportionality, humanity, and honor.[2]

This article reminds us that soldiers and leaders must be trained constantly on the law in order to eliminate the eighteenth capability gap to win the next fight.

The External Threat

The eighteenth gap is the lack of understanding with regard to the difference between the law of armed conflict (LOAC) as codified in custom and treaty, and the rising tide of uncodified assertions, legal commentary, and accumulated policy overlays resulting from years of precision CT warfighting. The gap has opened in two respects. It has opened between the actual content of the law as approved and enforced by sovereign states in contrast to the more aspirational "evolution" of the law championed by scholars, interest groups, and nongovernmental organizations in an *external* drumbeat of legal commentary. Such

contributions to the study of the law of war are real and growing with every new well-intentioned blog article.

Humanitarian groups, for example, advocate that explosive weapons should not be used in urban areas because of the enhanced risk of civilian casualties.[3] Some recommend avoidance policies against the use of indirect fire weapons in urban areas.[4] Still others have posited that some attacks may be lawful only with precision weapons, but unlawful for artillery, mortars, and "dumb bombs," and that precision weapons, if possessed, must be used "as soon as they are part of a state's arsenal and their use is practically possible."[5] Yet none of these idealized and often uninformed notions of warfighting are required by the robust rules of war.

> We must close the eighteenth gap. We must spotlight and reject the danger of those who misrepresent the laws of war, to educate those who would consider rewriting the laws of war based on counterterrorism (CT) warfighting success. And we must reaffirm our Army commanders' confidence to nimbly move between CT and full-up conventional warfighting on demand.

The Internal Threat

The gap, however, is not simply the danger of a persistent mischaracterization of the existing law of war by outside critics and pundits. Our internal wiring as soldiers is an existential danger on Battlefield Next. Today's senior commander and lawyer have been raised on a constant diet of constraining CT rules of engagement for nearly twenty years.

From the time I was a captain in Mogadishu, Somalia, to my time in Afghanistan and Iraq, the mental models soldiers have operated within have involved notions of restrained employment of force in order to win the peace amid the reestablishment of institutions of governance.

Shifting to a full-up fight against the declared hostile forces of a near-peer adversary is an entirely different kettle of fish. Use of force in warfighting is not based on self-defense. Declared hostile forces can lawfully be shot on sight, without any demonstration of hostile intent or act. Commanders will often say we do not look for a fair fight in warfighting. The goal is to win—within the bounds of the law of war. Such warfighting will look very different from the operations of the last twenty years.

For example, in a conventional conflict against a declared enemy, a commander faced with an unidentified drone overhead and indications of a heavy armored enemy column streaming toward his or her position cannot hesitate to consider hostile intent or hostile act constructs. On a battlefield in which an artillery strike can destroy entire mechanized battalions in a mere two minutes, seconds matter, and those seconds can mean preserving lives and possibly victory on the battlefield.[6]

We must close the eighteenth gap. We must spotlight and reject the danger of those who misrepresent the laws of war, to educate those who would consider rewriting the laws of war based on CT warfighting success. And we must reaffirm our Army commanders' confidence to nimbly move between CT and full-up conventional warfighting on demand.

A review of the structure of the rules governing conduct in armed conflict requires a description of how the humanitarian and academic communities have drawn upon their extensive access and observations of the last twenty years of COIN and CT operations to draw incomplete conclusions about the nature of warfare and LOAC. This phenomenon presents two examples of the danger: mischaracterization of the law and an attempt to "develop" the law without regard to the character of conflict. There is danger of reinforcing a CT mindset in a decisive-action world and the accompanying practical challenges involved in retraining an Army to apply a different set of rules after twenty years of muscle memory. Finally, there is a readiness imperative to give commanders the confidence to apply the law in the most lethal environments.

Staff Sgt. William P. Skilling, tank commander, Company D, 3rd Brigade, 8th Battalion, 1st Cavalry Regiment, minimizes his physical presence by kneeling 15 January 2008 during a dismounted patrol in Mosul, Iraq. Company D teamed up with their Iraqi counterparts for the joint mission conducted in the Yarmook neighborhood. (Photo courtesy of the U.S. Army)

We must reassure the world's premier high-stakes decision-makers—America's field commanders—where the law of war begins and ends and where policy, legitimate and prudent, begins and ends. We must close the gap between the public perception of LOAC and the actual content of the law as agreed to by the legitimate authority of the U.S. government. Our readiness demands that all Americans—commanders, soldiers, critics, and the public—understand the law.

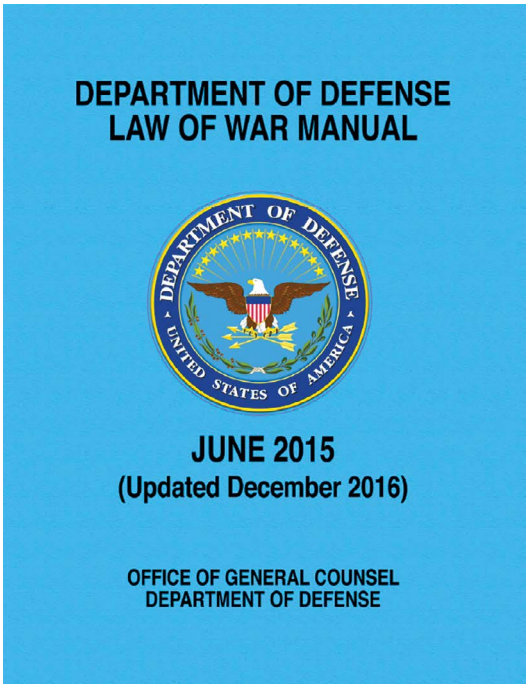
Conflating Policy with Law Based on Success in the Last War

The law of war, also referred to as the "law of armed conflict" or "international humanitarian law," encompasses all international law for the conduct of hostilities binding on the United States or its individual citizens, including treaties and international agreements to which the United States is a party, and applicable customary international law.[7] This latter category is defined as a consistent practice of states (including the United States) over time, coupled with *opinio juris*—roughly meaning that the state practice arose "out of a sense of legal obligation."[8] Sovereign states make the law, either through explicit agreement or through practice with the state's understanding that the practice is required by law. And while nations may differ as to which treaties or customary law are observed, the international law of war that binds a state is that to which *it has subscribed*.

Department of Defense (DOD) Directive 2311.01 requires that U.S. forces "comply with the law of war during all armed conflicts, however such conflicts are characterized."[9] That is, the laws of war are standards that must be obeyed in all circumstances. This directive facilitates consistency of application, enforcement, and training across the more than two million uniformed service members of all services and components. To provide clarity about the content of the law applicable to U.S. forces, the DOD published the *Law of War Manual*

"as the authoritative statement on the law of war within the Department of Defense."[10] The laws of war include such fundamental principles as "combatants may make enemy combatants and other military objectives the object of attack, but may not make the civilian population and other protected persons and objects the object of attack," and "detainees shall in all circumstances be treated humanely and protected against any cruel, inhuman, or degrading treatment."[11]

Under the law, as it is, military commanders conducting an attack must take *feasible* precautions to protect civilians based on the best information they have available at the time.[12] They must always be mindful of their legal and moral obligation to minimize suffering of civilians and to avoid unnecessary damage of civilian objects. But they are not required to discard considerations of military necessity or to forget their mandate to accomplish their mission.[13] And commanders are permitted to consider that winning swiftly through the efficient use of force may well, in the long run, be the single best way to reduce civilian casualties and incidental harm to civilian objects. In other words, under LOAC, *military and humanitarian interests are fundamentally consistent with one another. They complement each other.*



To view the *Department of Defense Law of War Manual*, visit https://tjaglcspublic.army.mil/dod-low-manual.

In contrast to the law of war, *policies* are implemented by ROE. This has been true since Col. William Prescott told his Minutemen to hold their fire until they saw "the whites of [the British soldiers'] eyes," at the Battle of Bunker Hill.[14] Commanders and policy makers control violence on the battlefield for many reasons. In most of the U.S. operations of the last twenty years, use of force is based on self-defense ROE, requiring an American soldier to perceive a threat before using force. Even with declared hostile forces, which can be shot on sight without the need for hostile intent or act, commanders have operated under a panoply of elevated approval authorities for certain munitions, collateral damage estimation methodologies, and related mechanistic formulas. Some of these ROE and policies may have served humanitarian purposes, but the law of war itself does not dictate what process must be observed or what level a commander can approve a strike. Some ROE are standing rules, that is, they are good policy but not in and of themselves required by law. But most ROE are tailored to specific operations.[15]

This distinction between law and policy is fundamental to the gap between the law of war and its misperception. And the distinction will be profoundly important on Battlefield Next, when survival and victory on the battlefield with a near-peer demands adherence to the law in a construct that recognizes the necessities of war.

The past decades of CT and COIN operations in Afghanistan, Iraq, and elsewhere have borne witness to a very specific type of warfare. Scholars and news reporters have exhaustively covered the challenges posed in fighting nonstate actors in loose organization who hide among the population and fight asymmetrically.[16] Many of these challenges drew public scrutiny to both the law of war and ROE.

Right top: Military vehicles cross a pontoon bridge 19 October 2010 during the Mission Action 2010 transregional joint exercise in China. Thirty thousand personnel from the People's Liberation Army's Beijing, Chengdu, and Lanzhou military commands participated in the exercise at various locations. (Photo courtesy of Xinhua) **Right bottom:** Members of the People's Liberation Army Marine Corps train at a military training base 21 January 2016 in Bayingol, Xinjiang Uighur Autonomous Region, China. To defeat large adversary formations supported by aircraft, long-range fires, and electronic/cyber warfare, commanders must know and apply the law of armed conflict together with rules of engagement tailored to the mission. (Photo by Stringer, Reuters)

However, the advantages that the U.S. and coalition forces have enjoyed received considerably less attention: operations launched from largely secure bases with secure and reliable communications, transportation, and supply. Technical overmatch. Precision weaponry. Sufficient manpower. Little to no meaningful threat to the homeland. Command of the air and seas.

> Under the law of armed conflict, military and humanitarian interests are fundamentally consistent with one another. They complement each other.

These same advantages enabled much of the policy and process to conduct precision CT targeting designed to minimize civilian harm to an exceptional degree.[17] Operators could afford to wait for hours of overhead surveillance "soak" on a target to confirm an enemy's presence, to establish "patterns of life," and to select exactly when and where to strike with precision-guided munitions so as to minimize any possibility of collateral damage with unprecedented degrees of certainty. However, the DOD was careful to note that the rigorous processes used to protect civilians in the wars in Afghanistan and Iraq reflected operation-specific policy constraints that went well beyond the requirements of LOAC.[18]

This approach proved both politically and militarily sound during the conduct of stability and COIN operations, enabling the military to explain the stringent processes for minimizing civilian casualties to congressional oversight committees and the public, including the very humanitarian groups that prioritize civilian protection above all else. As a result, scholars, humanitarian actors, and policy specialists have acquired a degree of proficiency with the military's own processes, emboldening them to advocate for new policy and legal constraints.[19]

Captivated by technological improvements in the relatively surgical fighting of U.S.-led COIN and CT operations, these communities formed opinions on the law and policy of warfighting based on the observations of the past twenty years. This commentary often demonstrates extensive research into recent operations and familiarity with contemporary tactics, techniques, and procedures. However, very little of it demonstrates familiarity with the study of warfare itself, or considers the environment and strategic direction discussed in the recent *National Defense Strategy*, the *National Military Strategy*, and the *U.S. Army in Multi-Domain Operations 2028*.[20]

In short, there is a lot of noise in the national security law arena offering opinions on LOAC and its application. Much of the commentary is thoughtful and helpful. However, some of it is misguided, based on naïve understandings of the conduct of military operations. Some of it is misleading, and some of it is flat wrong, misstating the substance of LOAC due to a lack of understanding. Too often, these commentaries fail to carefully ensure that they accurately reflect the existing LOAC or appropriately distinguish between the law applicable to all armed conflicts and the immensely prudent policy restrictions tailored to specific operations.

Carl von Clausewitz admonished strategists in his famous dictum: "The first supreme, the most far reaching act of judgement that the statesman and commander have to make is to establish by that test the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature."[21] Yet that is precisely the trap into which some of these commentaries fall. They advocate for a ruleset based on CT and COIN, without regard to the breadth of potential threats that U.S. forces must be prepared to confront.

For that reason, it is critical for those responsible for upholding and applying the law to be vigilant, to identify and highlight misstatements of the law, to clarify the distinctions between LOAC and more restrictive policies tailored to individual operations, and to ensure that our commanders and soldiers are trained to apply the right rulesets, both law and policy, for each and every operation.

The External Threat: Legal Commentary

Mischaracterization of the law: The United Nations Assistance Mission in Afghanistan report.

A U.S. Air Force A-10 strikes a Taliban narcotics facility 3 April 2018 in Farah Province, Afghanistan. U.S. forces and Afghan National Defense and Security Forces seized and/or destroyed select narcotics production and trafficking nodes throughout the course of the conflict to reduce the insurgent forces' ability to procure financial resources. (Photo courtesy of Operation Resolute Support)

On 9 October 2019, Americans woke up to the headline "U.N. Report Says U.S. Air Strikes on Afghan Drug Labs Unlawful, Hit Civilians."[22] Similar stories populated newsfeeds in Afghanistan, pan-Arab media, Europe, and China.[23] At issue was a United Nations Assistance Mission in Afghanistan (UNAMA) report accusing U.S. forces of violating LOAC by striking drug labs that were alleged to have been used to fund Taliban operations.[24] In short, the authors of the UNAMA report mischaracterized the law.

LOAC permits military forces to attack legitimate military objectives, specifically those objects, "which by [their] nature, location, purpose or use [make] an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage."[25] Military objectives include not merely warfighting objects or facilities such as military equipment, bases, and communications/transportation nodes but also those objects that effectively contribute to an enemy's capability to sustain military operations.[26] Such war-sustaining objectives can include electric power stations, petroleum production and refining facilities, and in appropriate cases, objects that enable funding of adversary military operations.[27]

From destroying the cotton of the Confederacy to destroying oil trucks used to fund Islamic State operations in Iraq and Syria in 2017, and yes, Afghan insurgent drug labs, this has long been the position of the U.S. government.[28] The United States is hardly alone in this view. Several other countries, including many U.S. allies and partners, recognize that economic objects may be potential military objectives.[29]

The UNAMA report acknowledges the U.S. position that military objectives extend to war-sustaining objects. Nevertheless, it concludes, *without citing to any legal authority*, that "[a]n object that financially contributes to a group that engages in hostilities represents an insufficient nexus to the fighting for it to be classified as a legitimate military target," and that the U.S. "position that treats 'war sustaining' industries as legitimate military targets is not supported by international humanitarian law."[30]

War sustaining industries—or as our U.S. Supreme Court characterized them, the "sinews of war"—may be lawful targets under LOAC.[31] A conclusion that a state violates international law as a matter of policy, broadcast to the world with the imprimatur of the

United Nations, cannot go unchecked. It is all the more imperative when that conclusion is unsupported by any legal authority whatsoever. Confronted with a mischaracterization of the law like that contained in the UNAMA report, states that actually make, apply, and uphold LOAC must call attention to such misstatements and remind our soldiers and the world what the law actually says.

Humanitarian legal creep—explosives in cities: Law, policy, and aspiration. Legal overreach is just as troubling in recent debates over the use of explosive weapons in populated areas.[32] The humanitarian community is rightly concerned about recent reports of extensive urban civilian casualties in the conflicts in Syria, Yemen, and Ukraine. However, rather than question whether the existing LOAC was properly applied, several organizations instead chose to advocate for a blanket prohibition against a category of weapons, as though banning a weapon or tactic outright would compel serial violators into compliance. LOAC prohibits the bombardment of undefended towns, villages, and buildings, just as it prohibits attacks on civilians or civilian objects.[33] However, when the enemy turns an otherwise civilian object into a military objective by virtue of its location or use, it may be attacked.[34]

As with any attack, the expected damage to civilians and civilian objects (referred to as damage "collateral" to the military advantage) *may not be excessive* in proportion to the concrete and direct military advantage expected to be gained.[35] Army commanders apply these time-honored principles of LOAC routinely in active operations, in exercises at our combat training centers and other warfighting exercises.[36]

Several humanitarian organizations, in concert with the International Committee of the Red Cross (ICRC), have long advocated for change. In December 2019, ICRC President Peter Maurer noted the launch of a "diplomatic process towards a Political Declaration to address the civilian harm caused by the use of explosive weapons in populated areas" and called upon states to adopt an "avoidance policy," with regard to the use of explosive weapons in urban areas.[37]

> Instead of starting from the premise that heavy explosive weapons can be used unless such use would violate IHL [international humanitarian law], we are asking States and conflict parties to reverse the starting point: as a matter of policy and good practice, explosive weapons with a wide impact area should not be used in populated areas, unless sufficient mitigation measures can be taken to limit their wide area effects and the consequent risk of civilian harm. In other words, unless the risk they pose to civilians can be reduced to an acceptable level.[38]

Notably, these organizations do not call for a change to the law itself. Rather, the ICRC and other organizations call for the adoption of "good practices," and a new "policy."[39] However, by calling for new standing policy and advocating for adoption of a political declaration, humanitarian advocates are, in fact, setting the groundwork for international law to encroach into what has always been an operation-specific set of policy constraints. Without deliberate and sustained clarification, policy will ripen into state practice, and acceptance in a political declaration could become viewed by many as an expression of legal obligation, the very *opinio juris* by which mere state practice becomes accepted as binding international law. Moreover, the proposed ICRC policy turns the LOAC standard on its head. Unlike LOAC, which was formed and negotiated with military input so as not to interfere with the conduct of war, the proposed policy explicitly restricts commanders from military options permitted by LOAC by imposing a higher standard on the decision to use a valid weapon.

Missing from these proposals is any serious discussion of the "military advantage expected to be gained," the other critical prong of the inquiry in any proportionality analysis. Maurer dispatches the concern with a conclusory "it is possible to restrict the use of heavy firepower even in such challenging environments as urban or other populated areas, without compromising mission achievement and force protection," supported only by reference to unspecified operations in Somalia and Afghanistan.[40] The Center for Civilians in Conflict's recommendations include the need to equip militaries with the right munitions for mission and terrain, weaponeering and use of precision weapons, and the consideration of elimination of indirect fire weapons.[41] In a nutshell, these positions seek to use their recommended policies to prescribe a limited range of options warfighters may employ. This approach suffers from flaws born of a profound failure to appreciate the nature of combat.

Iraqi security forces carry their weapons 6 July 2017 during fighting between Iraqi forces and Islamic State militants in the Old City of Mosul, Iraq. (Photo by Ahmed Saad, Reuters)

As an initial matter, it is not at all clear that a blanket rule banning a particular weapon or tactic will always prove more humane in all circumstances. This is not to deny the horrendous stories from Raqqa, Sana'a, and Aleppo in Syria; Donetsk in Ukraine; and elsewhere that prompt the humanitarian actors to advocate for civilian protection.[42] But the Army is a learning organization, and military scholars specializing in urban combat have noted that the use of low-yield explosives and precision munitions may well actually extend and expand urban combat, leading to greater suffering and death. The battle for Mosul in 2017 is but one recent example of the dangers of writing overly prescriptive rules for the wrong war. Mosul was a highly urban operation where Islamic State tactics leveraged the urban terrain. The actual battle revealed that speed and decisive firepower, including high explosives, brings the battle to a conclusion more swiftly with less loss of civilian life or damage to civilian property than if the battle had been prolonged by different, more cautious means.[43]

But of greater concern is that the campaign advocating for adopting an "avoidance policy" for explosive weapons in populated areas cites to the success of restrictive policies in Somalia and Afghanistan.[44] Those operations bear little resemblance to what may well be the context for the next fight. The *National Defense Strategy* and the *National Military Strategy* admonish U.S. forces to prepare to fight in an environment in which all domains are contested, in which our adversaries will be able to disrupt our communications and security, and in which speed will be at a premium.[45] The fight might very well involve close-quarters combat in dense urban terrain.[46]

Imagine Stalingrad, Berlin, Arnhem, or any of the French cities, towns, and villages as the Allies ventured off the beaches of Normandy under such constraints. Imagine, horrible though the thought might be, a modern allied city overrun or occupied by a modern near-peer enemy force. How would any friendly force retake a city under such "well-intentioned" constraints? Armored and infantry formations defending cities will

demand a level of violence that is unwelcome and hard to conceive but may well be necessary in order to win. That is the kind of conflict for which U.S. forces must be prepared. In such a conflict, against a near-peer adversary, winning matters.[47]

The brutality of war in LSCO is unwelcome but real. Deceptively attractive rules borne of comparatively clinical COIN and CT operations would be disastrous on a catastrophic scale, were they to be applied to near-peer war. Simply put, such notions must be rejected. If we are to win on Battlefield Next, we must be ready to fight with the law that is, not the law as some would wish it to be. Decades of surgical strikes with precision weapons and weaponeering has its place. That place is not LSCO.

> The brutality of war in large-scale combat operations is unwelcome but real. Deceptively attractive rules borne of comparatively clinical counterinsurgency and counterterrorism operations would be disastrous on a catastrophic scale, were they to be applied to near-peer war.

This admonition is not warmongering. The law of war clearly recognizes there must be legitimate constraints on violence. One of the more elegant expressions of why we adhere as a nation to LOAC also made the point quite simply:

> Why bother with confining rules in combat, then? The answer: for reasons similar to those that dictate rules in football games; some violence is expected, but not all violence is permitted. Rules and laws that are frequently violated are not without value for that fact. In the western world, are the Ten Commandments, which are commonly disregarded, therefore of no worth? We honor the Geneva Conventions and obey the law of armed conflict because we cannot allow ourselves to become what we are fighting; because we cannot be heard to say we fight for the right while we are seen to commit wrongs. We obey the law of war if for no other reason than because reciprocity tells us that what goes around comes around; if we abuse our prisoners today, tomorrow we will be the abused prisoners. We obey the law of war because it is the law and because it is the honorable path for a nation that holds itself out as a protector of oppressed peoples. We abide by the Geneva Conventions because it's the right thing to do.[48]

And foundational to the principles of the law of war we know as military necessity, distinction, proportionality, humanity and honor, is the imperative to fight wars lawfully and swiftly, to bring an end to the suffering as quickly as possible.

The eighteenth gap, therefore, is partly the dangerous misunderstanding that precision warfighting is legally required under the rules of war. We must close this gap—eliminate this understanding—by reminding the well-meaning, the academic, and the critic that while surveillance "soak," patterns of life, and precision strikes may be prudent as a policy matter when the military situation permits, they are not required by the rules of war. Our efforts to address the external influencers that continually threaten to widen the eighteenth gap must be persistent and vocal.

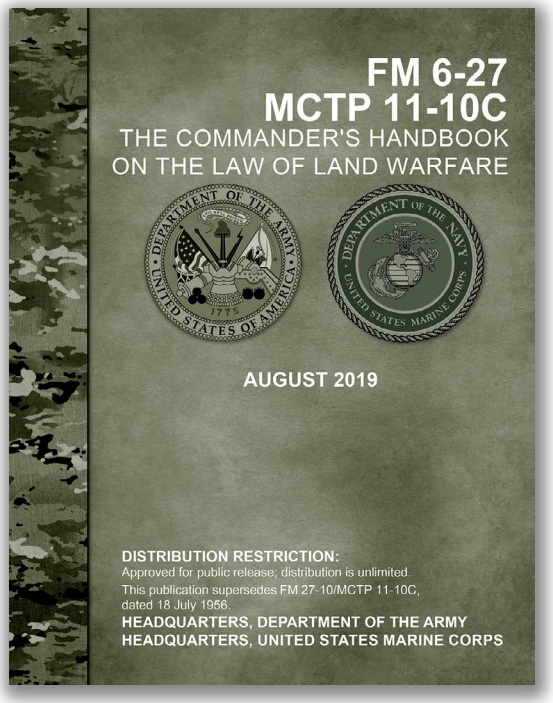
The Internal Threat: Twenty Years of COIN/CT Internal "Wiring"

The drawdown of combat operations in Iraq began to expose a disturbing, albeit not surprising reality. The aggressive initiative of a field commander in warfighting had atrophied under the highly constrained rules of COIN and CT. In short, training exercises revealed that some commanders hesitated when action was demanded. A momentary pause to consider what level commander had release authority for a five-hundred-pound bomb meant a missed enemy formation, or worse, a formation of dead American soldiers.

The Army recognized that the internal wiring of Army forces had become too closely associated with

self-defense paradigms—CT and COIN—and began to set the conditions to train for the threats of the future. In early 2012, the Army's National Training Center conducted its first decisive action training exercise (DATE) rotation since 2003, transitioning away from years of COIN-focused mission rehearsal exercises to incorporate near-peer threats.[49] The purpose of the new DATE rotations was to stress combat skills that appeared to have atrophied in the COIN fights of the recent past: armor clashes and combined arms maneuver, especially at division and corps level including deep fires.[50] This included a return to the baseline rules of warfighting consistent with LOAC.

The Army's concerns were well-founded. In recent interviews conducted by the Modern War Institute, senior observers at both the National Training Center and the Joint Readiness Training Center acknowledged that both leaders and soldiers continue to exhibit a mindset shaped by the past twenty years of COIN warfare, despite training scenarios specifically designed for decisive action against a near-peer declared enemy force.[51] Whether the COIN mindset manifests as an instinctive hesitation to use an advanced weapon system without checking who can approve its use, or a more general aversion to collateral damage risk, the observers noted the danger that these self-imposed restrictions often come at the expense of mission accomplishment. The most successful units train leaders all the way down to the squad level to accept prudent risk but "utilize all of the systems they have to bear to reduce the threat to get after their mission."[52] These comments in 2020 follow similar published observations from combat training center coaches and warfighter exercise observers in recent years whose training units and even their lawyers continued to exhibit a "COIN-centric targeting mindset."[53]



To view Field Manual 6-27/Marine Corps Tactical Publication 11-10C, *The Commander's Handbook on the Law of Land Warfare*, visit https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN19354_FM%206-27%20_C1_FINAL_WEB_v2.pdf.

This "COIN hangover" is easing with sustained effort, but the nine-year journey of DATE training exercises illustrates the difficulty of the challenge and the ruthless preparation necessary to ensure that all aspects of the force are ready and adaptable for the potential fights of the future.[54] And it serves as a caution: we must remain vigilant to ensure that LOAC, as actually regulated, trained, and upheld by the U.S. government, remains the training baseline for the force.

The corrupting influence of CT and COIN is present as well in the average soldier where notions of self-defense are ingrained through twenty years of training and real-world deployments. Every training environment would contain examples of policy-driven restraints on use of lethal force, and appropriately so. Thus, soldiers since 2003 have learned that hostile intent and hostile acts are predicates to pulling the trigger. Demonstrations of hostility are trained incessantly and have been so over twenty years. From generals to today's lowest-ranking soldiers, the principle of policy-restrained use of force is effectively the starting point for the combat soldier.

When we remember that in LSCO, an enemy may be shot wherever found without any showing of hostile act or hostile intent, the existential nature of the eighteenth gap becomes very real. Soldiers laboring and hesitating with a CT mindset of self-defense and zero collateral damage will lose in the moment of decision in LSCO. It is, therefore, profoundly important to identify the problem—what we call the eighteenth gap—and train it out of our formations such that soldiers can move nimbly between each construct.

To support this ongoing training, the Army and Marine Corps recently published Field Manual 6-27/Marine Corps Tactical Publication 11-10C, *The Commander's Handbook on the Law of Land Warfare*.[55]

Tank crewman of the 3rd Armored Division leave their M4 Sherman (*left*) to check on survivors of an accompanying Sherman tank (*right*) that was struck by fire from a German Panther tank and seek medical aid 6 March 1945 during the fight for control of Cologne, Germany. (Photo courtesy of the U.S. Army)

This manual distills the legal rigor of the detailed, three-volume *DOD Law of War Manual* into language easily understood by individual soldiers and marines. It reflects the Army and Marine Corps' interpretation of how to conduct land warfare lawfully, responsibly, and humanely. This serves as evidence of our standard. As the foreword states, "Adherence to the law of armed conflict … must serve as the standard that we train to and apply across the entire range of military operations."[56] This manual represents our state practice and fundamentally, our national values.

> When there is divergence, disagreement and the inevitable confusion with ICRC interpretive guidance, or a UNAMA report on CIVCAS [civilian casualty], for example, this FM [field manual] stands watch—with clarity and our Department's imprimatur. We simply cannot afford for our lawyers or leaders to be confused about the rules in warfighting. Clarity in the law, in standards, is a precious commodity. Clarity in the law is exactly what this Manual delivers and as a direct consequence preserves our commanders' legal maneuver space on Battlefield Next.[57]

Conclusion

The eighteenth gap exists, both internally within the Army and externally among policy makers, pundits, and the public at large. Only constant vigilance to counter misperceptions and misunderstanding will create sustained momentum to close the gap. Commanders and their lawyers alert to the dangers of seemingly convincing "experts" on the law of war must know the law as it is—and separate out the aspirations of the "convincing authorities." Military lawyers especially must master the law as it *is*. They must also assiduously understand the threat, the "influencers" of the law of war, those who would see it change through aspiration or editorial. Only total mastery

of the law *as it is* will generate the level of confidence, at the critical stress filled life-or-death moment, to give the commander the unequivocally correct legal advice.

And in the highly complex battlefield of the future, where near-peer nations leverage confusion and obfuscation of lawful targets, soldiers will have to navigate between asymmetric targets and force-on-force threats.

Of more direct concern to the humanitarian community, the law of war imperative for civilian protection is well understood. Civilian protection is fundamental to our forces' military ethos, ability to accomplish our mission, maintaining our relationships with allies and partners, and demonstrating our moral leadership.[59]

> We, as soldiers, must clarify and defend the legal maneuver space in which we will fight. We must ensure that our forces are ready to do the same.

Knowing the fundamentals of the law of war and the inevitable policy overlay will allow the highly trained American soldier of the future to lawfully engage targets consistent with LOAC—and without hesitation.

Let there be no mistake: Army forces will conduct themselves consistent with the law of war in all operations. The law of war is woven throughout the Army's training, doctrine, and organizational fabric like no other fighting force in history. Whether through embedded and expertly trained legal advisors throughout the force, a force-wide policy for continual education and training during the course of every soldier's career, or requiring that law of war training objectives be incorporated into major exercises, the Army's policies to inculcate the law of war into its million-strong ranks are unmatched.[58]

The law of war is sufficient to enable and empower commanders to accomplish the ugly and brutal business of winning war while placing a premium on civilian protection. But the law of war—as negotiated by statesmen, as accepted by Congress, the president, and the courts, and as trained and inculcated by commanders and soldiers—is the only ruleset that applies in all military operations, regardless of how those operations are characterized. We, as soldiers, must clarify and defend the legal maneuver space in which we will fight. We must ensure that our forces are ready to do the same. ■

The views expressed in this article are the personal opinions of the authors and do not represent those of the Department of Defense, the U.S. Army, or any of their subordinate elements.

Notes

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3. See "INEW Call Commentary," International Network on Explosive Weapons (INEW), accessed 21 January 2021, http://www.inew.org/about-inew/inew-call-commentary/. "INEW believes that states and other actors should recognize that explosive weapons with wide area effects should not be used in populated areas."

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three-minute Russian rocket attack that destroyed two Ukrainian mechanized battalions near Zelenopillya, Ukraine, on 11 July 2014.

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8. See, generally, *DOD Law of War Manual*, §§ 1.7–1.8.

9. DODD 2311.01, *DOD Law of War Program*, § 1.2.a.

10. Ibid., § 3.1.b.; see also *DOD Law of War Manual*, § 1.1.1.

11. *DOD Law of War Manual*, §§ 5.8, 8.2.

12. Ibid., §§ 5.2.3, 5.3.2.

13. Ibid., § 5.2.3.2n49.

14. *The Oxford Dictionary of American Quotations*, ed. Hugh Rawson and Margaret Miner (New York: Oxford University Press, 2006), 48.

15. See, generally, *Operational Law Handbook* (Charlottesville, VA: The Judge Advocate General's Legal Center and School, 2015), chap. 5.

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25. *DOD Law of War Manual*, § 5.6.3, citing Convention on Certain Conventional Weapons (CCW) Amended Mines Protocol, art. 2(6); CCW Protocol III on Incendiary Weapons, art. 1(3); 10 U.S.C. § 950p(a)(1) (2009); consider Additional Protocol I, art. 52(2).

26. 10 U.S.C. § 950p(a)(1). "The term 'military objective' means combatants and those objects during hostilities which, by their nature, location, purpose, or use, effectively contribute to the war-fighting *or war-sustaining capability* [emphasis added] of an opposing force and whose total or partial destruction, capture, or neutralization would constitute a definite military advantage to the attacker under the circumstances at the time of an attack." See also J. Fred Buzhardt, General Counsel of the Department of Defense, Letter to Senator Edward Kennedy, 22 September 1972, reprinted in *American Journal of International Law* 67, no. 1 (1973): 123–24; see also *Annotated Supplement to the Commander's Handbook on the Law of Naval Operations* (Newport, RI: U.S. Naval War College, Center for Naval Warfare Studies, Oceans Law and Policy Department, 1997), § 8.1.2.

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January 1993 Report of Department of Defense, United States of America, to Congress on International Policies and Procedures Regarding the Protection of Natural and Cultural Resources during Times of War, reprinted as appendix VIII in Patrick J. Boylan, *Review of the Convention for the Protection of Cultural Property in the Event of Armed Conflict (The Hague Convention of 1954)* (Paris: UNESCO, 1993), 201, 204. "Similarly, natural resources that may be of value to an enemy in his war effort are legitimate targets. The 1943 air raids on the Ploesti oil fields in Romania, and the Combined Bomber Offensive campaign against Nazi oil, were critical to allied defeat of Germany in World War II, for example. What is prohibited is unnecessary destruction, that is, destruction of natural resources that has no or limited military value."

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naval forces could lawfully be captured as enemy property based on "the peculiar character of the property" as "one of [the rebels'] main sinews of war," but that the cotton was not a maritime prize because it had been captured on land; Jeffrey Miller and Ian Corey, "Follow the Money: Targeting Enemy War-Sustaining Activities," *Joint Force Quarterly* 87 (4th Quarter, 2017): 31; "Combined Force Finds, Destroys Drugs, Weapons Cache," International Security Assistance Force Joint Command–Afghanistan press release, 7 September 2010. Describing a patrol's destruction of a cache of opium and weapons in order to "significantly reduce[ ] the insurgent's ability to … procure financial resources"; April Campbell, "Afghan Forces Becoming Increasingly Effective against Drug Producers," Afghanistan International Security Assistance Force—News, 29 September 2011. Describing Afghan counternarcotics forces' seizure and destruction of narcotics laboratories and narcotics as "dealing a significant blow to the insurgency's ability to fund operations."

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30. *Special Report: Airstrikes on Alleged Drug-Processing Facilities*, 13–14.

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33. Regulations annexed to the Convention (Hague IV) Respecting the Laws and Customs of War on Land, 18 October 1907, 36 Stat. 2277, art. 25; Michael J. Matheson, "Session One: Remarks on the United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions," *American University Journal of International Law and Policy* 2 (1987): 419, 426. Acknowledging that the U.S. accepts certain aspects of articles 51 and 52 of Additional Protocol I as reflective of customary international law; *see* Protocol Additional to the Geneva Conventions of 12 August 1949 and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, arts. 51–52.

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44. *Report on a Workshop Examining Military Policies and Practices on the Use of Explosive Weapons in Populated Areas.*

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51. Spencer, "Attacking the City of Razish"; Spencer, "Attacking the City of Dara Lam."

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One Profession, Two Communities, and the Third Rail We Cannot Ignore

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A phrase often surfaces during political debate whereby something is called a "third rail." It evokes images of subway car rails, two of which are inert but the third is electrified, and the saying describes an issue to avoid if status quo maintenance of a particular environment is the goal.[1] When it comes to

people in the military—how they are acquired, developed and managed—however, the Army's position is clear: the status quo will no longer suffice.[2]

Transformation Motivation

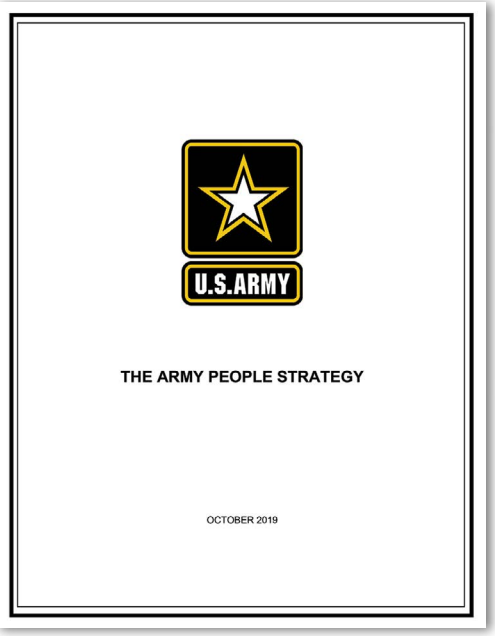
The Army's motivation to transform its personnel management practices is found in the 2019 "Army People Strategy" (APS): "The Army must remain ready as the world's premier combat force. That *readiness* (emphasis added) is strengthened by people who comprise the Total Army Force."[3] The APS then states the Army will "shift from simply distributing personnel" to an approach that "more deliberately manage[s] the talents that … Soldiers and Civilians possess."[4] "The Army People Strategy-Civilian Implementation Plan" (APS-CIP) that operationalizes the APS strategic vision across the Army Civilian Corps (ACC) intends to enable that shift by "change[ing] our internal culture of civilian human resources management, … [and] instilling a new philosophy that facilitates the ability of talented Civilians to move into, between, and out of … opportunities."[5] The means for accomplishing this is to "transform our dated approaches to civilian human resources management and replace them with approaches focused upon talent management."[6]

Readiness Lens

If the Army leverages readiness to assess ACC transformation, it must ask itself what it is ready to do. An easy enough question for soldiers: "fight and win the Nation's wars through prompt and sustained land combat, as part of the Joint Force."[7] For Army civilians though, it is not so simple; defining Army civilian readiness at the individual,

The third rail at the West Falls Church Metro stop 7 July 2005 in Washington, D.C. The electrified third rail is at the top of the image, under a white cover. The first and second rails are ordinary railroad rails that complete the electrical circuit through the trains but are grounded for safety. (Photo courtesy of Ancheta Wis via Wikimedia Commons)

organizational, and functional levels is actually a specified APS-CIP task. The Defense Department definition does not cleanly apply in this context.[8] So, absent an approved definition at the time of this writing, the authors leverage the following: individual readiness is the multidimensional (education, training, certification, experience) data-driven measure of an individual's ability to perform his or her job to full-performance standards; organizational readiness is the multidimensional (manning and resourcing) assessment of its capability to meet its assigned missions; and ACC readiness is both the quantifiable and subjective determination of its capability to efficiently and effectively manage Secretary of the Army Title 10 functions.[9] When it comes to the ACC, Army doctrine is clear: "Soldiers are the reason for their [Army civilians'] service."[10] We trust the reader sees the readiness "connective tissue" between soldier-Army mission-ACC.



To view *The Army People Strategy*, visit https://www.army.mil/e2/downloads/rv7/the_army_people_strategy_2019_10_11_signed_final.pdf.

A Third Rail

That connection notwithstanding, *the Army is and will remain significantly challenged to realize its civilian workforce change strategy until it addresses a principal "third rail" that affects the spectrum of workforce management practices.* The third rail has many components so the word "culture" is used as an umbrella term. The authors feel strongly about this challenge because they are familiar with the ACC's predilection for avoiding what Harvard Law School lecturer Douglas Stone and his coauthors call "difficult conversations."[11]

Environmental Context

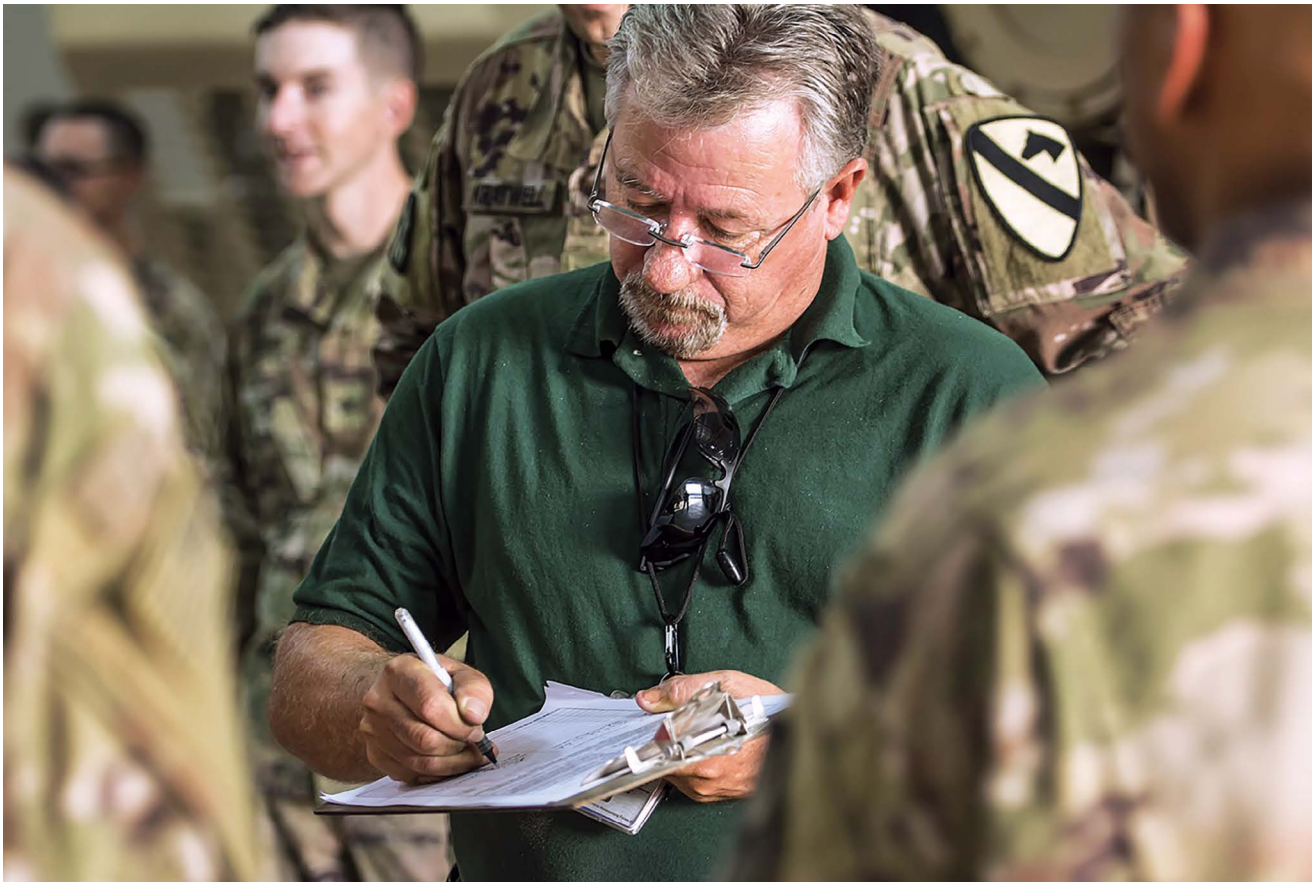
Significant literature exists about organizational culture and climate, and definitions of each and their applications vary from macro-views to micro-views. For example, in their 2013 review of organizational culture and climate research, Schneider, Ehrhart and Macey declared, "There is not agreement on what culture is nor how it should be studied. For every definition of what culture is, there is an important contrary view."[12] The APS definition of culture is useful: "The foundational values, beliefs, and behaviors that drive an organization's social environment, and it plays a vital role in mission accomplishment."[13] Within culture, there is room to modernize an Industrial Age workforce management construct to achieve APS strategic outcomes and APS-CIP civilian talent management priorities.[14]

The "Total Army" consists of two distinct communities of practice: the Profession of Arms and the Army Civilian Corps.[15] Civilians have supported soldiers since 1775, initially in critical departments like quartermaster, ordnance, transportation and medical.[16] Today the ACC numbers approximately 330,000 with members serving in over five hundred occupational series across thirty-two unique career fields. Each individual brings diversity of thought and experience based on education, training, and employment in the private sector and other government agencies.[17] 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.[18] 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 operational efforts in combat theaters.

Third Rail Components

Disaggregating this third rail results in components called "friction between the two Army profession communities of practice," "friction internal to the ACC," and "friction generated by legacy ACC talent management practices."

Component #1: The first "rail" component, "friction between the two Army profession communities of practice," reveals itself in how the profession of arms



Mike Pogue, U.S. Army Tank-Automotive and Armaments Command logistics assistance representative, 401st Army Field Support Brigade, signs an inspection checklist 14 September 2018 after a joint preventative maintenance checks and services inspection with soldiers assigned to the 154th Composite Truck Company-Heavy, 524th Combat Sustainment Support Battalion, on a newly rebuilt Heavy Equipment Transporter System (HETS) truck equipped with C-kit belly-plate armor, or "golden HET," at an Army Prepositioned Stocks-5 warehouse at Camp Arifjan, Kuwait. (Photo by Justin Graff, 401st Army Field Support Brigade Public Affairs)

(i.e., soldiers) perceives ACC effectiveness and efficiency; how the ACC perceives the profession of arms; and the differences between the two communities' management philosophies. While perceptions vary according to an individual's environment, biases, and backgrounds, recent interviews of military and civilian leaders revealed notable underlying trends.[19] From 2010 to 2012, the Army conducted a learning campaign to understand the profession of arms and the professional soldier and then subsequently expanded the effort to examine the role of the ACC in the profession.

Although the Army expanded the study scope, several former and current senior officers interviewed stated the study did not seriously consider the ACC; instead, it tried to shoehorn the uniformed component, the component's families, and the ACC into a "one-size-fits-all" box.[20] Written declarations like "Army culture is the system of shared meaning held by its Soldiers, the shared attitudes, values, goals, and practices that characterize the larger institution over time" implicitly excluded the ACC, despite approximately 55 percent retired military comprising the membership.[21]

One senior officer correlated this study to legacy perceptions, for example, that the ACC represented an occupation that is not composed of certified experts who continually learn to maintain individual proficiency, as opposed to the American professional soldier who is an expert and volunteer, bonded with comrades by means of a shared identity and culture of sacrifice and service to the Nation. He directly linked this perceived distinction to the military evaluation system provision requirement that a uniformed member appear in the rating chain of any soldier who is rated or senior rated by an ACC member.[22] Another interviewee, a former senior officer turned

J. L. McDonald, a heavy equipment repairer with the Department of the Army, applies leverage with a pry bar 14 March 2017 as Pvt. Kristopher P. Cole works to attach a chain to the rear access door of a Stryker armored vehicle at the Tank-Automotive and Armaments Command Fleet Management Expansion, Combat Systems Division at Fort Benning, Georgia. (Photo by Staff Sgt. Brian A. Barbour, Arizona Army National Guard)

ACC member, related how, after briefing a visiting general officer, he left personally and professionally frustrated, saying, "Yesterday I was a former battalion commander; today I'm a second-class citizen."[23]

Another friction point concerns how soldiers enjoy a professional identity based on shared culture, camaraderie, and experience but perceive ACC members as motivated primarily by something other than altruism. As one interviewee characterized it, "Many uniformed members may feel that because they endure more hardship (time in the field, time at work, deployments, [or] physical training standards), these hardships distinguish their role from those of Civilians. Not only are they different, but I argue that many [Soldiers] believe that their 'hardship' incurs more 'honor' on their work and person."[24] The same interviewee observed how age might be a factor associated with this component: "A lot of the friction emanates from the difference in age demographics of the two communities … age plays a significant role in how these two communities view each other and interact with predictable sources of friction where a younger uniformed member has supervisory duties over older [Army] Civilians."[25]

Conversely, ACC interviewees trended toward a perception that the uniformed component had neither time nor interest "to learn this [institutional Army] job; I'm just here to punch a ticket and get back to the warrior stuff."[26] There are also perceptions held by both communities that the ACC does not endorse members adopting a personal continuous learning regimen, choosing instead the "we have always done it that way" approach. One senior officer noted his ACC workforce members routinely declined professional or leader development opportunities because they "already had that T-shirt;" consequently, he characterized them as "behind the times" and "non-value added."[27] This viewpoint survives because the ACC is divided, one foot gingerly resting in the military/Army profession, the other firmly planted

in business/government operations. Unsurprisingly, the foregoing perceptions also create friction with respect to how the ACC views itself.

Component #2: The second "rail" component, "friction internal to the ACC," reveals itself in a number of ways. One manifestation occurs between ACC managers and the multitude of unions that support Army operations; as of this writing, there were 225 collective bargaining agreements in force between the Department of the Army and as many as twenty-one distinct unions.[28] The following reflects a trend surfaced during interviews and conversations with (unofficial) uniformed and ACC component representatives and unfortunately reinforces the point: "The (ACC) can't transform its management practices because the Union(s) won't change their mindset(s)." When senior managers do not effectively engage unions, misperceptions and the resulting stress cause unnecessary complications.

One supervisory Army civilian interviewee described frustration while trying to meet a new mission because a subordinate Army civilian, whose position description required he "remain current with existing technology," had neither the required skill nor the willingness to attain it. The supervisor requested labor management relations staff assistance with generating an Army civilian's performance improvement plan. Unfortunately, the supervisor's frustration only increased when the staff representative expressed unwillingness to assist because of the "very strong union defense and loss of previous similar grievance actions at that installation."[29] ACC members must understand the underpinnings of ACC-union relationships sufficiently to engage in meaningful partnership.

A second internal friction element exists between Army civilian professionals and Department of Defense contractors. Defense industrial complex contractors exist to service non-inherently governmental or temporary mission capability gaps. Because the complex is a prime military experience recruiter, contractors are frequently viewed as headhunters offering a better compensation package than what is available to an ACC member performing a similar job. One former Army officer-turned-contractor said once he became a contractor, uniformed and Army civilian counterparts viewed him as "a lower-life form" despite previously serving in the same organization while in uniform and as an ACC member.[30]

Component #3: When considering the third "rail" component, "friction generated by legacy ACC talent management practices," talent management is defined as the process of attracting, developing, integrating, and retaining cycle or acquire, develop, employ, retain cycle in the APS-CIP human capital lifecycle.[31] A brief review of recent ACC talent management efforts, specifically the civilian workforce transformation initiative, will prove helpful.

The 2011 learning campaign referenced above fielded three research questions: What does it mean for the Army to be a Profession of Arms?; What does it mean to be a professional soldier?; and After nine years of war, how are we as individual professionals and as a profession meeting these aspirations?[32] Due to deployed force stressors, the study understandably focused on the uniformed component to identify ethical-behavior-lapse causality, and insert education and training mitigation measures into Army professional military education and skills certification systems. It did not, however, examine the impacts generated of the prolonged conflict on the ACC's role in the design, generation, support, and application of

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land combat power. To address that research shortfall, in 2010, the Army chartered the Civilian Workforce Transformation Task Force.

The Civilian Workforce Transformation Task Force was designed to address deficiencies in hiring actions, management of civilians, training and development, and sustainment of the workforce.[33] The Army inferred that ACC development would produce leaders with knowledge, skills, and abilities equivalent to the uniformed component, and in a similar manner. Additionally, a perception developed that an Army civilian's education, training, and development could be tracked and managed, and she or he could earn promotion up to and including entry into the senior executive service.

Regrettably, the perceived reality is that neither the Army Enterprise Talent Management nor Senior Enterprise Talent Management programs function as talent feeder systems by which ACC members can prepare for, and from which be routinely selected to higher-level leadership positions. Instead, it appears that when recruiting for senior Army civilian vacancies, the Army prefers to hire transitioning soldiers, or hire from outside the ACC or Army entirely, versus leveraging professional development programs envisioned to grow a "bench" of committed and skilled Army civilians. Anecdotal evidence trending in interviews reveals a transitioning Colonel Senior Service College (SSC) graduate ranks higher than an ACC member who is also an SSC graduate.[34] Unsurprisingly, one finds a perception that ACC members don't possess the skills to effectively lead in the ACC, or that only external applicants can solve challenges.

Additionally, more than a few ACC members are quick to observe that a transitioning senior officer with SSC credit is routinely perceived to be a better applicant than an Army civilian with years of supervisory experience, high-profile professional development program completion, and applicable skills certifications. Similar observations can be made about Army senior executive service workforce management, where hiring actions appear to run counter to aspirational talent management policies, lending credibility to the perception the ACC does not possess the knowledge, skills, abilities, or behaviors to develop enterprise-level leaders.[35]

Talent Management

According to some literature, talent management goes beyond just considering every organization team member to looking at how an employee who possesses multiple (specialty) skills, self-motivation, excellent core working knowledge, and general skills (communication, creative outlook, and leadership) may be considered as a talented resource.[36] That perspective supports the idea each team member should be afforded the opportunity to develop a career map with access to training, education, and development as a means to participate in open and fair employment competition. Title 5 of the U.S. Code, also known as the Civil Service Reform Act of 1978 (hereinafter Title 5 USC), operationalizes that philosophy.[37]

Title 5 USC established the Merit System Principles, incorporating acquisition of talent, training and education, and retention and separation of federal civilians.[38] Title 5 USC further authorizes federal agencies to experiment "with new and different personnel management concepts in controlled situations to achieve more efficient" government human resources management. The APS-CIP acknowledges that Title 5 USC governs the human resources framework but also states the Army must change the internal culture of human resources management to prioritize results by instilling a philosophy that facilitates talented civilians the opportunities for job satisfaction and meaningful employment consistent with Army mission.[39] Unfortunately, laborious ACC career development planning processes de-incentivize efforts to capitalize on the most talented civilian resources and quash talent management agility.

Readiness would benefit from a holistic system designed to provide the right Army civilian in the right job at the right time while enabling those civilians to "move between career programs, commands, and components of Army service to suit the …" preference of the individual and needs of the Army.[40] But to fully appreciate the magnitude of the task, one must understand the *competition* for civilian talent, the *conflict* generated by existing policies, and the *change* required to better enable readiness.

No Easy Task

Whenever the uniformed component experiences a strength reduction, ACC end-strength is put at risk, and inevitably global competition for talent increases the value of hard-earned ACC skills. This competition reveals perceived and actual conflict with existing policies like Merit System Principles as the United States endeavors to build a workforce representing all society segments, managed with practices characterized by selection and

Northern Regional Medical Command civilian staff members recite the Army Civilian Corps Creed 26 April 2012 during the region's civilian award ceremony at Wood Theater, Fort Belvoir, Virginia. (Photo courtesy of the U.S. Army)

advancement determined solely on the basis of ability, knowledge, and skills, after fair and open competition. While the intent to do so is embedded in Army policies and goals, perceptions exist that generate conflict. For example, some external candidates may perceive deliberate exclusion from fair competition if relocation costs are not included in the compensation package, making it appear that internal candidates who do not require relocation support represent a "more attractive" hiring option.

That perception introduces another dynamic to this notion of legacy talent management practice friction: prohibited personnel practices. Prohibited personnel practices occur when policies discriminate "for" or "against" an Army civilian or applicant in an effort to achieve workforce goals. But in a professional development environment where funding decisions based on weighting civilian programs in terms of contributions to mission accomplishment ultimately determine resourcing levels, it is not difficult to envision a culture where a perception of "haves and have nots" takes root and thrives. None of the foregoing friction elements are good for "Army business," especially when that business is readiness.

A Way Forward: Challenges to Opportunities

Army leaders are conditioned to look for opportunity in every challenge, so reframing the third rail perspective results in new components: "improving communities-of-practice perceptions," "exploring a 'one ACC-one team' mindset," and "balancing transactional practices with transformational aspirations."

New Component #1: *Improving communities-of-practice perceptions.* As long as both communities cling to traditional perceptions of each other's value, there will be no progress. But if we choose to move the needle at individual and local levels, we can reasonably expect to realize some measure of relationship improvement. We challenge both communities to own the "professional" moniker, act accordingly, and partner to push boundaries encumbering

Carol Burton (*left*), director of the Civilian Human Resources Agency, is presented a Senior Executive Service (SES) flag by Lt. Gen. Thomas Seamands, deputy Army chief of staff, G1, 30 January 2019 during an SES pinning and induction ceremony at the Pentagon in Arlington, Virginia. (Photo courtesy of the U.S. Army)

mission accomplishment and organizational effectiveness. The readiness return on investment in this area is well worth the effort.

New Component #2: *Exploring a "One ACC-One Team" mindset*. Soldiers cannot rely on the ACC to perform efficiently and effectively if it perpetuates organizational in-fighting. The ACC can either settle for minimal readiness contributions, or it can set aside the informal but widely acknowledged caste-system mentality and recognize that all elements working to support the Army deserve to be treated as value-added team members. The authors believe the readiness return on investment will pay off in improved organizational efficiencies, effectiveness and climate.

New Component #3: *Balancing transactional practices with transformational aspirations*. So much of ACC culture is tied to existing business rules; as noted above, however, Title 5 USC allows for talent management practice experimentation in controlled situations. The multi-domain operations environment provides opportunities to modernize the Army's human resource management culture but to enjoy greater flexibility across the Acquire, Develop, Employ, and Retain lines of effort, the Army must take action.

The Army would benefit by publishing transparency statistics that reveal external and internal ACC selection rate percentages. This would help mitigate adverse perceptions, increase application rates from across the

Army, and decrease grievance complaints submitted to the Merit Systems Protection Board. A system similar to the Senior Enterprise Talent Management Graduate Placement Program might improve internal-to-agency recruiting actions (though in one author's opinion the Graduate Placement Program system needs serious restructuring to ensure compliance with Army civilian professional and management utilization statements). A future ACC personnel management might leverage a construct similar to the Army Talent Alignment Process—the decentralized, regulated, market-style hiring system that currently aligns Army officers with jobs based on preferences and is expanding into the senior enlisted ranks. It is reportedly working well; in the cycle ending December 2019, 50 percent of the more than fourteen thousand officers participating in the process received their first-choice assignment, and the commands assist by competing for the talent.[41]

For a truly effective transformation, the ACC requires a searchable enterprise database—a common operating picture—that maintains record of and displays individual Army civilian professional education, training, and development statuses. Fielding a comprehensive database like this is critical to enabling the ACC to see itself and contribute to readiness.

Transactional management practices have their place in an Army that must remain auditable. The routine query, "Why have we always done X this way–and can we agree on a more effective approach, even if it requires heavy lifting to change the Title 5 USC framework or labor agreements" is encouraged. There is a healthier friction balance to be struck between transactional workforce management practices and transformational aspirations; perhaps asking if the Industrial Age practices that served well in the past will prove as effective in the Information Age is useful. If the answer is no, recommendations are required so the ACC can meet its readiness obligations.

Conclusion

We acknowledge the truth of Harvard Business School Professor John Kotter's observation that "change sticks only when it becomes 'the way we do things around here,' when it seeps into the very bloodstream of the work unit or corporate body."[42] Kotter cautions this effort requires *sufficient time* "to ensure that the next generation of management really does personify the new approach."[43] David Novak, past chairman and CEO of YUM! Brands (parent company of Kentucky Fried Chicken, Pizza Hut, and Taco Bell), reminds us that "[a] great culture doesn't just happen. It must be built deliberately. It's the job of every single person in the organization to create a positive culture and make it a big idea; it's the leader's job to make sure everyone understands that and believes in it."[44]

This will be legitimately hard work—but if everyone collectively adopts the "Stockdale Paradox" (a term coined by former Stanford Business School professor Jim Collins in honor of Vietnam prisoner of war and Medal of Honor recipient Vice Adm. James Stockdale), whereby change agents "maintain unwavering faith that you can and will prevail in the end, regardless of the difficulties, AND at the same time have the discipline to confront the brutal facts of your current reality," we can effect change.[45] We don't have to convince everyone, only enough Army professionals to reach a cultural tipping point, described by journalist Malcolm Gladwell as "the moment of critical mass, the threshold, the boiling point" that contains within it the possibility of sudden change.[46]

The cultural third rail components discussed here represent critical issues requiring immediate and authentic engagement. At some point deliberate action(s) will be in order, but first the Army must see itself accurately, then describe what it wants to look like moving forward. This is best done from the bottom-up via live discussion that augments and clarifies higher-echelon policy and mandates. Determine what prevents anyone from establishing his or her desired culture end state; choose to be a transformation catalyst—start an authentic engagement and take advantage of a tremendous opportunity to model character, presence, and intellect. There are many more aspects of this environment waiting to be analyzed. Consider the following two examples: How should we define and operationalize—without penalty—"advancement" for ACC professionals content to serve in the same field/grade for an entire career? Should the Office of Personnel Management revise the existing portfolio of series classifications to better serve Defense Department readiness requirements?

In summary, we advocate for a perspective change that will enable the ACC to embrace a culture of "commitment" as it partners with the profession of arms in pursuit of Army readiness. As for the emphasis on personal engagements, Stone and colleagues phrased it best when they said "the ability to handle difficult conversations well is a prerequisite to organizational change and adaptation."[47] ■

Notes

1. "The History of 'Third Rail': From the Subway to Politics," Merriam-Webster, accessed 21 October 2020, https://www.merriam-webster.com/words-at-play/the-history-of-third-rail.

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3. "The Army People Strategy" (Washington, DC: U.S. Government Publishing Office, October 2019), 2, accessed 8 December 2020, https://asc.army.mil/web/wp-content/uploads/2019/11/the_army_people_strategy_2019_10_11_signed_final.pdf.

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5. "The Army People Strategy Civilian Implementation Plan," Army.mil, 14 May 2020, 4, accessed 8 December 2020, https://ameddciviliancorps.amedd.army.mil/static/Army%20People%20Strategy%20Civilian%20Implementation%20Plan%20-%2014%20May%2020-2f20b-63122f56a5f9658ef6f4f133b35.pdf.

6. Ibid., 5.

7. Army Doctrine Publication (ADP) 1, *The Army* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), para. 1-21, superseded by ADP 1, *The Army*, 31 July 2019.

8. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet 220-1, *Defense Readiness Reporting System-Army Procedures* (Washington, DC: TRADOC, 16 November 2011), 187.

9. 10 U.S.C. § 3013 (2011).

10. ADP 1, *The Army*, vi.

11. Douglas Stone, Bruce Patton, and Sheila Neen, *Difficult Conversations: How To Discuss What Matters Most* (New York: Penguin, 1999), xii, xvii–xviii. "The ability to manage difficult conversations effectively is foundational … to achieving almost any significant change." This book "explores what it is that makes conversations difficult, why we avoid them, and why we often handle them badly." Skills espoused by the authors are "needed to take a serious disagreement … and transform it from a drag on competitiveness into an engine for change."

12. Benjamin Schneider, Mark G. Ehrhart, and William H. Macey, "Organizational Climate and Culture," *Annual Review of Psychology* 64 (January 2013): 361–88; see also Simon Sinek, *Leaders Eat Last: Why Some Teams Pull Together and Others Don't* (New York: Penguin, 2014), 130; Edgar H. Schein and Peter Schein, *Organizational Culture and Leadership*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2016), 6; Ed Catmull and Amy Wallace, *Creativity, Inc.: Overcoming the Unseen Forces That Stand in the Way of True Inspiration* (New York: Random House, 2014), 64–65; Eric Schmidt and Jonathan Rosenberg, *How Google Works* (New York: Grand Central Publishing, 2014).

13. "The Army People Strategy," 11; see also ADP 1, *The Army*, A-1.

14. For strategic outcomes, see "The Army People Strategy," 5–6; for civilian talent management priorities, see "The Army People Strategy-Civilian Implementation Plan," 7–9.

15. ADP 1, *The Army*, para. 2-16.

16. Stephen J. Lofgren, ed., *The Highest Level of Skill and Knowledge: A Brief History of U.S. Army Civilians, 1775-2015* (Washington, DC: U.S. Army Center of Military History, 2016), 5.

17. "Careers and Jobs," Go Army, accessed 10 December 2020, http://www.goarmy.com/careers-and-jobs/army-civilian-careers.html.

18. "The Army People Strategy," 13.

19. Individual interviews were conducted via personal communication modes (e.g., face-to-face, telephone conversations, and email) using techniques similar to inspector general sensing sessions. Interviewee comments are identified by "Anonymous Interviewee #X" and are unpublished to maintain confidentiality. Trends were developed from interviewer (Dr. Davin Knolton) notes.

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21. "An Army White Paper, The Profession of Arms" (Fort Leavenworth, KS: Center for the Army Profession and Ethic, 2010), 9.

22. Anonymous Interviewee #18 (retired lieutenant colonel/active Army Civilian Corps [ACC] member), in discussion with Knolton, November 2020.

23. Ibid.

24. Ibid.

25. Ibid.

26. Anonymous Interviewee #6 (retired colonel/active ACC member), in discussion with Knolton, November 2020.

27. Anonymous Interviewee #23 (retired colonel/active contractor), in email/follow-up discussion with Knolton, November 2020.

28. "Policy, Data, Oversight: Labor-Management Relations," Office of Personnel Management, accessed 10 December 2020, https://www.opm.gov/policy-data-oversight/labor-management-relations/collective-bargaining-agreements/. As of this writing there were 225 collective bargaining agreements in force between the Department of the Army and as many as twenty-one distinct unions.

29. Anonymous Interviewee #11 (retired colonel/active contracted instructor) and Anonymous Interviewee #13 (active duty lieutenant colonel), in discussion with Knolton, November 2020.

30. Anonymous Interviewee #23, discussion.

31. "The Army People Strategy," 5.

32. D. M. Snider, *Once Again, the Challenge to the US Army during a Defense Reduction: To Remain a Military Profession* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2012).

33. Joseph W. Westphal, "Remarks-Under Secretary of the Army-Army Civilian Luncheon-AUSA Convention" (speech, Association of the United States Army [AUSA], Washington, DC, 17 October 2010), 6, accessed 10 December 2020, https://www.army.mil/article/47542/remarks_under_secretary_of_the_army_army_civilian_luncheon_ausa_convention.

34. Trend from anonymous interviews, compiled by Knolton, November 2020.

35. Trend from anonymous interviews of ACC members #2, #3, #7, and #14, compiled by Knolton, November 2020.

36. Geeta Rana, Alok Kumar Goel, and Renu Rastogi, "Talent Management: A Paradigm Shift in Indian Public Sector," *Strategic HR Review* 12, no. 4 (2013): 197–202, https://doi.org/10.1108/SHR-02-2013-0012.

37. Civil Service Reform Act of 1978, 5 U.S.C. § 1101 *et seq.* (1978).

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39. "The Army People Strategy," 4.

40. Ibid., 35.

41. Haley Britzky, "The Army is Now Letting Soldiers Choose Their Assignments, and Leaders Say it's Going Smoothly," Task and Purpose, 6 February 2020, accessed 6 November 2020, https://taskandpurpose.com/news/army-talent-alignment-nepotism.

42. John P. Kotter, *Leading Change* (Boston: Harvard Business Review Press, 2012), 14.

43. Ibid., 15.

44. David Novak, *Taking People with You: The Only Way to Make BIG Things Happen* (New York: Penguin, 2012), 152.

45. Jim Collins, *Good to Great: Why Some Companies Make the Leap … and Others Don't* (New York: HarperCollins, 2001), 13.

46. Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (Boston: Little, Brown, 2000), 12. "[T]he moment of critical mass, the threshold, the boiling point" that contains within it the possibility of sudden change.

47. Stone, Patton, and Neen, *Difficult Conversations*, xi.

Staff Sgt. Brandon Gallup, 1st Battalion, 5th Security Force Assistance Brigade, facilitates an after action review 27 August 2020 with Royal Thai Army (RTA) leadership from the 11th RTA Infantry Division at Sriracha Training Area, Thailand. (Photo courtesy of the Royal Thai Army)

Thinking outside of the Sandbox

Succeeding at Security Force Assistance beyond the Middle East

Lt. Col. Jahara "Franky" Matisek, PhD, U.S. Air Force
Maj. Austin G. Commons, U.S. Army

The bulk of American military training programs over the past two decades has primarily centered on building security forces in Afghanistan and Iraq, with the United States spending $128 billion on those two countries alone.[1] Such security force assistance (SFA) activities in the Middle East have been a revolving door, (re)building partner security forces nearly from scratch every year. The guiding framework for SFA in these two countries has been the strategic objective of making partner forces effective enough to conduct counterinsurgency (COIN) and/or counterterrorism (CT) missions—all without U.S. advisors having to oversee their activities.[2] This idea rose to codified prominence in 2009 with then Secretary of Defense Robert Gates advocating for the indirect approach of building partner forces to deal with security challenges.[3]

Such a narrative has translated into American and allied special operations forces increasingly relying on the "by, with, and through" approach to training host-nation special purpose forces to conduct COIN/CT. In many cases, by, with, and through enables partners to target actors and groups who are perceived as a national security threat to U.S. interests.[4] While effective at creating highly capable niche military units such as the Iraqi Golden Division and ten Afghan special operations kandaks, the creation of such elite forces has neglected regular army units in Iraq and Afghanistan.[5] Residing outside of the focus and monitoring of Western military advisors, conventional forces in Iraq and Afghanistan succumb to the pathologies of corruption and patronage. In many cases, soldiers are loyal to their unit commanders for parochial reasons such as religious sect, political party, and/or tribe/clan/kinship rather than to the government of Baghdad or Kabul. This can be frustrating to the average advisor who views the military as a professional organization that is *supposed to be* apolitical and meritocratic. Yet, in the armies of most countries in the Middle East, societal norms and culture influence military behavior, translating into security institutions serving narrow purposes and interests, and in which professionalism can be considered a dangerous trait to display.[6] This is because such demonstrations of capability and effectiveness appear threatening to political elites and senior government officials.

After years of "pushing a rope," it has become abundantly clear that most militaries in the Middle East will not adopt American military institutions, let alone liberalized forms of democratic governance. This can be vexing for U.S. military leaders and policy makers, as SFA planners provide utopian-looking PowerPoint slides and white papers with objectives and lesson plans on how SFA will be organized and implemented. For many advisors, no matter how much proper planning and preparation is undertaken with doctrinally correct lines of effort, host-nation forces inevitably fall short of the standards expected by their American counterparts. It is in this planning phase that many advisors improperly believe that a foreign military unit will adapt to their Western military institutions and training programs. Difficulties with achieving desired end states when building partner capacity is why Lt. Gen. Charles T. Cleveland, then U.S. Army Special Operations commander, used to describe "BPC [building partner capacity] efforts as random acts of touching."[7]

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Advisors from the U.S. general purpose force, ad hoc advisory elements such as military transition teams, and specifically trained advisory units such as the Army's security force assistance brigades (SFAB) have often returned from tours in Iraq and Afghanistan exasperated by their experiences. Many of these advisors discover near the end of their deployment that the security forces they worked with still lack proficiency.

> Successful conduct of SFA outside of the Middle East requires American advisors to be comfortable with narrower objectives, goals, and outcomes driven by the host nations themselves, along with a true adoption of the philosophy of mission command.

For those lucky enough to do a follow-on deployment with the partner forces they worked with on a previous tour, their frustration will grow into rage when they learn the unit has likely regressed. Such frustration is understandable, as the Iraqi army collapsed against a much smaller Islamic State fighting force in 2014, and in 2021, the Afghan National Army struggles to defend their checkpoints and convoys against the growing power and influence of the Taliban and the Islamic State Khorasan.[8] These disappointments are commonplace despite the typical senior officer engaging in the time-honored annual tradition of saying that this time their SFA efforts have finally made progress and taken root.[9] Worse, even when their efforts are successful, such as they were during the wide-area security and advise, assist, and enable missions with Kurdish militias in the Iraq-Syria region, progress was strategically upended and credibility undermined by a hasty 2019 withdrawal of U.S. forces.[10]

Despite these disappointments, SFA continues to be relied upon as an instrument of power, especially for demonstrating commitments to partner governments and forces that genuinely want to absorb security assistance to improve its military effectiveness. As outlined in the 2017 *National Security Strategy*, this takes on a particularly important focus as the Department of Defense attempts to pivot from COIN/CT to great-power competition.[11] Competition for influence against China, Iran, and Russia requires the United States to cultivate alliances and security partnerships around the world. In this context, SFA remains a viable means of maintaining the necessary level of engagement and influence while empowering allies and partners to take on local and regional security threats. Great-power competition occurs as a fight for influence in the "unquiet frontier," smaller periphery nations located along the seams between global powers.[12]

To effectively conduct SFA in these frontier regions, military advisors working in regions such as sub-Saharan Africa, Latin America, peripheral Europe, or the Indo-Pacific will need to be judicious about what lessons to take from years of experience in Iraq and Afghanistan. The U.S. military needs to closely evaluate the advising culture it has developed in these two conflicts and be prepared to evolve and adapt to new challenges. These challenges are especially important with the creation of SFABs, specifically designed to conduct the advise, support, liaise, and assess mission in the area of responsibility of each geographic combatant command.[13] Such a shift toward the advise, support, liaise, and assess paradigm is meant to move beyond the narrow scope of the train, advise, and assist mission in Afghanistan, describing a more expansive view of what advisors do, particularly in the area of security cooperation with partners who have near-peer military capabilities.

Successful conduct of SFA outside of the Middle East requires American advisors to be comfortable with narrower objectives, goals, and outcomes driven by the host nations themselves, along with a true adoption of the philosophy of mission command. At the same time, advisors need to be prepared to accept more risk as the conditions of a highly active insurgency as experienced in Afghanistan and Iraq are substantially different from the operating environment in other nations. This is especially important in the COVID-19 era, which has brought

Staff Sgt. Joshua Eckhardt, an infantryman and training advisor with 1st Battalion, 5th Security Force Assistance Brigade, trains on room-clearing procedures 26 August 2020 alongside a Royal Thai Army squad in Chachoengao, Thailand. (Photo courtesy of the Royal Thai Army)

substantial challenges to how SFA advisors develop and maintain relationships with ally and partner forces.

A New SFA Paradigm: Different Context Means Different Advising

Military advisors with experience in Iraq and Afghanistan may have become engrained with a "thinking inside the sandbox" mentality. Such experienced advisors need mental flexibility that allows them to be comfortable narrowing the scope of their mission and objectives when working with partner forces in other regions. This is due to a significant difference in the strategic context: the United States is not trying to simultaneously nation-build and fight an insurgency in the Indo-Pacific or Africa. Where the objectives in recent wars have been to build security forces capable of shouldering the bulk of daily fighting from the United States and its allies, the objectives in other regions of the world will likely be much more limited to the confines of demonstrating strategic resolve and helping a partner develop some modicum of deterrence capabilities in the era of great-power competition. This translates into competing for relationships and influence with host-nation officials and delivering on security assistance and cooperation promises.

During the conflicts in Iraq and Afghanistan, American military advisors faced the overwhelming task of building a conventional force nearly from the ground up while engaged in an ongoing fight against insurgent forces. Because the security forces of Iraq and Afghanistan were being rebuilt from scratch, American and allied advisors were responsible for every facet of training and equipping military forces as well as supporting them on the battlefield. Every stage

of training—from basic training for newly recruited soldiers to educating senior officers at command and staff colleges—had American or allied money and people behind it. When employed in combat, Iraqi and Afghan units frequently relied on support from American airpower, artillery, transport, and logistics. This showed especially in the 2014 setbacks the Iraqi army suffered as the U.S.-led buildup created a brittle force of combat units without the necessary supporting framework of logisticians, engineers, and intelligence personnel.[14] Corruption and graft among officers at all levels further hampered the equipping and sustainment of Iraqi units.[15] The Iraqi army had been trained and equipped to fight but not to support itself in doing so. When faced with the daunting task of building a new national security force in Afghanistan after 2001, U.S. and allied advisors found themselves with the time and resources to build only the "tooth" and not the "tail." The Afghan National Defense Security Forces (ANDSF) are no better in 2021, where logistics are the biggest impediment to maintaining forward presence and in being able to defend ANDSF checkpoints. No amount of SFA will compel ANDSF logistics personnel to take their jobs seriously enough to not pilfer the supplies.[16]

Given the fact that American advisors have been working to build host-nation security forces while these same forces are actively engaged in a fight for control of their countries, the instinct to attempt a full-scale overhaul is understandable. American advisors deploying to countries in the Indo-Pacific and Africa, however, will not face the task of building new security forces while in combat and must resist attempting the wholesale reconstruction of host-nation forces. This is not to say that either region is not without its specific challenges such as the militaries in Libya, Mali, Philippines, and Somalia; each have their own specific pathologies that make defense institution building difficult to codify in the long term.[17] However, it does mean accepting that the military structures and models in place are there for a reason, and as an advisor, it is necessary to maximize the potential within the given military system, whether for U.S. political purposes, lack of SFA resources, or host-nation capabilities.

While abilities among armed forces in Africa or the Indo-Pacific vary considerably, many current or likely U.S. partners at the edges of potential conflict already have well-established military institutions, typically referred to as tier one militaries. Rather than going into a country with the mindset that the host-nation armed forces must be overhauled, American advisors are far more likely to find themselves employed in assisting with marginal improvements and in finding ways of maximizing efficiencies, especially at the staff levels. This can be attributed not only to the existing capabilities in an established military but also to the fact that U.S. advisors will be there at the pleasure and invitation of a host nation that might request specific focus areas for their American guests. Within this context, an advising force must invest substantial time in learning the structure of the partner/ally security forces. This is because advising will primarily focus on process improvements, such as planning capabilities, but with marginal gains. Furthermore, U.S. advising objectives at the operational and strategic levels might be less focused on improving the capability of a host-nation military than they are on improving interoperability and security relationships with particular countries. For example, the Japan Self-Defense Force is a capable, professional, all-volunteer military force that does not require SFA. However, both the Japan Self-Defense Force and the United States could benefit from senior American advisors working with Japanese brigade and division staffs on more complex staff processes such as multi-domain targeting or operational design. Focusing on more sophisticated headquarters functions with upper-tier partners enables better integration and interoperability with these allies and partners in the event of an armed conflict against a common adversary. SFA missions such as this will require a substantial shift in the mindset of American advisors drawing on their firsthand experience of working with the Iraqis and Afghans. Advisors working with more capable allies and partners will need to be prepared to emphasize the "liaise" mission more heavily than the "advise" or "support" missions.

While American advisors and the services that they are drawn from are primarily focused on large-scale combat operations and combined arms maneuver, advisors also need to be prepared to adjust their mission and objectives for the needs of a partner force that may not be focused on conventional force-on-force combat. Many U.S. allies and partners around the world, such as the Republic of Korea or the Baltic states, are indeed

focused on defending against a conventional military threat. This might mean focusing on ways of increasing the deterrence capabilities of these partner forces. However, many U.S. partners in this and other regions have historically employed their militaries in other ways. Using their forces to deploy elsewhere in support of UN peacekeeping operations, some Indo-Pacific militaries are focused more heavily on humanitarian assistance and disaster relief, a state of affairs that will likely continue in a region increasingly threatened by global climate change. In other instances, the Philippines, Sri Lanka, and Thailand face internal security threats, employing their militaries for COIN/CT operations and law enforcement roles.

More importantly, U.S. advisors must be cognizant of the history, tradition, and culture surrounding the institutions and employment of host-nation armed forces and tread carefully in countries where the military has previously been a tool of repression for authoritarian regimes. The varying roles and responsibilities of military forces in different partner nations require deliberate engagement at the political and strategic levels prior to employing advisors to signal that the U.S. military is present for truly noble purposes. In some cases, this will require American military advisors to eschew combined arms maneuver in favor of the logistical and medical training so integral to humanitarian and disaster relief efforts. Moreover, advisors will need to become more comfortable with host-nation forces that focus on their own objectives rather than American national security interests. In this complicated sociopolitical milieu, American interests can be indirectly achieved with partnerships via newfound relations that establish long-term dialogue and influence.

In recent conflicts, eagerness to hand off the war to a host-nation security force often resulted in American advisors pushing their Iraqi or Afghan partner forces toward American-designated objectives. Advisors often struggled to align host-nation force objectives with their own, as factors such as corruption, competing tribal or personal loyalties, or a simple lack of capability could stymie a partner force's ability to achieve an objective. However, in an environment where "handing off the fight" to the host nation is not the mission of a U.S. advisory force, advisors must be more comfortable with enabling the host nation to pursue their own objectives. This is because great-power competition requires empowering allies to take ownership of their domestic and regional security considerations in support of a more robust regional security architecture; the American advisor presence signals a strategic willingness to support and enable such actions. Organizing joint training programs and exercises in this framework can solidify their willingness to take ownership of defense institution building on their own terms so that it becomes self-sufficient once advisors depart.

"One Captain, One Team, One Country": Mission Command and Risk Acceptance

To conduct effective SFA in these frontier states, the U.S. military needs to fully embrace the principles of mission command at the strategic level to enable advisors operating at the tactical levels. This enables them to improvise and adapt to a dynamic and ambiguous context where Chinese and Russian officials may be creating a hypercompetitive environment to provide SFA. Commanders who properly exercise mission command philosophy in this perplexing environment give their subordinate leaders wide latitude to accomplish the commander's intent as the subordinate sees fit, providing the subordinate leader the flexibility necessary to adapt to the situation on the ground and seize fleeting opportunities.[18] Decentralized COIN operations in Iraq and Afghanistan, in which companies and platoons conducted independent operations out of small outposts, often represented tactical application of mission command. However, the overall strategy and mission of defeating insurgencies while building host-nation security forces capable of independently securing their own countries remained uniform across those regions. The essential job of an infantry company commander in Mahmudiya District, Iraq, was little different than that of a company commander two thousand miles away in Dara-I-Pech District, Afghanistan, not to mention both had to maintain constant vigilance against insider attacks.[19] However, those same two captains leading advisory teams in Singapore and Thailand might have two fundamentally different missions depending on a variety of factors.

The differences might include the form and shape of security relationships of each country with the United States. This can be further broken down into what the host nation has asked American advisors

to do and what mandate advisors have in providing different types of aid and training (i.e., lethal versus nonlethal assistance). Matters can be further complicated by virtue of host-nation relationships with competitors (e.g., China, Russia); internal conflicts and security challenges; the professional and political foundations of each country's security forces; and the unique history, culture, and politics of each state. The SFAB employment model of "one team, operating semi-autonomously in support of a country led by a single officer" requires comfort with the philosophy of mission command scaled up to the strategic level.[20] It means giving freedom of movement and decision-making space to tactical-level advisors to make strategic-level decisions; otherwise, advisors might find themselves engaging in ad hoc arrangements that undermine the purpose of their mission.[21]

> The qualities that make an officer or noncommissioned officer a good leader of American troops are the same ones that make a good advisor to foreign troops.

Successful mission command, according to Army Doctrine Publication 6-0, *Mission Command: Command and Control of Army Forces*, relies on seven elements: competence, mutual trust, shared understanding, commander's intent, mission orders, disciplined initiative, and risk acceptance.[22] Most of these elements require particular considerations in the context of the advisory mission. To ensure competence and set the groundwork for mutual trust, advisors need to be drawn from the top-performing leaders of the military at all levels, from junior noncommissioned officers (NCOs) to senior field grade officers. Rather than creating an advisor functional area, the most tactically proficient personnel with demonstrated leadership ability need to rotate between advisory units and the rest of the operating force. The qualities that make an officer or NCO a good leader of American troops are the same ones that make a good advisor to foreign troops.

Ad hoc advisory efforts in Iraq and Afghanistan (e.g., military transition teams) were sometimes treated as economy of force missions, which means those roles were filled at times by the donor unit's less capable leaders. However, the Army is currently on the right track to improve its security assistance endeavor, manning its SFABs with officers and NCOs who have completed key leadership assignments and advertising these units as a broadening assignment for high performers. It must persist in this effort to recruit top talent by maintaining SFABs as a coveted assignment for high performers and prevent it from becoming a dumping ground for the mediocre. A similar effort is underway in the British military with the creation of the specialised infantry group, which mirrors many aspects of the American SFAB approach, attracting their most talented officers and NCOs to advise foreign forces. The emergence of the specialised infantry group presents another avenue for SFABs to excel at advising by cooperating with a close ally on codifying best practices and coordinating advisor missions to maximize influence and partnerships that can counter China and Russia.

Senior commanders of advisor units should be comfortable with a degradation in shared understanding as advising in-country becomes a highly fluid and dynamic experience. In many cases, immediate decisions and actions might be required by forward deployed leaders that cannot wait for the lengthy routing of staff summary sheets and memorandums for record. As described in numerous interviews with foreign military personnel, waiting on approval from a faraway chain of command is precisely what makes American advisors look weak to foreign military leaders.[23]

With advisor teams spread out to multiple countries across a geographic command, battalion- and brigade-level commanders will be unable to develop the deep situational understanding necessary to make decisions on the minute details of a mission. They must trust the judgment of their subordinate officers and NCOs who are immersed in the operational

Sgt. Christopher Huffman, a combat medic specialist advisor assigned to 1st Security Force Assistance Brigade, and Sgt. Paul Hatch, a wheeled vehicle mechanic assigned to 1st Security Force Assistance Brigade (role-playing an international forces soldier), move a simulated casualty to safety 14 August 2019 during the Advisor Forge training exercise at Fort Benning, Georgia. (Photo by Pfc. Daniel J. Alkana, U.S. Army)

environment daily. Furthermore, commander's intent issued to subordinate leaders will need to account for a broader variety of stakeholders. A captain charged with executing a colonel's intent must also balance that against the goals and objectives of the U.S. ambassador and interagency country team. Senior commanders must issue intent that is broad enough to be tailored to the integrated country strategy that each ambassador is charged with carrying out. Taken a step further, leaders on the ground could even be issued commander's intent that specifically authorizes them to reasonably deviate from that intent in support of the country team's objectives (i.e., exercise disciplined initiative). This might even include giving financial authority and discretion to a certain dollar amount and enabling the authority of advisor decisions to signal conditionality to partner forces when they cross "red-lines." Finally, applying mission command to successful SFA missions will require senior commanders to reexamine and adjust their acceptance of prudent risk.

Advisors engaging in SFA missions in other regions of the world outside of Iraq and Afghanistan will often need to be comfortable with lower levels of force protection while working with host-nation counterparts. One of the most painful memories of advising in Iraq and Afghanistan has been the problem of insider attacks, where trained host-nation soldiers have turned their weapons on their American advisors in "green on blue" attacks.[24] While U.S. military tactics and techniques have evolved to partially mitigate the threat of insider attack, such as the use of "guardian angels" to provide overwatch protection to advisors, these tragedies loom understandably large in the minds of military leaders up and down the chain of command. Engagements between American advisors and host-nation militaries are accompanied by robust security details, and photographs of Afghan officers with their American advisors nearly always depict the

American wearing body armor and helmet, while the Afghan counterpart wears none.

While every SFA mission begins with a detailed analysis of the local threat and resources available to determine the protective posture required, there may be a temptation among senior advisors to revert to what they became accustomed to during multiple tours in Iraq and Afghanistan. Being mentally prepared to accept a certain level of risk with force protection applies across the most mundane details of a military advisors' work—where they live, how they travel, what they wear, if and how they are armed, etc. A force protection posture in the Indo-Pacific or sub-Saharan Africa that resembles what military advisors have adopted in Iraq and Afghanistan will only serve to alienate partner forces in much safer countries. This also translates into advisors getting cellphones that operate in any given country, with WhatsApp installed, so that they can stay in constant communication with partner forces and provide real-time updates to their advisor team and leadership. While some may see this as a security violation, this is the harsh reality of any advising mission, and partner forces will want to develop a relationship with their advisor through text messages and group threads. Partaking in such activities will signal an advisor's willingness to develop interpersonal relationships with ally and partner forces for the greater good of the mission.

Conclusion

As the United States continues to emphasize great-power competition, its Armed Forces will undertake an increasing number of military advisory missions as the Nation vies to maintain global influence.[25] The future of successful SFA engagements outside of the Middle Eastern sandbox is increasingly dependent on a nimble advising force that can tailor mission sets in alignment with the U.S. national security interests of empowering partners and allies. This requires breaking free of the mental traps of operating in failed states where state-building collided with fighting an insurgency. It means reemphasizing the importance of working with already capable military partners that will have their own institutionalized way of conducting affairs.

American advisors will need to become comfortable assisting capable partners with making marginal improvements, especially in less glamorous areas such as logistics, maintenance, and record-keeping details (e.g., administrative work). They will need to accept the goals and outcomes of the host nation to a far greater degree than they might have during a massive COIN campaign. Additionally, the senior commanders of American advisor units will need to fully embrace mission command to allow junior advisors the flexibility to modify the execution of their mission to better integrate with the U.S. country team's objectives.

Finally, the model of deploying small advisor teams across a geographically broad area of operations will require no small amount of risk acceptance by the senior leadership of the U.S. military. Advisors accustomed to an entourage of armored vehicles and infantry squads from their experience in previous operations will ultimately fail in their new mission if they are unable to accept prudent risk to build genuine trust with their partner force. Without authentic trust at the leading edge between advisor and partner, any security force assistance mission, and ultimately, the strategic partnership within which it occurs, has limited chances of success. Advisors and their senior leaders need to get comfortable with the uncomfortable, such as conducting SFA through WhatsApp, and start thinking outside of the sandbox because strategic competitors are unrestrained in their desire to box out American influence. ■

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Mobilizing in the Twenty-First Century

Col. Chris H. Bachmann, U.S. Army

The U.S. approach to mobilization in the twenty-first century must leverage the critical factors that allowed the historic material output of the 1940s with the technological reality of future warfare against great-power competitors. While the United States has effectively demonstrated its surge capacity in recent years during operations in Afghanistan and Iraq, there are many significant challenges to mobilization

when facing a peer or near-peer competitor in large-scale combat operations. Ultimately, the United States only needs to mobilize better than its enemies.

Surge Capacity

> The joint publications do not define the term "surge." [However,] we can draw on historical examples in order to illustrate its meaning. The United States surged its military forces in 2007 for Operation Iraqi Freedom and 2009 for operations in Afghanistan. The face of these surges was the increase of American forces—i.e., personnel and their organic unit equipment. However, the unseen or forgotten piece of these surges was the necessity for sustainment resources provided by the industrial base. The primary provider of sustainment resources is the United States' organic industrial base composed of the services' depots and arsenals.[1]

In order to support the Iraq and Afghanistan surges, the depots and arsenals increased production and direct labor hours as much as three times more than their pre-2003 levels.[2] Depots and arsenals normally do not operate at maximum capacity in order to provide surge capabilities. As outlined in Department of Defense Publication 4151.18-H, *Depot Maintenance Capacity and Utilization Measurement Handbook*, reserve capacity "is retained to support the projected requirements of the Joint Chiefs of Staff contingency scenarios; but is not utilized under normal conditions."[3] While successful in sustaining the warfighters during overlapping surge operations in Iraq and Afghanistan, these operations significantly stressed the current U.S. industrial base capacity. Extending this concern further, the current industrial base is limited in its ability to support the surge of current U.S. forces. For example, Mark Cancian from the Center for Strategic and International Studies states that existing tank production facilities can only replace two days of battle losses per month.[4] Combining Iraq and Afghanistan operations and using them as a basis of comparison, the current U.S. industrial base appears capable of a limited-duration surge against a peer adversary. However, as Cancian's statement demonstrates, the United States is currently incapable of a prolonged conflict against a peer adversary. Therefore, a protracted conflict against a peer adversary would require the United States to mobilize in order to ensure victory.

U.S. Mobilization Capabilities

The United States maintains sufficient resources for a protracted surge against a regional adversary or a limited duration surge against a peer adversary, but it would have to mobilize for any conflict beyond these scenarios. Consequently, it is imperative to understand the United States' current mobilization capabilities. The previous Iraq and Afghanistan surges demonstrated the United States' limited surge capacity; therefore, a mobilization analysis must focus on capability rather than capacity. First, it is important to understand mobilization. Joint Publication 4-05, *Joint Mobilization Planning*, defines mobilization as "the process of assembling and organizing national resources to support national objectives in time of war or other emergencies."[5] World War II provides the best illustration of U.S. mobilization and the effort and resources necessary to accomplish mobilization. World War II teaches that the United States' prodigious level of mobilization depended on free enterprise. As Arthur Herman highlights numerous times in his book *Freedom's Forge*, mobilization must be decentralized so free enterprise can dominate.[6] Henry L. Stimson, the secretary of war during World War II, and Bill Knudsen, the architect for U.S. mobilization, held a similar belief. Herman encapsulates their belief when he writes, "The only way for America to prepare for war was through American private enterprise."[7] Private enterprise must lead mobilization and will depend on four critical factors: labor, material, manufacturing, and transportation. Labor—and more importantly, skilled labor—is critical in order to mobilize. According to U.S. Census Bureau data, the current population is nearly two and one-half times larger now than it was during World War II.[8] Additionally, during World War II, there was a significant use of labor that was

Previous page: Illustrative example of 3D printing being used in military operations at the point of need. (Illustration from *3D Opportunity in the Department of Defense: Additive Manufacturing Fires Up*, Deloitte University Press, 2014)

not initially skilled to accomplish the jobs that needed to be performed. Herman expertly documents that as early as 1941, women, who in most instances were not initially skilled in the areas they worked, were making significant contributions to the production of war items.[9] While a robust debate is possible, labor will not be examined herein as a critical constraint to U.S. mobilization. Rather, the focus will be on material, manufacturing, and transportation.

Material. Mobilizing requires belligerents to make items of war in large quantities in order to conduct war and replace those items as they are destroyed. These war items depend on materials. For example, materials of significant importance that serve as barriers to U.S. mobilization are aluminum, steel, and rare earth metals. These materials are ubiquitous across weapons systems. "Wrought aluminum plate, and specifically cold-rolled plate, is essential for armoring U.S. ground combat vehicles, constructing Navy ships, and building military aircraft."[10] Aluminum production in the United States has significantly decreased. The United States accounted for 16 percent of global aluminum in 1999 and only 4 percent in 2013.[11] During this same period, China's aluminum production increased from 11 percent to 47 percent.[12] Including the allies and partners of Canada, Western Europe, and Australia, aluminum production is still significantly less than China's aluminum production. In 2018, China produced an estimated 36,485 metric tons of aluminum compared to the 9,424 metric tons produced by the United States and its allies and partners.[13] This is a significant barrier to the United States' ability to mobilize.

Like aluminum, steel is also necessary for most weapon systems. U.S. production of steel has encountered a similar fate as aluminum. From 2010 to 2018, U.S. steel production decreased from 5.6 percent to 4.8 percent of the global total.[14] Similarly, if the European Union, North American, and Australian total steel production is combined, it only accounts for 16 percent of global production.[15] Conversely, China's production of global steel during this period increased from 44.5 percent to 51 percent.[16] While the United States' drop in steel production is not as drastic as aluminum, China's dominance in global steel production is comparable to its aluminum production supremacy. Equally concerning is the continued pressure China places on the global steel industry. China uses dumping, illegal export subsidies, and overproduction in order to decrease prices and drive competitors out of business.[17] As a result, steel production serves as a second major barrier to the United States' ability to mobilize.

Rare earth metals serve as a third barrier to the United States' ability to mobilize. "Rare earths are critical elements used across many of the major weapons systems the U.S. relies on for national security, including lasers, radar, sonar, night vision systems, missile guidance, jet engines, and even alloys for armored vehicles."[18] Rare earth metals are not required in large quantities, but their limited supply and difficulty to mine and process present a similar challenge as aluminum and steel for mobilization. In the same way China dominates the global aluminum and steel markets, it also dominates the global production of rare earth metals. The 2018 United States Geological Survey data show China's mines produced 120,000 metric tons, or 86 percent, of global rare earth metals, with Australia and the United States following with 20,000 and 15,000 metric tons, respectively.[19] Similar to aluminum and steel, China has used its dominance in rare earth metals to affect global markets. Moreover, it has used its rare earth metals dominance for reprisals. In 2010, China cut off rare earth metal supply to Japan over a territorial dispute.[20] Rare earth metals along with aluminum and steel are critical materials necessary for mobilization. However,

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Concept art showing a notional swarm of unmanned aerial vehicles. Using 3D printing technology, deadly swarms could be created quickly at significantly lower cost. (Illustration courtesy of the Air Force Research Laboratory)

like labor, materials are only inputs to the manufacturing processes required for United States' mobilization.

Manufacturing. Like material, manufacturing is critical to mobilization. If the United States dominated the global markets in aluminum, steel, and rare earth metals like China, but did not have the manufacturing capability necessary to process those materials into war items, it would still be unable to mobilize. In 2010, China surpassed the United States as the largest manufacturing country in the world.[21] There are a variety of causes for the U.S. decline as the world's leader in manufacturing. It is partly a natural byproduct of globalization but also the predatory practices of countries like China have proven damaging to U.S. manufacturing.[22] As a result, "some manufacturing capabilities can only be procured from foreign suppliers, many of which are not domiciled in allied and partner nations."[23] This decline in manufacturing is a major concern for strategic and military planners when they recall the prodigious manufacturing output of World War II. However, while it should be a matter of concern, it is often forgotten that the United States was completely ill prepared in 1939 to produce at the levels accomplished at the peak of production in 1944. Herman writes, "Everywhere Knudsen looked, he saw an American industrial base woefully unprepared for the scale of demand that would be placed on it."[24]

With this in mind, the United States is not in uncharted waters. Nevertheless, the manufacturing marvel of World War II required time. Time will not be a luxury available in major combat operations against a peer adversary where combat power is consumed at extraordinary rates.[25] "Conversely, the U.S. cannot afford to maintain a war-like footing in perpetuity."[26] Therefore, the United States will have to rely on innovation and what both Henry L. Stimson and Bill Knudsen understood: free enterprise.

Transportation. Materials and manufacturing serve as significant mobilization barriers for the United States, but equally constraining is transportation. Major combat operations requiring mobilization will require a herculean transportation effort. The 1991 Desert Storm buildup and sustainment is the most recent example the United States can draw from for massive transportation requirements. By the end of the war, the United States had moved 459 shiploads totaling 945,000 pieces of unit equipment along with 9.2 million tons of cargo to sustain the war effort.[27]

While these numbers seem significant, they are exponentially less than the numbers achieved mobilizing for World War II. Moreover, U.S. organic transportation assets were woefully unable to accomplish the tasks. Mobilization and sustainment depended on private and foreign shipping assets, along with significant foreign line-haul trucking and bus support in theater.[28]

adversary. Developing technologies can help reduce production times. These technologies cover a wide array of topics such as artificial intelligence, quantum computing, autonomous vehicles, advanced manufacturing, and others. The Nation must invest now in the technologies with the potential to diminish, if not solve the three critical barriers outlined above. Advanced

> Time will not be a luxury available in major combat operations against a peer adversary where combat power is consumed at extraordinary rates.

Desert Storm was a war against a far inferior adversary where transportation assets operated in uncontested waters and land. Conversely, scenarios requiring the United States to mobilize will require drastically more transportation assets than those that were significantly strained during Desert Storm. Transportation, in addition to material and manufacturing, serves as a critical barrier preventing the United States from mobilizing, and like manufacturing, will require innovation and free enterprise to overcome.

Mitigation and Implications

The United States can surge against a non-peer adversary for a protracted duration but only for a limited duration against a peer competitor. Conversely, the United States is incapable of mobilizing, and it is focused on three major challenges currently preventing the Nation from successfully mobilizing. It does not produce sufficient war materials, specifically aluminum, steel, and rare earth metals. Also, it lacks the manufacturing necessary to turn materials into war items, and it depends on a peer competitor for its supply of rare earth metals. However, there are ways the United States can mitigate these barriers to mobilization.

As Stimson and Knudsen understood, the most important component that led to a successful mobilization during World War II was the Nation's free enterprise system. Assuming the Nation embraces this powerful lesson, free enterprise will prevail again. However, ramping up free enterprise for wartime production takes time, and as previously stated, time is not a luxury the United States may have against a peer

manufacturing, specifically additive manufacturing, commonly called 3D printing, has this potential. 3D printing acts like a home ink printer. Instead of a single layer of ink, it adds layer upon layer of a material to produce a three-dimensional item without requiring tools or molds.[29] Additive manufacturing technologies have widespread applications. "Some have gone so far as to suggest that their advent signals that we are on the cusp of the next industrial revolution, with technological, social, environmental, and economic implications stemming from these innovations."[30] Additive manufacturing has the potential to revolutionize combat sustainment by decreasing the strain on the industrial base during a surge and enabling weapon production during mobilization. Once combat operations begin, sustaining the force becomes critical and challenging. "Techniques like 3D printing could allow soldiers to replace parts for systems and equipment almost at the point of need."[31] As a result, it would significantly reduce supply and logistic chains, along with eliminating the need for large logistic bases to store and secure the parts.[32] Furthermore, "advanced manufacturing can also be used to address obsolete parts, hard-to-get parts, and diminishing sources of supply."[33] These are a few of the benefits advance manufacturing technologies like 3D printing can provide the Nation during a surge.

In the same way that it can transform how the Nation surges, advance manufacturing technologies can potentially solve many of the barriers to mobilization. As noted, availability of war materials like aluminum, steel, and rare earth metals is scarce. 3D printing can significantly mitigate the United States' inadequate

availability of these materials because "it is logically possible to restructure the manufacturing footprint into distributed 3D printing facilities that could feed off local materials."[34] Additionally, additive manufacturing (AM) offers overwhelming flexibility over traditional manufacturing (TM).

> Whereas TM often requires a high utilization rate for efficient production, AM can be easily shut down temporarily, or capacity can be redirected to the production of different types of goods. As a result, whereas traditional plants that produce for the mass market are much larger than those operating in the same industry producing customized products, AM plants can be very small without a loss of efficiency.[35]

The ability to transition from large, costly industrial facilities to small, decentralized operations without losing production capacity is the critical benefit 3D printing technologies provide. The reduction in facility costs and the flexibility to change product lines provides opportunity for a wider segment of the economy to enter the market.[36] Equally important is the ability for 3D printing to mass produce large items. Additionally, "AM technology is evolving rapidly and new materials and processes that expand the scope of what can be printed are revealed daily: large area printers that can print large products such as airplane wings and houses, printers that use multiple materials including conducting ones, rapid printing, and much more."[37] The production potential of additive manufacturing is nearly limitless, thereby offering the United States a path to overcoming its material and manufacturing constraints.

Additive manufacturing can also play a major role in mitigating transportation challenges during mobilization. During World War II, the United States produced nearly 52 million tons of merchant shipping in order to transport the prodigious manufactured war resources to the European and Pacific battlefields.[38] Because 3D printing allows production at the point of need, it can significantly reduce transportation requirements. This is critical to transportation requirements both in the manufacturing process and delivery to the end user. By employing it, "transportation by sea, land, and air will be drastically reduced."[39] While materials, manufacturing, and transportation are only three of many barriers to the Nation mobilizing, they are the critical drivers for success. Consequently, if the United States invests now and continues to innovate in these technologies, during a national emergency requiring mobilization, it is possible that the Nation's industry could more quickly convert to a wartime footing.

The implications of not investing in additive manufacturing are far-reaching. This technology will revolutionize both warfare and the global economy. It has the potential to reverse globalization and the effects it has on the Nation's manufacturing sector. Because it can "drastically simplify the supply chain" and reduce the need for unskilled labor, U.S. corporations will no longer need to manufacture offshore.[40] Also, since additive manufacturing reduces the barriers to entry, it will be more ubiquitous across both small and large businesses. The idea that markets will be more competitive because the economy of scale that large businesses enjoy no longer applies due to changeover costs and a greatly diminished price per unit.[41] However, it does not displace large companies because they can choose to remain global producers. For example, UPS "is in the process of

Above: The Shooting Star quadcopter drone designed for light shows by Intel. **Next page:** The Intel team produces a 1,200-drone light show featuring Intel Shooting Star drones 9 February 2018 for the PyeongChang 2018 Olympic Winter Games opening ceremony in Pyeongchang, South Korea. The drone show demonstrated the power of unmanned aerial systems working in a swarm. (Photos courtesy of Intel)

establishing 3D printing factories around the world that will produce just about anything for other companies."[42] These factors are critically important as they reduce the manufacturing shortfalls and production speed necessary to successfully mobilize against a peer adversary.

The defense sector is beginning to leverage this nascent technology and to better understand its potential to revolutionize warfare. The Army's Futures Command is starting to incorporate capability requirements predicated on advance manufacturing technology.[43] Additionally, the Army has fielded 3D printers in Afghanistan and Kuwait to support operations in those areas.[44] Similarly, "the Chief of Naval Operations' Rapid Innovation Cell has permanently installed one printer on the USS *Essex* and has plans to install 3D printers on two additional ships."[45] More importantly, additive manufacturing coupled with artificial intelligence has the potential to revolutionize how the United States prosecutes war. The military is experimenting with "rapidly producing customized drones 'outfitted for specialized missions.'"[46] Additive manufacturing easily allows the mass production of small, unmanned vehicles that use limited materials and resources. Augmenting it with artificial intelligence presents a potential revolution in military affairs. Swarms of unmanned drones can serve any number of battlefield functions. In so doing, because they are easy to produce, battlefield losses become significantly less of a concern to planners. Consequently, they can replace the extraordinarily expensive, highly technical, and time-intensive platforms that require significant material and manufacturing resources.

While the benefits of additive manufacturing coupled with artificial intelligence can change the way the United States wages war, they are also readily available to U.S. adversaries, both peer and non-peer. In 2015, students at the Naval Postgraduate School demonstrated the ability to control fifty unmanned systems with a single operator.[47] However, more recently, China set a record with over one thousand drones operating and interacting autonomously.[48] Thus, it is not irrational to postulate that the Nation and its peer adversaries could quickly find themselves in a Cold War-era military posture of mutually assured destruction, albeit a nonnuclear destruction. Similarly, this technology allows non-peer adversaries more military parity. Underdeveloped countries and terrorist

organizations can use additive manufacturing to leapfrog traditional, resource-intensive manufacturing processes.[49] These factors necessitate the United States' investment in additive manufacturing. The consequences of not investing will allow U.S. adversaries to gain a significant military advantage through technology overmatch that will put U.S. national security in jeopardy.

Conclusion

There is a difference between a surge and mobilization, and the United States faces barriers to successfully mobilize. While a surge places considerable strain on the Nation's military industrial base, the base currently maintains enough capacity to support a protracted surge against a non-peer competitor and a limited surge against a peer. Conversely, the United States is unprepared for the demands that mobilization would place on the country. It suffers from considerable shortfalls in the materials—specifically aluminum, steel, and rare earth metals—manufacturing, and transportation capabilities. Advanced manufacturing could be the keystone that bridges these gaps. As the United States learned during World War II, free enterprise is the bedrock on which mass mobilization is successful. Free enterprise will always support technologies that enhance the bottom line, but the United States must invigorate and invest in those technologies that have significant national security potential such as additive manufacturing. The Nation's adversaries are leveraging and will continue to leverage this technology to gain an asymmetric advantage; however, if the United States fails to lead in this technology, the country's peer competitors are more likely to achieve dominance. ■

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The Red Ball Express

Past Lessons for Future Wars

Christopher Carey, PhD

If the adage that militaries prepare for the next war by studying the last war holds true, the U.S. Army should tread carefully in its preparation for future sustainment operations. After all, the Army has not sustained a large-scale combat operation (LSCO) since Operation Iraqi Freedom in the early 2000s, and that was neither against a near-peer threat nor in a denied theater. Instead of focusing on the last fight, the more pertinent historical example for sustainers comes from the European theater of operations (ETO) during the Second World War. In preparation for future operations, the Army needs to examine the valuable sustainment lessons of the Red Ball Express. At each phase of its development, the Red Ball Express revealed the importance of enablers, the value of improvisation, and the challenges inherent in relying on existing infrastructure during a LSCO.

From Operation Bolero to the Red Ball Express

Unlike other operations during World War II, Allied planners were not rushed to prepare for the invasion of occupied France. Operation Overlord, the invasion of Normandy in June 1944, began two years earlier with the buildup of U.S. troops and supplies in the United Kingdom. Known as Operation Bolero, Allied leaders hoped to amass more than a million soldiers in 1942 capable of invading the European continent by 1943.[1] In January 1942, American military cargo started flowing into the United Kingdom by sea and air. Shipments increased in the second half of 1943, and by early 1944, the United States was sending more than a million tons of supplies per month to the British Isles in preparation for a cross-channel invasion.

In preparation for the sustainment effort ahead, officers of the two-year-old Transportation Corps planned a major exercise to work through the challenges associated with moving massive amounts of supply from English ports to French depots.[2] The exercise sought to simulate the terminal and distribution operations planned for France across a 480-kilometer stretch of the United Kingdom.[3] Scheduled to last several weeks, the exercise was ultimately scrapped because of a lack of personnel, equipment, and time. The cancellation meant sustainment units would not get a final large-scale rehearsal before arriving on French soil.

Following the successful D-Day invasion in early June, sustainment operations were soon slowed by poor weather conditions and determined German defenders. Just weeks after landing, severe storms hit the Normandy coast, wrecking one of the Allied mulberries and forcing a four-day closure of sections of the beach.[4] Capturing the coastal city of Cherbourg was an important Allied objective after D-Day, but entrenched German forces held for over three weeks and destroyed most of the port infrastructure before surrendering. With severe damage to Cherbourg's valuable harbor, sustainers had little option but to send supplies over the French beaches.

Soldiers from the 4185th Quartermaster Service Company (*left to right*), Pvt. Harold Hendricks, Staff Sgt. Carl Haines, Sgt. Theodore Cutright, Pvt. Lawrence Buckhalter, Pfc. Horace Deahl, and Pvt. David N. Hatcher, load trucks with rations bound for frontline troops September 1944 in Liege, Belgium. (Photo courtesy of the U.S. Army)

After establishing a lodgment in France, Allied forces initiated a series of offensive operations in July designed to break out of Normandy. Operation Goodwood, a British and Canadian thrust, contained Nazi defenders and allowed U.S. units as part of Operation Cobra to break through German lines. In early August, German forces counterattacked near Mortain, France. Adolf Hitler's gamble failed and resulted in the German Seventh Army's entrapment near Falaise. As enemy positions across France collapsed, Allied forces rushed to exploit the disintegrating German lines.

The short lines of communication from the Normandy coast to the front line had been manageable at first, but the offensive success of the Allied breakout created immediate sustainment challenges. As lines stretched, logistics suffered from poor movement control and a lack of storage depots for the rapidly accumulating supplies arriving en masse.[5] Without these, the distribution of supplies became haphazard. Not designed to handle heavy equipment and military vehicles, the French road network was quickly overwhelmed by Allied traffic. Despite their preparation, U.S. Army planners failed to properly account for the numerous enablers such as military police (MP), engineers, and movement control teams, all of which were required to sustain the blistering operational tempo in France.[6] If mission-essential supplies failed to reach the front, the Allied offensive across France would be forced to culminate while German defenders were still retreating.

Creating the Red Ball Express

The breakout from Normandy in late July and early August 1944 exceeded Allied expectations. The offensive was so successful that Allied Army groups were over two hundred days ahead of what planners had estimated.[7] This success strained sustainment operations, which had to deliver food, ammunition, and fuel along an

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An American truck convoy halts at a makeshift service station 7 September 1944 for servicing and a change of drivers near Saint Denis, France. (Photo courtesy of the U.S. Army)

ever-lengthening supply line. Just keeping troops fed became a full-time effort. For instance, a single division in 1944 required thirty-five tons of field rations per day.[8] Ammunition and fuel were also critical to sustaining the breakout. On 5 August, seventy-two thousand tons of ammunition were ordered south of the Normandy beaches.[9] A week later, the petroleum, oil, and lubricants (POL) required by Third Army doubled from three hundred thousand gallons to six hundred thousand gallons per day.[10]

During the First World War, when armies had limited motorized capabilities, railroads were the primary mode for transporting supplies on the European continent. But American forces could not rely on trains in 1944 because Allied air forces had systematically targeted bridges and rail networks to prevent German reinforcements from reaching Normandy on D-Day. At the time, large-scale aerial supply was considered impractical, although crucial supplies like food and POL were airlifted throughout the European campaign with varying degrees of success.[11] Supply via barge was another option, but this was only possible in secured areas of operation with waterways and required the use of heavy machinery such as cranes.

In preparation for their forthcoming offensives, the U.S. First Army and Third Army both sought supply depots near La Loupe, a town southwest of Paris.[12] In late August, the communications zone logistics officer requested one hundred thousand tons of supplies be transported from Normandy to the triangular area between the French towns of Chartres, La Loupe, and Dreux by 1 September.[13] There was optimism that a rail line from Laval to Paris could be repaired and used for this massive undertaking.[14] However, understaffed engineer units had not been given enough time to restore the track, so trains were only capable of hauling eighteen thousand to twenty-five thousand tons under that timeline.[15] The inability to use rail lines meant logistics planners had to find

another way to move the remaining seventy-five thousand to eighty-two thousand tons of equipment and supplies.[16]

With limited time and few options, planners turned to motor transportation. The Motor Transport Division operated a mixture of 2.5-ton cargo trucks, 5-ton cargo trucks, and 10-ton semitrailers.[17] These were primarily made by General Motors Company, Dodge, and Ford.[18] Logisticians had been advocating for the design of a system around semitrailers as their heavy load capacity and the ease by which trailers could be transferred between tractors made them ideal for operations in the ETO. Officers estimated maximum efficiency could be achieved with a ratio of three semitrailers per one tractor-trailer.[19] However, mass production and deployment of the larger trailers was not possible until later in the war, so the 2.5-ton cargo truck, known as the "deuce and a half," became the workhorse of the Red Ball Express. With supply needs increasing at the front, Red Ball operations commenced on 25 August 1944.

> "Unlike combat units, rear echelon units were often disproportionately African American, as exemplified by the Motor Transport Service, which was composed of approximately 73 percent African American soldiers in the European theater of operations."

Life on the Red Ball Express

At the beginning of World War II, the Army, like much of the United States, was racially segregated. Targeted recruitment of Black Americans increased as the nation encountered the heavy demands of a truly global war. By the summer of 1944, nearly seven hundred thousand Black soldiers were serving in the U.S. Army.[20] Yet, Black soldiers were generally relegated to noncombat units regardless of their desire to serve at the front. For example, out of the 29,714 soldiers who landed at Omaha Beach on D-Day, only five hundred were African American.[21] Unlike combat units, rear echelon units were often disproportionately African American, as exemplified by the Motor Transport Service, which was composed of approximately 73 percent African American soldiers in the ETO.[22] These soldiers would fill the ranks of the Red Ball Express.

The name "Red Ball Express" was not a new term in the transportation world, as it originated from railroad slang for "express freight."[23] In France in 1944, the Army appropriated a red ball classification symbol that was placed on cargo, vehicles, road signs, and uniform patches. Since D-Day, logistic units and their enablers had been plagued by a shortage of soldiers because the deployment of combat troops took precedence over service troops.[24] Desperate to fill billets for two-person driving teams, the Army sought volunteers from combat and noncombat units already on French soil. Experience behind the wheel was preferred but not deemed essential.

Even before arriving in France, Allied planners recognized that many French roads were not wide enough to support two-way traffic when using large military vehicles. To overcome this problem, Red Ball planners created a closed loop system of one-way travel. Officially, the Red Ball Express route started at Saint-Lô, but drivers were often forced to pick up materials as far north as the harbor at Cherbourg. When Red Ball operations began, convoys delivered supplies to U.S. Army depots located between the French cities of Dreux, Chartres, and La Loupe. A convoy support center was established near the town of Alencon because it was the midpoint on the route, and the area could be accessed by both outbound and inbound traffic.[25] At Alencon, drivers could refuel, rest, and conduct unscheduled maintenance.

The Red Ball Express route was a one-way highway that was only open to its drivers. To prevent confusion, all vehicles on the route had to be clearly marked with Red Ball discs on the front and rear.[26] For efficiency, convoys were organized with a minimum of twenty vehicles and separated at fifty-five meter intervals unless operating in congested areas. Although drivers rarely adhered to

the rule, the speed limit was set at twenty-five miles per hour.[27] Convoy commanders were officers and were generally positioned in the trail, while a noncommissioned officer led the convoy from the head.[28]

Convoys on the Red Ball Express were not permitted to stop except for a ten-minute break that occurred ten minutes before each hour.[29] Driving teams were expected to be back on the road at the hour mark. After six hours of consecutive driving, soldiers were authorized a thirty-minute break for food, but these stops did not occur in urban areas. To meet the massive supply demands of the front, Red Ball operations were to run nonstop. Drive teams would often skip their breaks to save time and were known to switch drivers without stopping their vehicles. When operating at night, low-beam headlights were permitted west of the light line but not allowed near combat zones to avoid targeting by German artillery or aircraft.

Five days after Red Ball's inception, 132 companies composed of nearly 6,000 vehicles delivered 12,300 tons of supply in one day.[30] This feat represented Red Ball's single-day record for tonnage delivered. In spite of this accomplishment, Red Ball was unable to meet its target of 82,000 tons by 1 September.[31] However, Allied planners extended the Red Ball mission after rail operations also failed to deliver the quota. By 5 September, the Red Ball Express had exceeded its original goal by delivering 89,000 tons to the La Loupe, Dreux, and Chartres triangle.[32] With few other options available in France, sustainers were forced to extend Red Ball operations through the fall.

Running on Fumes

During the offensive across France, sustainment units were challenged to keep pace with the demanding operational tempo. Tremendous amounts of POL were needed to sustain U.S. mechanized units. By the end of August, the U.S. Armies in northern France were consuming eight hundred thousand gallons of gasoline per day.[33] Early plans relied on the construction of three pipelines out of Normandy to support frontline forces, but this effort proved unfeasible. By August, work on the three-pipeline system was cancelled and service units focused instead on the construction of one primary pipeline.[34]

With vehicles in constant need of petroleum at the front, the Red Ball Express began delivering Motor Transport 80 octane (MT 80) and Aviation 100 octane (AV 100). When fuel tankers were unavailable, POL products were transported in fifty-five gallon drums, which weighed nearly one hundred pounds empty.[35] Petroleum was often distributed in the five-gallon gas can known among soldiers as the "jerrican."

Adopted from a German design, one jerrican weighed ten pounds empty and forty pounds full.[36] In 1944, fifty cans could fit in a one-ton trailer, 250 in a five-ton cargo space, and five hundred fit in a ten-ton semitrailer.[37] The United States had twelve million jerricans before D-Day, but because fuel depots were high-value targets for the Germans and because jerricans were often inappropriately discarded by soldiers, sustainers expected to lose eight hundred thousand of them per month starting in August and September. By October, Quartermaster units were short 3.5 million jerricans, forcing the War Department to seek production at home and abroad.[38]

With POL at a premium, Red Ball convoys were under standing orders to depart with full fuel tanks and transport enough gasoline for an entire round trip.[39] To build fuel stores in forward areas, five additional jerricans were added to each logistics package and included on all Red Ball vehicles. No other supply class was given similar priority. From June to December 1944, Motor Transport Services hauled 423,000 tons of POL, much of which was stored in five-gallon jerricans.[40]

The Red Ball Goes East

Liberated by the Allies in late August 1944, Paris became a hub for Allied sustainment. Returning Paris to Allied control provided an immeasurable morale boost to the war effort, but the French capital was also a major burden because its sizable population now relied on the military logistics network for basic supplies. As frontline soldiers marched on, the Red Ball Express altered its supply route extending its lines east of the French capital on 10 September. Red Ball's expansion was significant for the sustainment effort as average round trips reached nearly one thousand kilometers.[41]

As the lines of communication stretched, sustainment leaders sought ways to improve efficiency and reduce the burden on both Red Ball operators and vehicles. Unlike northwest France, Allied bombers spared the rail network east of Paris. By late September, sustainers had established terminals and transfer points near Vincennes and Fontenay-sous-Bois.[42] At these transfer points located at the outskirts of Paris, Red Ball trucks would drop their cargo, and under U.S. military supervision, French workers loaded the supplies onto trains for further movement.

Supporting the U.S. First Army in the north and Third Army in the south, Red Ball officially extended its route well beyond Paris to Hirson and Sommesous. Unofficially, drivers pushed their movements even further east to the cities of Verdun and Metz.[43] Convoys struggled with the new round trip that was now over 1,600 kilometers.[44] An uncharacteristically rainy autumn made shallow creeks nearly impassible, bloated rivers washed out bridges, and flooded fields could no longer be used for resupply. Difficult weather conditions added to the growing list of Red Ball problems.

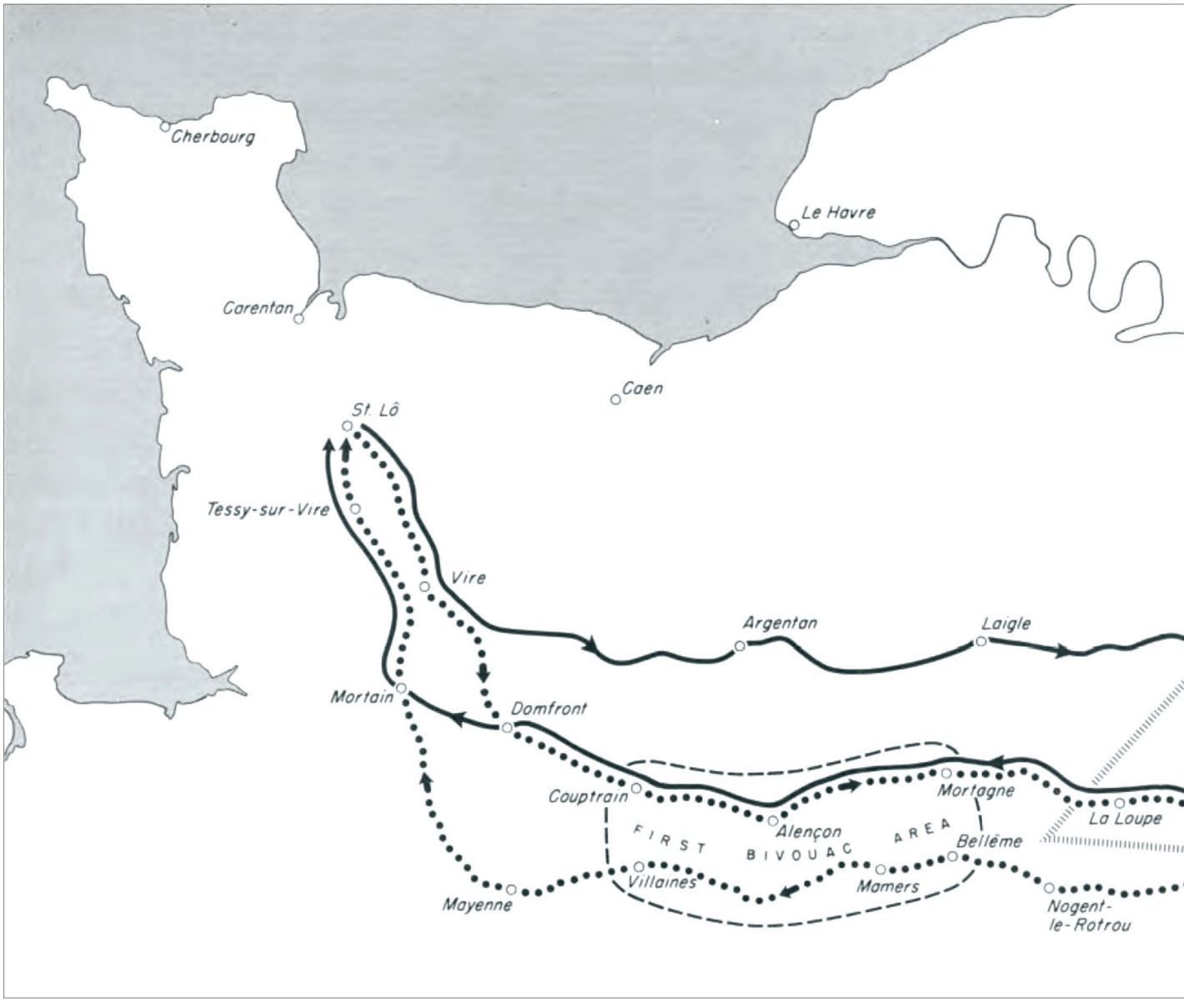
Red Ball Challenges

The extension of the Red Ball Express toward the German border stretched an already shaky system. During the first phase of the Red Ball Express, drivers operated from the advanced section of the communications zone into field armies' rear areas.[45] However, as the front continued to move further east, the second phase required passage through multiple sections of the communications zone to reach these areas. Communication failures and poor unity of effort hampered distribution and overall efficiency. These challenges required sustainers to improvise and adapt to meet demands at the front. One after action report declared that "orthodox supply procedures had been abandoned."[46]

A lack of enablers (a challenge from Red Ball's inception) continued to plague Red Ball operations as Allied progress extended the lines of communication. For example, engineer units in France were in such high demand that they were often shuttled between First Army and Third Army.[47] The situation became so grave that the War Department deployed inexperienced stateside units to Europe to complete engineer training in rear areas.[48] The dearth of engineers slowed construction on France's rail network, which in turn added to the heavy load already shouldered by the motor transport service.

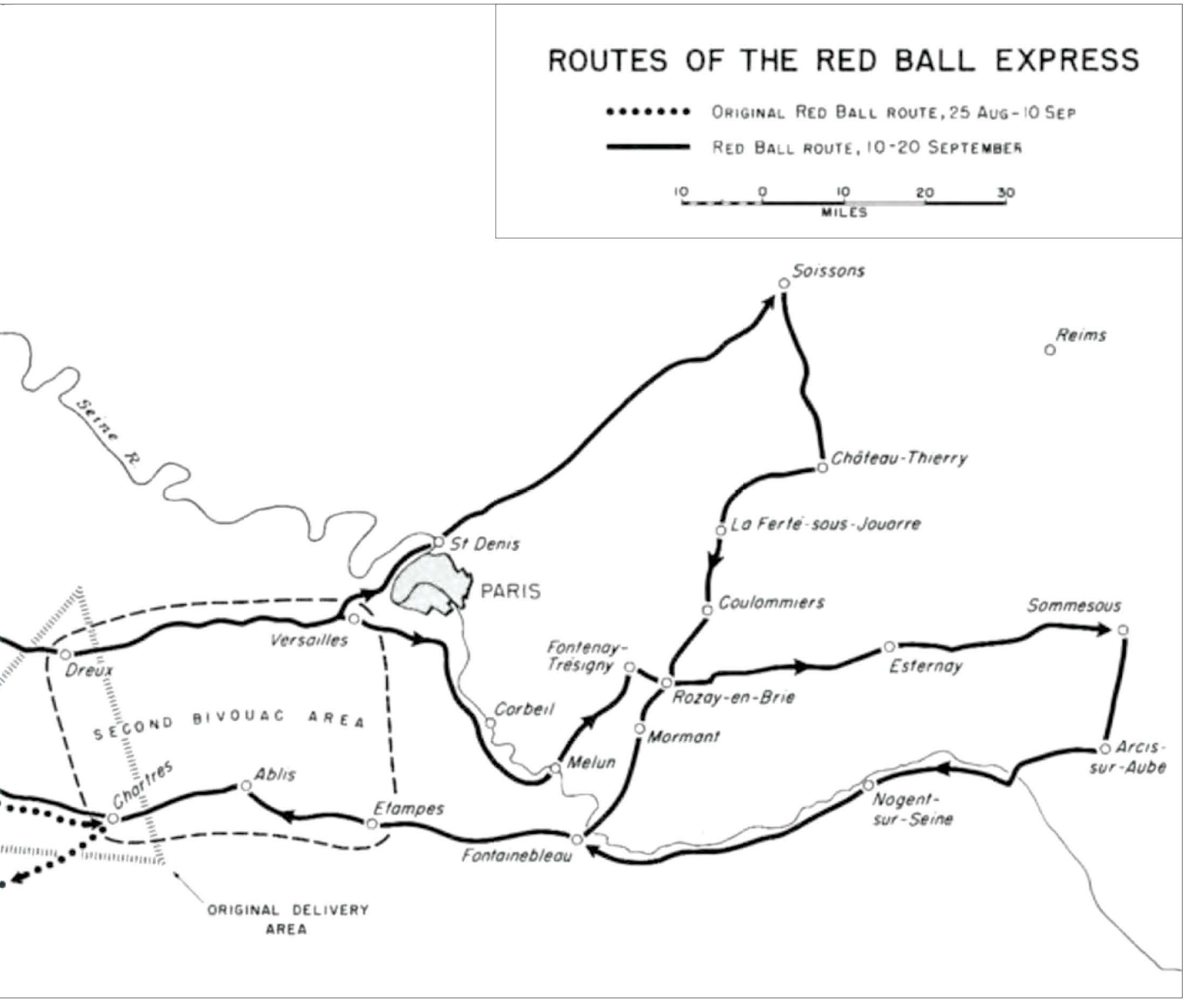
Like the engineers, MP units were also challenged to meet the demands of the Red Ball Express because

Soldiers load trucks with combat rations in preparation for a convoy to the front line 21 December 1944 in the European theater of operations. (Photo courtesy of the U.S. Army)



of personnel shortages. According to Red Ball plans, MPs were supposed to be stationed in urban areas controlling traffic and checking cargo. Mandatory traffic control points were to be no further than eighty kilometers apart and continuously staffed.[49] MPs were also responsible for patrolling the Red Ball highways, ensuring American drivers were adhering to Army protocol, and preventing unauthorized vehicles from using the route. Ultimately, the MPs were stretched too thin. The U.S. First Army, Third Army, and the Ninth Air Force added to the confusion and congestion by using the restricted Red Ball routes without requesting permission. The lack of an adequate MP presence also led to the pilfering of U.S. supplies, much of which ended up on the French black market.

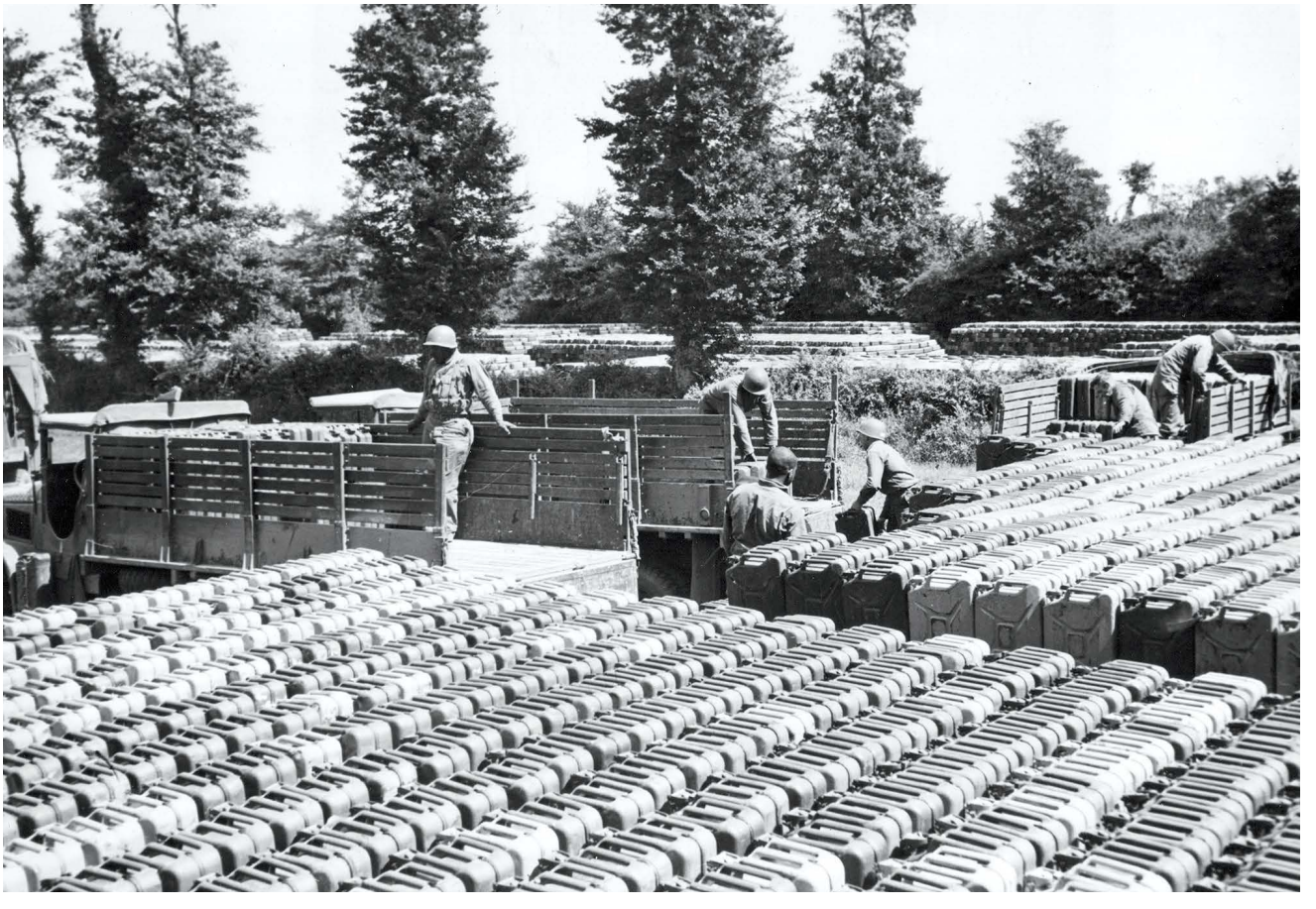
The loading and unloading process was another problem for sustainers. Early on, sustainers in the ETO had organized convoys into groups of forty vehicles. However, a lack of personnel and material handling equipment made loading and unloading so many vehicles far too time consuming.[50] Even after reducing the size of convoys to twenty vehicles, it could take from twelve to forty hours to load all of the cargo.[51] Communications breakdowns frequently resulted in drivers getting lost or unloading at the wrong spot. Another systemic problem was poorly planned depots and transfer sites.[52]



(Map by H. Damon, taken from Roland G. Ruppenthal's *Logistical Support of the Armies, Volume 1: May 1941–September 1944*)

Maintenance remained a constant struggle for the duration of the Red Ball mission. At one point in September, twenty-seven truck companies, totaling approximately one thousand vehicles, went without maintenance for several days.[53] Not only did this violate well-established maintenance protocols, it seriously jeopardized operational readiness. On the return route between the towns of Chartres and Saint-Lô, no vehicle maintenance support was available at all. The lack of maintenance took a toll on engines and wheels. At one low point, American drivers had abandoned eighty-one loaded vehicles on the side of the road between Vire and Dreux.[54] Ignoring preventive maintenance intervals shortened the lifespan of vehicles, reduced lift capacity, and ultimately threatened future operations.

Under constant pressure to deliver, convoy discipline suffered, particularly in regards to speed limits and maintaining intervals. Red Ball mechanics would remove governors to allow an increase in the vehicles' top speed. Even with convoys ignoring speed limits, some grueling round trips took Red Ball soldiers over fifty-three hours to complete.[55] Exhaustion and fatigue overwhelmed drivers. The prolonged pace of Red Ball was so demanding that even in teams of two, drivers



Top left: A road patrol wrecker (*right*) pulls an overturned truck back on its wheels circa 1944 to haul it to the nearest heavy-automotive maintenance depot along the Red Ball Express route in the European theater of operations. Damaged trucks were repaired at once and put back into service. If a truck was damaged beyond repair, it was immediately replaced. (Photo by Lawrence Riordan/U.S. Army) **Bottom left:** Trucks from different units draw cans of gasoline 7 February 1945 from one of the storage fields in the quartermaster depot. After the five-gallon "jerricans" were washed, they were refilled from tankers on the beachheads and returned to the quartermaster depot. (Photo courtesy of the U.S. Army) **Above:** U.S. drivers nap or relax on boxes of ammunition and other equipment 10 October 1944 during the delivery of supplies to a forward area in France. The supply train is one of the Red Ball convoys that constituted an endless chain of trucks operating to and from the front on one-way roads. The highways were marked with Red Ball priority signs and were reserved for urgent supplies. (Photo courtesy of the U.S. Army)

often fell asleep behind the wheel. Accidents were a regular occurrence caused by burnout, speeding, poor road conditions, and collisions with unauthorized traffic.

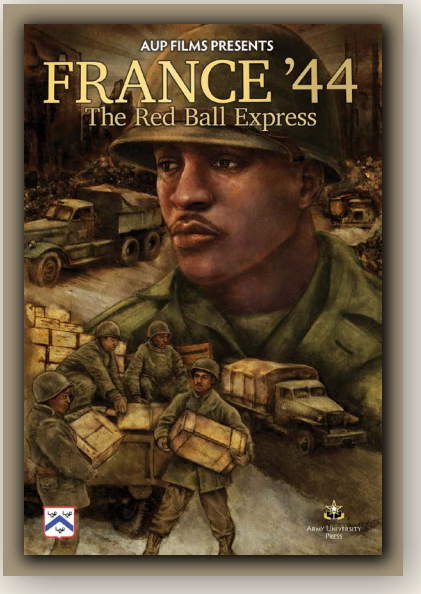
Although conducting a desperate, theater-wide defense, German ground and air forces remained a constant threat to convoys. As part of its retrograde, the Wehrmacht deployed snipers in urban areas and laid minefields along French roads. Having lost air superiority to the Allies, outnumbered Luftwaffe pilots avoided dogfights against Allied squadrons but targeted vulnerable supply lines and depots whenever possible. When delivering to forward positions, Red Ball drivers often encountered enemy resistance. Sustainers were forced to defend themselves, their vehicles, and their transfer sites.

Despite these internal and external challenges, the Red Ball Express delivered crucial supplies day after day. After conducting major operations for eighty-one consecutive days, the Red Ball Express was discontinued because reports indicated that rail and barge facilities were available east of Paris and the use of liberated harbors, like Antwerp, could shorten supply lines. From 25 August to 16 November, the soldiers of the Red Ball Express hauled more than four hundred thousand tons of supplies at a rate of over five thousand tons a day.[56] On most days, nine hundred vehicles would depart toward combat zones covering 1.5 million ton-miles.[57] By Thanksgiving 1944, the Red Ball Express completed more than 121 million ton-miles in only a matter of months.[58]

From Red Ball to the XYZ

In addition to the Red Ball Express, several other Allied supply routes were established in the ETO such as the Little Red Ball Express, the White Ball Express, the Red Lion Express, the ABC Express, and the XYZ Express route. Of these, the XYZ Express route was the most transformative as it incorporated numerous lessons from the earlier Red Ball Express to provide continuous and responsive sustainment. One of the last hauls of the war, the XYZ Express route supported the final offensive into Germany. The name for the operation was devised as part of a three-phased system: Plan X required eight thousand tons per day, Plan Y required ten thousand tons per day, and Plan Z required twelve thousand tons per day.[59] Although trains were finally alleviating the stress on motorized transport in eastern France, logisticians anticipated rail networks inside the German border would not be serviceable because of damage caused by Allied bombing and enemy sabotage.

Adopting lessons learned during the Red Ball Express, the Motor Transportation Service provided the U.S. First, Third, Seventh, and Ninth Armies with either a provisional highway transportation division or a quartermaster group. Although not divisions in the traditional sense, the 6956th, 6957th, and 6958th Highway Transport Divisions (Provisional) and the 469th Quartermaster Group were task-organized to support their respective armies.[60] These sustainment units were equipped to travel three hundred



France '44: The Red Ball Express

After controlling continental Europe for years, German defenders were rolled back by Allied forces until the devastated Third Reich was forced to capitulate in May 1945. This victory would not have been possible without an unrelenting Allied sustainment effort. *France '44: The Red Ball Express* demonstrates how logistics led to the liberation of Europe and the demise of Nazi Germany.

Intertwining current Army doctrine with the incredible story of the Red Ball Express, this film examines the logistical successes and challenges sustainment planners encountered in the European theater of operations. Produced in collaboration with Combined Arms Support Command, *France '44: The Red Ball Express* provides important sustainment lessons for supporting large-scale combat operations that remain relevant today.

To view Army University Press Films' *France '44: The Red Ball Express*, visit https://www.armyupress.army.mil/Educational-Services/Documentaries/France-44-The-Red-Ball-Express/.

kilometers past the Rhine River.[61] Sustainers prepared to haul twenty-four thousand tons each day, but daily tonnage capability was expected to decrease slightly as units moved deeper into the German heartland.

Beginning on 25 March 1945, the XYZ established four supply routes originating from Belgium, Luxemburg, and France.[62] Not only did this improve survivability for individual convoys, but it also ensured continuous support in the event one of the routes had to be temporarily closed. By the middle of April, the four U.S. armies were supplied well inside German territory. Unlike the early days of the Red Ball Express when fuel was often shipped via jerricans in 2.5 ton trucks, the XYZ Express incorporated tanker companies capable of delivering four thousand tons of POL per day.[63] Benefiting from its thirty-four companies of ten-ton semitrailers, the 6957th Highway Transport Division (Provisional) was capable of supplying the Third Army with ten thousand tons of supplies and a million gallons of POL per day.[64] The entire operation was aided by the repair of rail lines west of the Rhine, which alleviated pressure on the convoy system.

The XYZ's coordination and synchronization across all levels of war enabled Allied forces to fight deep into the heart of Germany. In three months, the XYZ averaged close to 13,000 tons per day, delivering a total of 870,000 tons.[65] After "Victory in Europe," the motor transportation service considered the XYZ Express one of the most successful operations of the war. These achievements would not have been possible without the experience garnered during the Red Ball Express.

Conclusion

The Red Ball Express is an outstanding example of the challenges associated with sustaining LSCO. Even with years to plan and prepare, Allied sustainment units encountered serious challenges in France in 1944. After a pre-invasion exercise in England was cancelled, sustainment operations had to be executed in the combat zone without the benefit of a large-scale rehearsal. Although sustainers wanted to deploy a system that utilized a series of semitrailers, they were forced to rely on the smaller vehicles that were readily available in the ETO.

Like their German counterparts, Allied planners had been shocked by the speed of the breakout and offensive across France. While combat troops raced through the French countryside, each victory had consequences for the sustainers who were forced to expand their operations to keep pace. Allied success led to the creation of the Red Ball Express as a short-term solution. Motor transportation was the only viable option since supplies by rail, barge, and air were incapable of meeting the heavy logistical demands.

The sustainment situation on the ground became so desperate that volunteers were needed to fill out units. This was partially the result of combat units garnering deployment preference over sustainers. Operating on one of the longest routes in the ETO, many of the volunteer drivers had no experience in motor transportation, and some had never driven a truck before. The advancing Allied forces would have been forced to culminate without supplies, so the Red Ball Express went from being a short-term solution out of Normandy to a nonstop, open-ended mission across France. Plagued by poor infrastructure and the lack of enablers, the logistics network came perilously close to the brink of collapse. By the end of the Red Ball Express, exhaustion was causing a breakdown in morale and discipline. Vehicles were discarded along routes, supplies were sold on the black market, and drivers were dying in enemy attacks and roadway accidents.

As a result of learning from the successes and failures of the Red Ball Express, Army planners initiated several changes before the XYZ Express drove into Germany. One of the most significant improvements was the decision to attach veteran transportation divisions to each Army, thereby providing continuous and responsive support. The XYZ Express proved so successful that it became the sustainment standard for future operations.

Today's sustainers must prepare to meet similar challenges to those experienced on the Red Ball Express. As the Army continues to transition away from persistent, limited-contingency operations and prepares for the potential for large-scale combat, it is imperative that the sustainment community recognizes and trains for the demands this will place on the transportation and distribution network. Planners must conduct detailed analysis and careful force tailoring to ensure the appropriate mix of enablers are available to facilitate integrated and responsive sustainment. Leaders must build adaptable organizations capable of improvising to account for both immature theaters and the degraded infrastructure commonly associated with large-scale combat. Embracing these realities and preparing for them will yield a decided advantage to Army sustainers on the twenty-first-century battlefield. ■

Notes

1. Gordon Harrison, *The European Theater of Operations: Cross-Channel Attack* (Washington, DC: U.S. Government Printing Office [GPO], 1951, 1989), 19.

2. See General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps* (Frankfurt, Germany: Headquarters, U.S. Forces, European Theater, 1945), 3. The War Department established the Transportation Corps in 1942.

3. Roland G. Ruppenthal, *Logistical Support of the Armies, Vol. 1: May 1941-September 1941* (Alexandria, VA: Saint John's Press, 1995), 559.

4. *Report of Operations: Final After Action Report, 12th Army Group, Vol. 1, Summary* (London: Headquarters, 12th Army Group, 31 July 1945), 21.

5. Ibid., 22.

6. Ibid., 95.

7. Charles MacDonald, *The Siegfried Line Campaign* (1963; repr., Washington, DC: U.S. GPO, 2001), 4.

8. Martin Blumenson, *The European Theater of Operations: Breakout and Pursuit* (Washington, DC: U.S. GPO, 1961), 691.

9. Ruppenthal, *Logistical Support of the Armies, Vol. 1*, 558.

10. Ibid.

11. *Report of Operations*, 22.

12. Ibid.

13. Joseph Bykofsky and Harold Larson, *The Technical Services: The Transportation Corps: Operations Overseas* (1957; repr., Washington, DC: U.S. GPO, 1973), 331.

14. *Report of Operations*, 96.

15. Service units, which were responsible for missions such as vehicle maintenance and rail reconstruction, were deployed to France at a much slower rate than combat units.

16. There is disagreement between Bykofsky and Larson in *The Technical Services* on page 331 and Ruppenthal, *Logistical Support of the Armies*, on page 558.

17. Loren Ayers, "Truck Loading Reference Data," Headquarters European Theater of Operations, U.S. Army, Office of the Chief of Transportation, Motor Transport Division, March 1944, 1.

18. Ibid., table X-A.

19. General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps*, 15.

20. Ulysses Lee, *Special Studies: The Employment of Negro Troops* (1966; repr., Washington, DC: U.S. GPO, 1970), 415.

21. Ibid., 637–38.

22. Ibid., 633.

23. World War II Exhibit, *Ground Transportation*, U.S. Army Transportation Museum, Fort Eustis, VA, 24 July 2019.

24. *Report of Operations*, 21–22.

25. Ruppenthal, *Logistical Support of the Armies, Vol. 1*, 563.

26. Headquarters, European Theater of Operations, United States Army, *Standing Operating Procedure No. 53: Red Ball Motor Transportation Operations*, 2 December 1944, 3.

27. Ibid., 2.

28. Ibid.

29. Ibid., 3.

30. Ruppenthal, *Logistical Support of the Armies, Vol. 1*., 560.

31. Traffic control personnel were sent to the wrong towns, which led to lost convoys and time.

32. Ruppenthal, *Logistical Support of the Armies, Vol. 1*., 560.

33. Blumenson, *The European Theater of Operations*, 691.

34. *Report of Operations*, 23.

35. Ayers, *Truck Loading Reference* Data, 13.

36. Ibid.

37. Ibid.

38. Roland G. Ruppenthal, *The European Theater of Operations: Logistical Support of the Armies, Vol. 2: September 1944-May 1945* (1959; repr., Washington, DC: U.S. GPO, 1969), 202–3.

39. *Standard Operating Procedure No. 53: Red Ball Motor Transportation Operations*, 3.

40. Bykofsky and Larson, *The Technical Services*, 331.

41. General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps*, 34.

42. Bykofsky and Larson, *The Technical Services*, 334.

43. Ibid.

44. General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps*, 34.

45. Ibid., 23.

46. *Report of Operations*, 92.

47. Ibid., 83.

48. Ibid.

49. *Standard Operating Procedure No. 53: Red Ball Motor Transportation Operations*, 1.

50. General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps*, 35.

51. Ruppenthal, *Logistical Support of the Armies, Vol. 1*, 565.

52. General Board, *Motor Transport Service as a Permanent Part of the Transportation Corps*, 34-35.

53. Ruppenthal, *Logistical Support of the Armies, Vol. 1*, 565.

54. Ibid.

55. Lee, *Special Studies*, 663.

56. Bykofsky and Larson, *The Technical Services*, 334.

57. Lee, *Special Studies*, 663.

58. Ibid.

59. Bykofsky and Larson, *The Technical Services*, 337.

60. Ibid., 338–39.

61. *Report of Operations*, 97.

62. Bykofsky and Larson, *The Technical Services*, 337.

63. *Report of Operations*, 97.

64. Bykofsky and Larson, *The Technical Services*, 337.

65. Ibid.

Army Counter-UAS 2021–2028

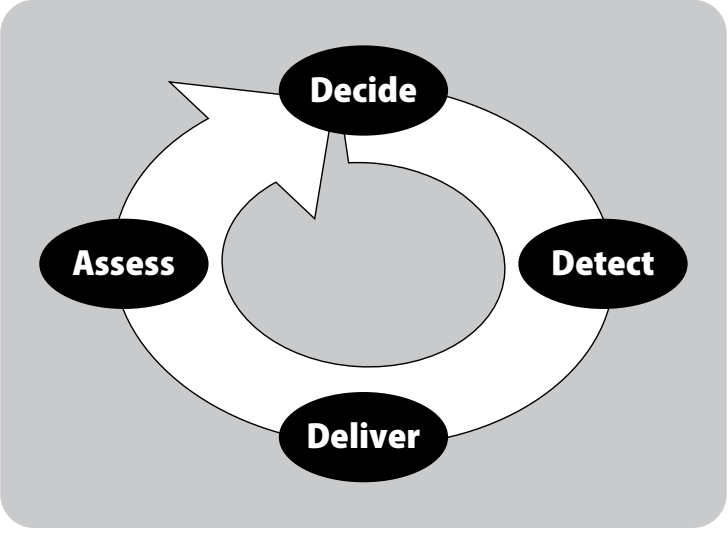
Maj. Benjamin Scott, U.S. Army

Targeting and destroying the enemy's UAS ground control stations is the division's number-one priority for the next twenty-four hours.

—Maj. Gen. Jamie Jarrard, 25th Infantry Division

"Kill what is killing us." This maxim oriented the 25th Infantry Division's (25 ID) priorities in deliberate and dynamic targeting. After six days of simulated battle, through the reconnaissance fight, offense, and transition

into deliberate defense, the enemy's rocket and tube artillery continued to kill the division. Enemy unmanned aircraft systems (UAS) and dismounted special-purpose forces (SPF) positioned throughout the division's area of operations (AO) provided accurate targeting for the enemy's integrated fires command to exploit. Though the division directed combat power successfully to locate and attack to destroy SPF observers, it continued to see a familiar pattern as the enemy commander employed a multitude of UAS to identify division high-value targets and engage its units with massed indirect fire. In the division's main command post, the air defense and airspace management (ADAM) cell would announce, "Attention in the TOC [tactical operations center]! Enemy UAS identified northeast of Objective Lions, observing 3rd Brigade, 4th Infantry Division." Minutes later, reports began to flow in of massed enemy artillery fire against a friendly armored brigade combat team (BCT). Casualty reports followed that highlighted significant losses and reduced combat power, and the division conducted counterfire and directed fixed-wing assets in response to the latest killer of U.S. forces. The enemy's ability to effectively degrade the division's combat power was limited primarily by its will to engage as evidenced by consistent and effective prosecution of its high-payoff target list. 25 ID's combat losses to indirect fire were concentrated in main battle tanks, fire support and target acquisition systems, and grounded rotary-wing aircraft; the enemy regularly got the greatest possible return for the risks of uncovering and exposing its indirect fire systems. The enemy was destroying combat power more quickly than the division could generate it. Despite recognizing the need to neutralize or reduce the enemy's ability to effectively engage friendly forces with indirect fire, the division remained ineffective. It had decided, but its efforts to effectively detect, deliver, and assess were failing. The division needed to figure out why it was failing, how to remedy those failures, and then execute. 25 ID was not immediately successful at defeating enemy UAS; the problems of enemy UAS required the division staff to accurately identify the center of gravity for the enemy's fires and target acquisition systems, form a specialized counter-UAS task force, achieve shared understanding across warfighting functions in the current operations integration cell (COIC), and integrate throughout the targeting process to successfully defeat enemy UAS threats.



(Figure from Army Techniques Publication 3-60, *Targeting*)

Figure 1. The Decide-Detect-Deliver-Assess Methodology Cycle

25th Infantry Division's Counter-UAS in Warfighter 20-03

Warfighter Exercise (WFX) 20-03 marked the first time in over twenty-five years that a U.S. Army corps received the mission to conduct a deliberate defense during a Warfighter. Like in many previous WFXs, I Corps, comprised of two U.S. Army divisions, conducted

Previous page: A soldier from the 2nd Brigade Combat Team, 25th Infantry Division, engages a low, slow, and small enemy unmanned aircraft (UA) with a directed-energy system October 2020 during Task Force Warrior's decisive action training environment rotation at the Joint Readiness Training Center, Fort Polk, Louisiana. These systems attempt to break the link between the control element and the UA or otherwise neutralize the targeted UA. (Photo courtesy of the U.S. Army)

an offensive operation to defeat a peer threat on terrain resembling the Korean peninsula. 25 ID, along with the 40th Infantry Division of the California Army National Guard, commenced offensive operations on 4 February 2020. Following two successful division river-crossing operations and the seizure of initial march objectives, I Corps issued an order for both divisions to retain key terrain and establish deliberate defenses to defeat an enemy counterattack. The divisions had seventy-two hours to establish security, develop engagement areas, defeat spoiling attacks, and prepare to conduct the defense.

For this defense to be successful, 25 ID prioritized security operations and controlling interior lines. The lethal, frequent, and persistent indirect-fire attacks on units forced the division and the corps to focus critical assets on neutralizing enemy indirect fire units massing on friendly forces. As the corps targeted enemy firing units, 25 ID focused on destroying enemy observers to provide the space and time for its brigades to develop engagement areas and prepare for combat. The division directed its brigades to target and destroy SPF in zone while the division staff targeted the enemy's UAS ground control stations (GCS). Through center of gravity analysis, the division staff identified the enemy's UAS GCSs as the critical capability enabling the indirect fire system of systems. The enemy's UAS GCSs possessed the ability to direct multiple tactical and operational UAS systems to identify and target friendly forces with the enemy's integrated fires command. During a division target decision board on 11 February, 25 ID commander, Maj. Gen. Jamie Jarrard, stated, "Targeting and destroying the enemy's UAS ground control stations is the division's number-one priority for the next twenty-four hours." The division understood the commander's intent and immediately began the systematic destruction of all enemy observers and UAS GCSs in the division's AO.

The division staff conducted detailed analysis of the enemy's UAS GCSs during the division's operations and targeting processes. Applying the Army targeting methodology (see figure 1, page 66), the division identified enemy GCSs as the number one high-payoff target.[1] Detection was accomplished by mixing organic collection assets and support from echelons above division. Most commonly, exploitation of communications and electronic warfare (EW) support was deliberately planned and then dynamic in execution. By the third day of fighting, most of the enemy's launch and recovery sites sat beyond the fire support coordination line (FSCL) and beyond the range of the division's organic delivery assets; these were nominated to corps for prosecution by echelons above division. The UAS themselves were engaged whenever possible within capabilities (approximately eleven systems were engaged and destroyed with Stingers or Avengers), but this largely reactionary activity proved of limited effectiveness and often did not prevent the massed fires the UAS would so often herald. The enemy had enough aerial systems to absorb these losses and continue generating UAS sorties. GCSs were the critical vulnerability in the enemy's UAS system of systems, and in wider scope, a critical vulnerability in the enemy's fire support and target acquisition machine. In the dynamic targeting process, the joint air-ground integration cell (JAGIC) received combat information from EW, signals intelligence (SIGINT), other electronic intelligence (ELINT), and other signature acquisitions and dynamically delivered lethal fires or retasked available collection assets to develop targets. The division had used and continued to use every tool at its disposal to destroy or neutralize the enemy's eyes, but it had not honed its killing machine to maximum effectiveness; it was not achieving the tactical success the division demanded of itself at echelon. To improve its effectiveness and degrade the enemy's capabilities, the division deputy commanding general–operations, Brig. Gen. Josh Rudd, formed Task Force Ground Control Station to produce better results and destroy the division's number one high-payoff target. The task force developed a visual model to enhance shared understanding and better synchronize the staff (see figure 2, page 68).

Critical elements in 25 ID's GCS targeting process included shared understanding and timely, effective communication.

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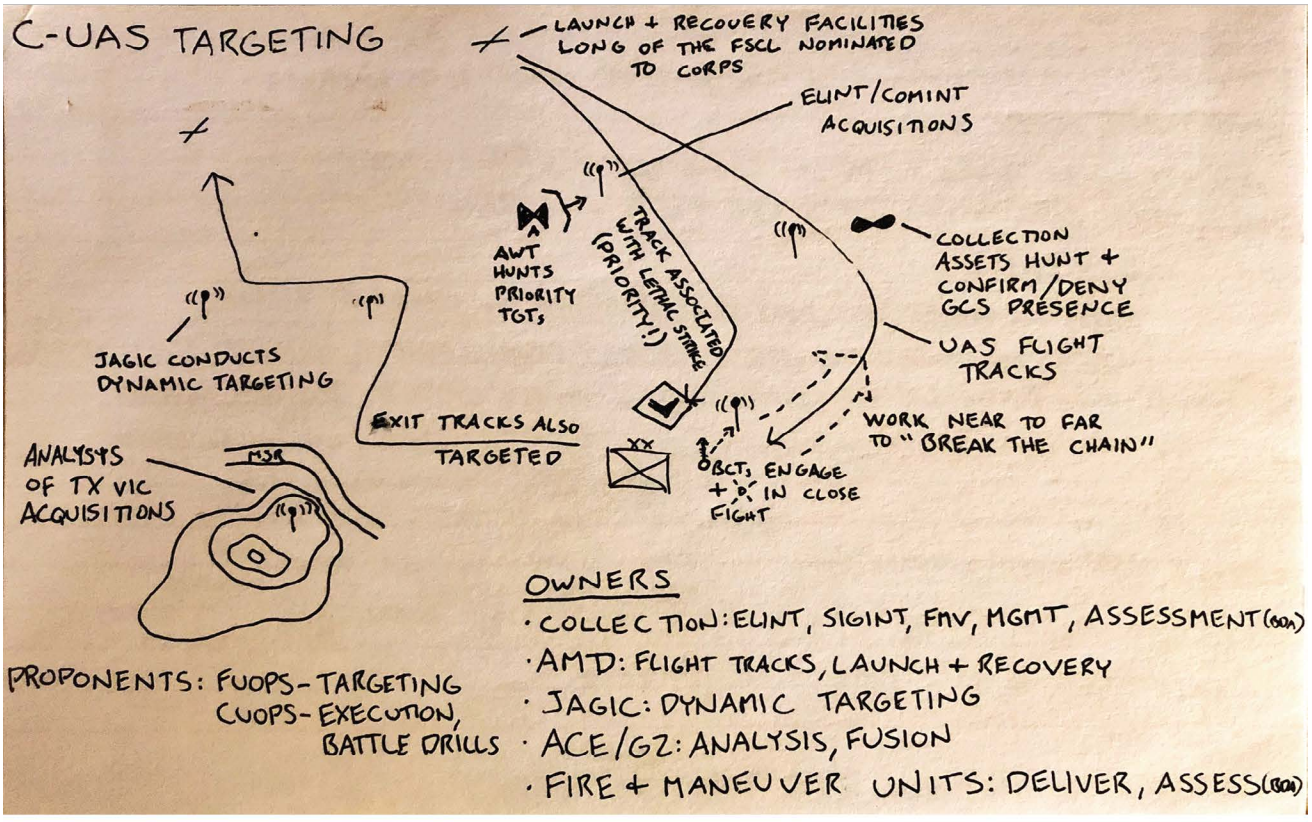


ACE–Analysis and control element
AWT–Attack weapons team
BCT–Brigade combat team
BDE–Battle-damage assessment
COMINT–Communications intelligence
C-UAS–Counter-unmanned aircraft system
CUOPS–Current operations
ELINT–Electronic intelligence
FMV–Full-motion video
FSCL–Fire-support coordination line
FUOPS–Future operations
GCS–Ground control station
JAGIC–Joint air-ground integration cell
MSR–Main supply route
SIGINT–Signals intelligence
TGT–Target
TX–Terrain
UAS–Unmanned aircraft system
VIC–Vicinity

(Figure by author)

Figure 2. Visual Model of the Division's Counter-Unmanned Aircraft Systems Targeting Efforts during Warfighter Exercise 20-03

In short, integration throughout the decide-detect-deliver-assess cycle needed to improve to achieve destruction of enemy GCSs. The operators behind various systems—the ADAM cell, the intelligence current operations cell, and the JAGIC—were the missing links required to enable the division to punch as hard as it could. Rudd gathered the owners and proponents of counter-UAS processes and functions and oriented the team. The division was already executing each part of the system depicted in the visual model, but it lacked crucial linkages between owners and induced unnecessary delays in building shared understanding. The absence of critical linkages was caused by failures of COIC warfighting functions to understand and integrate. For example, the ADAM cell would identify an enemy UAS using Sentinel Radar and track that unmanned aircraft beginning at acquisition, along a flight track, and through either destruction of the UAS or (more often) until the aircraft moved beyond sensor range. Up to this point, the ADAM cell Air and Missile Defense Workstation (AMDWS) operators had

been announcing the activities of enemy UAS in the division's AO and the air and missile defense officer in charge contributed relevant information and discussion at division battle-rhythm events. What the division had not been doing was immediately communicating tracks from the AMDWS operators to the intelligence and fires current operations cells; this included failures to verbally communicate such information between members of the JAGIC and COIC sitting within twenty feet of each other. Part of this failure to achieve shared understanding was the inability for the AMDWS to seamlessly integrate with the myriad other systems in the division main command post; the larger part of this failure, one that the division owned and controlled, was the failure of its staff to understand the integration of warfighting functions and to push information to those who needed it and for those who needed information to pull from those who possessed it. Our integration between the intelligence, fires, protection, and movement and maneuver warfighting functions was inadequate because (1) leaders had not educated, rehearsed, and supervised battle drills at the user level; and (2) battle drills did not provide timely, required information to all owners of the counter-GCS effort. The battle drills, if executed effectively, would provide timely information to detect targets and deliver fires. Integration into the COIC and JAGIC paired with fires assets dedicated to the commanding general's number one priority would also enhance effectiveness.

Far from being the sole missing link, the example of failed integration of the AMDWS operators' acquisitions and flight tracks illustrated a larger trend. Sometimes, communications intelligence was not effectively relayed prior to target decay. At other times, flight tracks and identification of enemy UAS system attributes did not cue timely collection within targetable collection areas such as associated uplink and downlink frequencies. In still other instances, targets could not be prosecuted quickly enough because of other priority missions. Finally, the division sometimes lacked the range, delivery asset, or timely cross-boundary coordination to deliver against a detected emitter. With the visual model built and shared among the owners and proponents, the staff communicated the systems and processes throughout their sections and to the operator level. The division had already destroyed ten of twelve UAS GCSs within the 25 ID AO, and over the next twenty-four hours, destroyed those remaining in the division's AO. The division was still subject to UAS controlled from beyond the FSCL and, in some cases, in adjacent unit AOs. While the division was finally punching as hard as it could, the division and the U.S. Army must now be able to punch harder.

> "Current Army capabilities and doctrine, especially that found in Army Techniques Publication (ATP) 3-01.81, *Counter-Unmanned Aircraft System Techniques*, are insufficient to meet the demands of the present and future battlefields."

Current Fights

Current competitor and threat capabilities are accessible to state and nonstate actors in varying but generally increasing degrees; further, enemy UAS will be faced on current and future battlefields along the continuum of competition and armed conflict.[2] Finally, trends toward more capable, cheaper, and ubiquitous threat-UAS capabilities and increased costs to counter these threats will continue and likely accelerate.[3] Current Army capabilities and doctrine, especially that found in Army Techniques Publication (ATP) 3-01.81, *Counter-Unmanned Aircraft System Techniques*, are insufficient to meet the demands of the present and future battlefields.[4] Army counter-UAS doctrine reflects current materiel and organizational limitations, especially at echelons brigade and below. ATP 3-01.81 primarily details passive air-defense measures augmented with limited active defense including Stinger and direct-fire employment against UAS seen or heard by soldiers.

The Army categorizes UAS into five groups; this enables discussion of various types of UAS by significant

characteristics (see figure 3, page 71).[5] Groups 1-3 contain what the U.S. Army categorizes as "low, slow, small systems," though there are significant differences between groups and large variations within group 3 in characteristics and capabilities. Groups 4 and 5, persistent and penetrating UAS, respectively, each weigh more than 1,320 pounds. For targeting purposes, use of groups to categorize enables description and assignment of responsibilities for certain types of UAS to specific headquarters and echelons. Such delineation of responsibilities is essential to an effective counter-UAS approach.

Each echelon must provide contributions synchronized in time, space, and purpose in the counter-UAS fight. The first step in achieving such synchronization and effectiveness is defining the "fights" owned by each echelon. The author's experiences with echelons above division are limited to nominations to corps and support from corps and above in the corps' deep area and beyond. This article provides support requirements and desired effects from echelons above the division level but does not provide a delineation of deep fights for corps, echelons above corps, or the joint force. Beyond the FSCL, corps and higher echelons own offensive and defensive counterair against group 3, 4, and 5 UAS. Corps and higher echelons must provide collection and delivery against launch and recovery sites, UAS on ground or in flight, GCSs, and associated support assets. Ideally, the combined forces air component command, combined/joint forces land component command, and corps will specify and synchronize efforts to best achieve layered collection, delivery, and assessment at echelon. The primary required effects from corps-and-higher echelons beyond the FSCL are destruction (at minimum, degradation and disruption) of enemy capabilities able to influence the division that reside beyond the division's capability to influence with organic or supporting systems. This minimum standard includes the provision of support or capabilities short of the FSCL to enable the division and subordinate echelons to win their "fights;" such support will often include commitment of air-defense assets such as Avenger support and extended-range munitions in the form of multiple launch rocket systems or employment of fixed-wing support.

Three different 3D-printed payloads are on display 30 January 2020 at the Drone Demonstration in the Rotational Unit Bivouac Area, Fort Irwin, California. Each payload fulfills a different function in the training environment: the leftmost resembles a large caliber strike, the middle can be used to simulate a chemical attack, and the rightmost replicates a mine. (Photo by Pfc. Gower Liu, U.S. Army)

The division owns offensive and defensive counterair against groups 3 and above throughout the division's AO. The division normally possesses collection and delivery assets best employed when cued by supporting collection assets from higher echelons. For collection, the division's primary assets include Gray Eagle UAS, AH-64 Apache helicopters, Shadow UAS, and air-defense radars. EW support payloads enhance the effectiveness of the division's UAS for collection against UAS GCSs and other emitters. Air-defense radars provide the division with detection of enemy group 3 and above UAS at distance and prior to the enemy's ability to detect and target friendly forces. The division's combat aviation brigade and organic 155 mm howitzers (to include rocket-assisted projectiles to extend range) are its primary organic delivery assets. Ultimately, the division's organic ability to collect is modest and its ability to deliver is limited to the

Group 1 Micro/Mini unmanned aircraft system (UAS)	Weighs 20 pounds or less and normally operates below 1,200 feet above ground level (AGL) at speeds less than 100 knots	These systems are generally hand-launched including hobby type UAS. These offer real time video and control, and have a small payload capabilities. Operated within line of sight of user.
Group 2 Small tactical	Weighs 21–55 pounds and normally operates below, 3,500 feet AGL at speeds less than 250 knots	Small airframes, low-radar cross sections, and provide medium range and endurance. Requires line of sight to the ground control station.
Group 3 Tactical	Weighs more than 55 pounds, but less than 1,320 pounds, and normally operates below 18,000 feet mean sea level (MSL) at speeds less than 250 knots	Range and endurance varies significantly among platforms. Requires a larger logistics footprint than groups 1 and 2.
Group 4 Persistent	Weighs more than 1,320 pounds and normally operates below 18,000 feet MSL at any speed	Relatively large systems operated at medium to high altitudes. This group has extended range and endurance capabilities (may require runway for launch and recovery).
Group 5 Penetrating	Weighs more than 1,320 pounds and normally operates higher than 18,000 feet MSL at any speed	Operated at a medium to high altitudes having the greatest range, endurance, and airspeed. Requires large logistical footprint similar to that of manned aircraft.

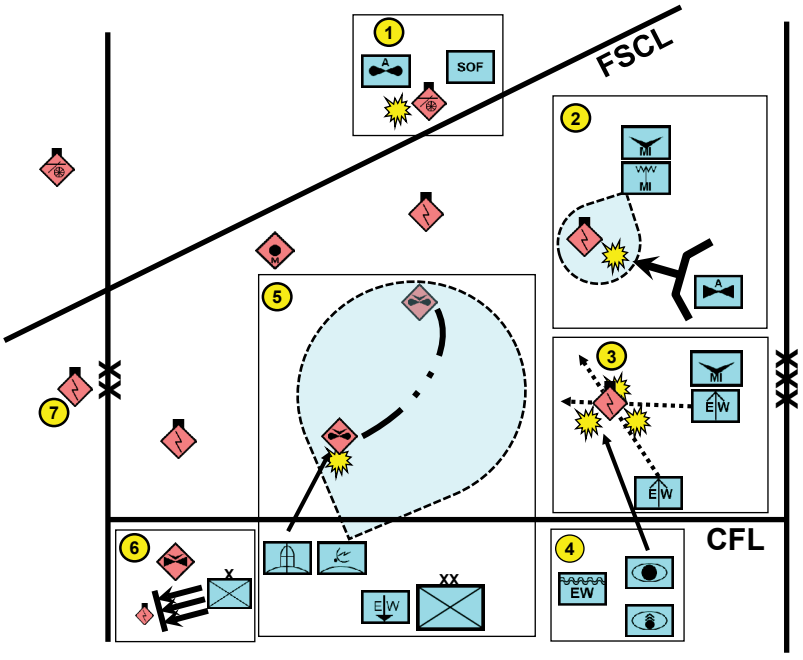
(Figure from Army Techniques Publication 3-01.81, *Counter-Unmanned Aircraft System Techniques*)

Figure 3. Low, Slow, Small Unmanned Aircraft Systems (UAS) Highlighted in UAS Techniques

maximum range of organic fires to about thirty kilometers (155 mm high-explosive rocket-assisted artillery); the critical contribution of the division to a multi-echeloned approach to counter-UAS resides within its staff. The division is the lowest echelon to conduct robust deliberate and dynamic targeting processes against group 3 and above UAS GCSs. The COIC owns current operations integration. Within the COIC, the intelligence collection, analysis, and exploitation pairs with the division's JAGIC in dynamic targeting and the division's targeting working groups and boards in deliberate targeting to

- nominate targets beyond the capabilities and responsibilities of the division in the corps' deep area,
- request and synchronize collection and delivery assets to target enemy systems beyond the division's capabilities but within its responsibilities in the division's deep area,
- dynamically target the light and mobile UAS within the division's capabilities (with or without augmentation), and
- support subordinate brigades by creating favorable conditions and enabling dominance at decisive points in the division's close area.

When enabled by corps and higher echelons with rocket artillery (including extended-range munitions), air-defense radar and short-range air defense, and EW



Application and Dynamic Targeting

1. Division nominates and submits support requests for collection and delivery beyond the fire-support coordination line (FSCL)
2. Leveraging signal intelligence and unmanned aircraft system (UAS), division develops and prosecutes targets using attack weapons team
3. Using airborne and ground-based direction finding, division identifies and develops targets
4. Protecting critical assets at decisive points with jamming, surface-to-surface fires destroy ground control stations
5. Sentinel RADAR detect UAS (group 3 and above) and track prior to destruction by Avengers. With electronic warfare (EW) support, this enables further analysis of assessed ground control stations and target development feeding targeting
6. Small UAS (groups 1 and 2) are identified and neutralized by brigade combat team and below actions
7. Cross-boundary coordination in deliberate and dynamic targeting is essential to neutralizing the threat within the division's area of operations

Division sets conditions for execution using the deliberate targeting process. The division commander has **decided** to target enemy UAS ground control stations; these are the critical vulnerabilities in the enemy's target acquisition system of systems. The division requests and synchronizes EW support to **detect** enemy UAS ground control stations. Assets are in position and ready to fire to **deliver** lethal effects. Division leverages organic and supporting assets to **assess** prosecuted targets. This sketch depicts dynamic execution that enables the division to "kill what is killing us."

(Figure by author)

Figure 4. Visual Model of the Division's Counter-Unmanned Aircraft Systems Targeting Efforts

support, the division becomes a formidable headquarters for the counter-UAS fight.

Figure 4 depicts the division's scheme when enabled by such external support. First, the division conducts the deliberate targeting cycle in concert with corps and subordinate inputs and requirements. Using the decide-detect-deliver-assess methodology, the division helps itself by informing corps and higher echelons of necessary and desired targeting of elements of the enemy's UAS systems. These systems include launch and recovery sites, GCSs, the unmanned aircraft themselves, and support infrastructure generally beyond the FSCL. Support is also requested from special operations forces for detection and to aid in or execute delivery and assessment. Fixed-wing aviation support is requested against known and likely systems and facilities. Short of the FSCL and long of the coordinated fire line, the division requests and is enabled by airborne platforms with communications intelligence, EW support including direction-finding capabilities, and various delivery systems to detect and destroy enemy GCSs using dynamic targeting; this dynamic targeting is accomplished primarily by near real-time coordination between collection current operations staff and the JAGIC. Emitters not immediately targetable are refined to enable future detection and destruction. As the division aggressively targets the enemy's UAS capabilities, it simultaneously defends key assets with jamming and air-defense systems. These air-defense systems enable the division not only to engage enemy UAS but also to further target and refine collection and targeting data on enemy GCSs and launch and recovery sites. This is achieved by the collection of flight data including flight tracks and

the dissemination of this data across collection, analysis, exploitation, and delivery functional cells including the collection manager, mission managers, the G2 fusion cell, the JAGIC, and the targeting working group.

In the fight against enemy UAS, the brigade and below are primarily responsible for offensive counterair against groups 1 and 2 UAS and for limited defensive counterair or deliberate targeting of group 3 and above UAS.[6] The primary tasks of echelons below division are to diligently execute passive protection measures against group 3 and above UAS while employing active measures to defeat, neutralize, or degrade the enemy's ability to successfully employ groups 1 and 2 UAS. Passive measures include rigorous enforcement of dispersion and camouflage, hardening, electromagnetic spectrum awareness and management, employment of air guards, and immediate displacement upon suspected observation by enemy UAS. Brigades and below are also still responsible and capable of targeting enemy UAS capabilities by collecting on and destroying associated systems not related directly to the enemy's UAS. Active measures against groups 1 and 2 UAS include targeting (within capabilities) enemy GCSs for these UAS and active patrolling to deny or degrade their employment. With the current capabilities and proliferation of groups 1 and 2 UAS, active patrolling against likely and potential launch and recovery locations as well as GCSs is essential and represents the main counter-UAS actions for brigades and below. This includes the use of all intelligence, specifically human intelligence and technical intelligence, to derive the timely sourcing of technology and skills required in scope for building, operating, and maintaining these systems. In many cases, these sites will be temporary and provide minimal signatures; prioritization of such missions, including (and sometimes especially) in rear areas, and allocation of combat power and assets is essential to countering the threats posed by groups 1 and 2 UAS. At the brigade level and below, there are currently few assets to aid in the destruction or defeat of groups 1 and 2 UAS in flight. Experience in Iraq, Syria, and Afghanistan has demonstrated the limited abilities of U.S. forces to effectively counter limited quantities of improvised and commercially available UAS; one need only review Ukrainian experiences against UAS employed for target acquisition for real-world vignettes of what 25 ID experienced in WFX 20-03. While vehicle-mounted and dismounted systems capable of destroying or neutralizing groups 1 and 2 UAS using kinetic or nonkinetic means exist and are being fielded, these systems are expensive, exist in limited quantities, and often do not disable enemy UAS prior to the transmission of actionable target-acquisition data to enemy forces. Additionally, currently fielded systems will not provide the required protection against threats anticipated in the coming months and years.

Preparing for the Future

This section is framed using the counter-UAS operational approach detailed and recommended in the recent article, "The Imperative for the U.S. Military to Develop a Counter-UAS Strategy," by Maj. Edward A Guelfi, Dr. Buddhika Jayamaha, and Lt. Col. Travis Robison. The three lines of effort envisioned in their article are soldier, materiel, and software.[7] Further, the author recommends the Army change its force-capabilities time frames for counter-UAS to reflect the immediate (less than one year), imminent (three to five years), and emerging (six to eight years) threats advocated in *Counter-Unmanned Aircraft System Capability for Battalion and Below Operations,* published by The National Academies of Sciences, Engineering, and Medicine in 2018.[8]

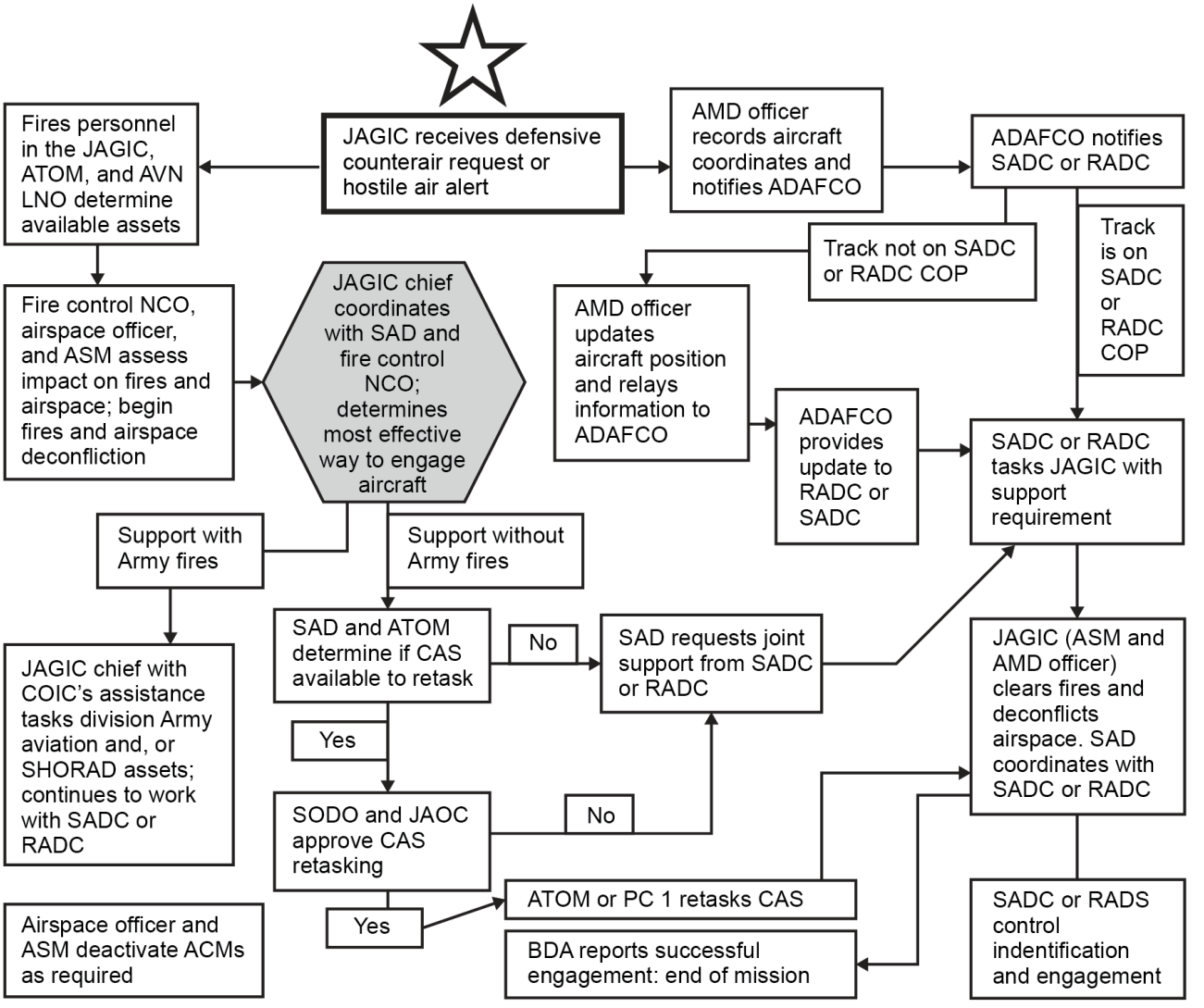
The soldier line of effort. The soldier line of effort includes changes and updates to doctrine, training, and leaders. ATP 3-01.81 must be revised to provide adequate specificity and useful techniques for the brigade and below and augmented to describe counter-UAS at the division and above. The planning, approach, passive defense, and air-guard techniques are beneficial, but the active defense portions of the document demonstrate significant gaps in detection and defeat capabilities of brigades and below. The current ATP begins with acknowledgment that divisions and above lack the capability to detect and defeat UAS from groups 1, 2, and 3. Currently, the publication accurately depicts the challenges for the brigade and below in countering group 4 and 5 UAS. Omitted are the significant challenges these echelons face in countering group 3 UAS and the not insignificant challenges associated with groups 1 and 2 with current personnel, organization, and equipment. The doctrine asserts that group 4 and 5 systems can be detected and effectively countered with integrated air and missile defense capabilities and targeted due to larger signatures and support requirements. In the simulation, 25 ID possessed only passive defensive measures against these threats and was impotent against them with air-defense systems based on

maximum engagement ranges. While effective detection and engagement of groups 4 and 5 might exist for the joint force and echelons above division in the present (far from a certainty), sound doctrine must anticipate and prepare for rapid developments in technology, continued UAS proliferation, and emergent enemy tactics, techniques, and procedures. Within the Army's doctrine hierarchy, needs for timely doctrine in an environment of rapid change demands publication and maintenance of an associated counter-UAS Army tactics, techniques, and procedures publication. Similarly, the current published ATP should be updated or a companion ATP produced to better address the counter-UAS techniques employed at the division-level and above.

JAGIC procedures outlined in ATP 3-91.1, *The Joint Air Ground Integration Center*, including "call for defensive counterair (with and without established tracks)," must be updated to reflect the proliferation and evolution of UAS.[9] In its current form, these procedures and the treatment of UAS throughout the doctrine are hamstrung by the dearth of current capabilities at the division level but especially at echelons below division. For example, the procedure to call for defensive counterair without an established flight track tells the tale of a subordinate echelon observing a low, slow, and small UAS. The doctrine notes that, "Small UAS are a concern to ground maneuver commanders due to their ability to interfere with operations and the challenges they present to systems in terms of detection, tracking, identification, and engagement."[10] While the "concern" is acknowledged, no arrow exists in the subordinate echelons' quivers, nor would the JAGIC receive an engagement report. Instead, the most probable outcome of this procedure is "shared understanding" and a report as the observed unit remains exposed to the hazards of enemy observation. This was the scene so commonly encountered by 25 ID during WFX 20-03. A cursory view of "Call for Defensive Counterair" (see figure 5, page 75), will provide the reader with a sense of the limited options for Army divisions and below to defeat low, slow, and small UAS with current capabilities.[11] The doctrine is fundamentally sound but reflects current gaps in capabilities present in the "materiel" and "software" lines of effort.

Within existing doctrine, it is imperative that the Army develops counter-UAS and multi-domain operation (MDO) battle-drills or "playbooks." At the division level and above, this likely mirrors the bespoke "plays" already developed that link numerous collection and delivery assets with long build-up times, short persistence, and long reset intervals to strategically significant and infrequent operations. At the division level and below, such playbooks should orient on deliberate and dynamic targeting. Two simultaneous and distinct drills must occur, one within the COIC and JAGIC as assets are dynamically requested and a second across the staff as the chief of operations in the COIC, the division G3, or one of the deputy commanding generals approve or deny shifting CAS or other assets owned by the division outside of preplanned triggers. For deliberate targeting, the division's plays integrate collection and effects that are planned and resourced on horizons from twenty-four hours to approximately 120 hours. These plays support significant, synchronized, division-level operations such as a contested wet-gap crossing or BCT(-) air assaults. Dynamic targeting, enabled by increased collection and effect visibility, should seek to leverage already resourced or short to very short build-up assets to exploit fleeting or short-duration windows of opportunity. Army doctrine should maintain responsibilities for deliberate and dynamic multi-domain collection and targeting at the division echelon and above while emphasizing those echelons' enabling roles for BCTs and below. Doctrinal additions and modifications must emphasize not only the dependency of the BCT and below but also explain how BCTs and below support the division's ability to achieve convergence, penetration, dis-integration, and exploitation.

> "It is imperative that the Army develops counter-UAS and multi-domain operation battle-drills or 'playbooks.'"



ACM—Airspace coordinating measure
ADAFCO—Air defense artillery fire control officer
AMD—Air and missile defense
ASM—Airspace manager
ATOM—Air tasking order manager
AVN—Aviation
BDA—Battle damage assessment
CAS—Close air support
COIC—Current operations integration cell
COP—Common operational picture
JAGIC—Joint air-ground integration center
JAOC—Joint air operations center
LNO—Liaison officer
NCO—Noncommissioned officer
PC—Procedural controller
RADC—Regional air defense commander
SAD—Senior air director
SADC—Sector air defense commander
SHORAD—Short-range air defense
SODO—Senior offensive duty officer

(Figure from Army Techniques Publication 3-91.1, *The Joint Air Ground Integration Center*)

Figure 5. "Call for Defensive Counterair" from the Joint Air Ground Integration Center

The COIC and JAGIC at division and above remain the principal agencies capable of supporting and executing deliberate and dynamic targeting while ensuring synchronization. Paired with cross-domain collection efforts, the JAGIC will remain the most capable and effective entity to synchronize and execute dynamic

A Warrior Brigade soldier prepares a Black Hornet soldier-borne sensor for employment August 2020 during new-equipment training at Schofield Barracks, Hawaii. (Photo by Spc. Robert Lee, U.S. Army)

targeting within capabilities against group 3 and above UAS. Division and above targeting working groups and targeting decision boards can be effective in conducting deliberate targeting to enable dynamic execution through anticipation and synchronization of assets across domains; these working groups and boards can only be as effective as the dynamic execution capabilities of the current operations team. Shortfalls in the division's WFX counter-UAS targeting were largely tied to failed integration and insufficient processes rather than organizational gaps. Key to success for both the JAGIC and division targeting efforts is integration of multi-domain collection and cross-domain fires. While BCTs and below can sometimes provide limited deliberate and dynamic multi-domain collection and cross-domain fires, these echelons require augmentation or support to understand, synchronize, and leverage joint and cross-domain collection and effects; this augmentation is in tension with the demands of an increasingly lethal and hyperactive battlefield where signatures must be minimized and agility is required to survive. Instead of augmenting BCTs, divisions and above should focus on

creating windows of opportunity and shaping to enable BCTs to dominate in the close area. Organizational modifications should focus on enhancing the capability of the division to conduct cross-domain collection and enabling the COIC and its JAGIC to synchronize and execute dynamic targeting.

Counter-UAS in a MDO must be trained at echelon and encompassed in multi-echelon training. For the division, command-post exercises, including Warfighters, must encompass multi-domain collection, cross-domain fires, and multi-domain maneuver. This is already occurring in such exercises as Warfighters, but simulated collection and effects are largely executed by "white card" as the simulation is unable to sufficiently replicate multi-domain collection and cross-domain effects. This can marginalize practitioners of multi-domain collection and nonkinetic fires while participants in the division targeting process miss opportunities for repetitions employing these capabilities, including in detection and defeat of enemy UAS. Divisions and BCTs must also conduct counter-UAS, multi-domain collection, cross-domain fires, and multi-domain operations at the combat training centers; these rotations should reflect the role the divisions play in enabling BCT operations and the requirements for BCTs to support division operations. Whenever possible, divisions and BCTs should incorporate live-fire execution of these concepts into training events. Ultimately, the Army should execute a live-virtual-constructive training event that incorporates a division Warfighter, BCT combat training center rotation, and multi-domain live-fire exercise.[12]

At the BCT and below, counter-UAS, multi-domain collection, cross-domain fires, and cross-domain maneuver must be viewed as part of the modern battlefield. To achieve this, current and emergent technologies; capabilities; and tactics, techniques, and procedures must be replicated in training events. While the goal is still to have team leaders, tank commanders, platoon sergeants, and platoon leaders as masters of their respective crafts, soldiers must be introduced to and familiar with threat and friendly capabilities and actions. Integration of one small UAS in a situational training exercise or enemy targeting based on electromagnetic spectrum (EMS) signature during a tactical decision-making exercise costs little and requires little modification of existing training events or programs of military instruction when compared to the concrete experience provided to soldiers and leaders.

Like training, leader requirements demand that counter-UAS and MDO are "baked in" to extant leadership development programs. A cognitive shift is required at echelon; this shift may be a significant task but need not be a daunting or cost-intensive endeavor. Current competition and conflict provide vignettes of current and emergent threats and trends. Simultaneously, production and distribution of a novel or set of stories envisioning battle in 2021 and 2028 could assist in this shift. Such a work would be a blend of the near-future fiction found in August Cole and P. W. Singer's *Ghost Fleet* and *Burn In* (already present on many professional reading lists) and the professional foundation of General Sir John Hackett's *The Third World War.*[13] It would resemble in scope and nature a 2021 or 2028 version of Harold Coyle's Cold-War novel, *Team Yankee*.[14] The Center for Army Lessons Learned has made contributions in this effort with the *Musicians of Mars* series.[15] While a complete approach would be essential to achieving this cognitive shift, a blend of education, training, and experience is in line with Army leadership development and incurs low costs relative to returns. Part of this coherent approach to the Army's cognitive shift includes leader professional development. Classes on counter-UAS at echelon and signature awareness to educate leaders on passive protection, collection in EMS-contested environments, and communications plans are needed.[16] These types of grassroots approaches must be shared and incorporated into a larger conversation and body of knowledge to prepare leaders for the conflicts the U.S. Army may face.

The materiel line of effort. Data visualization and the common operational picture are both areas in need of significant improvement. The battlefield of 2028 is described in *The U.S. Army in Multi-Domain Operation 2028* as "increasingly lethal" and "hyperactive" as the Army acts rapidly to seize windows of opportunity.[17] Current mission command systems such as the Command Post of the Future (CPOF) and other mission command systems resident at BCT and below are inadequate to enable understanding and visualization. The Command Post Collaborative Environment (CPCE) can be a step in the right direction, but additional improvements and capabilities are still required. Specifically, real-time and near real-time collection, especially SIGINT, must be visually depicted. Such a depiction would include lines of bearing from collection assets, assessed and identified "bubbles" for sensors and ranges, and employment of both friendly

and enemy cyber electromagnetic and space effects. Within this visualization, the ability to depict friendly signatures, associated vulnerabilities, and probability of detection is essential. A common operating picture would ideally include a "dashboard" depicting availability of cross-domain collection and effects. Such a system must function both when connected to upper tactical internet and when connectivity is degraded or denied to include a "listening silence" capability. Depiction of collected data must reflect current tracks as well as target decay (with elements such as fade or uncertainty "inkblots") while probabilistic assessments of associated systems is desired. For instance, detection of a radiating enemy air-defense radar, aided by artificial intelligence and human assessments, could be overlaid against terrain and the enemy order of battle to create likely position areas for artillery used by enemy long-range indirect fires. This probabilistic analysis and display would then enable more effective cueing of collection assets and dynamic targeting.

At the BCT and below, materiel solutions are needed to enable collection, protection, and speed when processing information. BCTs are increasingly required to employ passive protective measures such as dispersion, hardening, decoy employment, and camouflage. To achieve this, they have simultaneously sought to become lighter and more agile while becoming self-aware and managing EMS signatures. This tendency toward lighter, more agile formations with smaller signatures is in tension with any efforts to provide the BCT with more staff, more assets, and more "owned" tasks and capabilities. BCTs require enhanced capabilities to conduct BCT operations with smaller signatures. This can be provided through more capable systems that emit smaller EMS signatures or through active camouflage or obfuscation effects for EMS signatures. Similarly, BCTs require tactical counter-UAS capabilities. Depending on BCT-type, the echelon and mounted or dismounted capability required will vary. At minimum, the BCT, battalion, and company/battery/troop must be capable of detecting and defeating threat and enemy small-UAS. At echelon, this capability must be appropriate to the threat and effects required to ensure Army units are not found and immediately engaged with indirect fire. BCTs and below should also be enabled with effective active defenses against some group 3 UAS such as Stinger man-portable air-defense systems or other similar systems.

BCTs and below must also be either equipped with ELINT and SIGINT capabilities or receive actionable ELINT/SIGINT from divisions and above. For echelons below the BCT, these aerial and ground systems should augment higher-echelon assets and enable cueing, mixing, and redundancy. BCTs and below can also be enabled by the production of low-cost, "one-way" collection assets. Ideally, these assets would provide a mix of EW support, antiradiation, volley fire, and loiter capabilities to stimulate, identify, destroy, and suppress enemy air defense, fire-finding radar, and UAS GCSs. Such capabilities enable the identification and destruction of emitting enemy systems equipped with active protection measures. The enemy is presented with the dilemma of either risking his systems while in use or safeguarding his systems by not employing some portion of them. Either decision provides effects against the enemy system. These munitions and systems must be low-cost relative to the threats they defeat and produced in the quantities required for protracted conflict to layer effects against enemy systems and create windows of opportunity. Effective data visualization and integration of artificial intelligence amplify the impact of enhanced collection assets and capabilities.

Speed of processing remains a significant limiting factor in the Army's ability to dynamically target, create, recognize, and exploit windows of opportunity. Artificial intelligence possesses the potential to speed information processing, analysis, and dissemination of intelligence. Paired with data visualization and effective human interfaces, artificial intelligence provides a significant opportunity if developed and employed or a risk if not exploited by the United States and capitalized by its competitors; this opportunity and risk centers around information analysis, intelligence dissemination, and effective employment of collection, protection, and delivery assets.

The software line of effort. The final line of effort links soldier and materiel solutions with systems software within the existing structure of U.S. Army division and BCT systems. The first step to develop these solutions requires development of software for existing systems to enable detection and tracking of UAS. Current air-tracking systems can already track larger operational UAS; focus must be placed on smaller tactical UAS. Tactical UAS have smaller radar cross-sections due to their small infrared and electromagnetic signatures. The Army must invest in software for current

A TALON tracked military robot picks up a downed unmanned aircraft system 19 May 2020 during Combined Joint Task Force-Operation Inherent Resolve at al-Asad Air Base, Iraq. (Photo by Spc. Derek Mustard, U.S. Army)

and future sensors that can better detect tactical UAS. An uncertain budget environment makes acquisition of new radar systems unlikely, and previous acquisition failures suggest that the Army should not invest limited funds in a specialized counter-UAS radar. Instead, the Army must develop better software for existing radars like the AN/MPQ-64 Sentinel and AN/TPQ-53 radar systems. The Army is testing the AN/TPQ-53 radar, originally designed to track rocket, artillery, and mortar rounds, to determine its ability to track UAS.[18] One advantage modern radars possess is an active electronically scanned array. Radars with an active electronically scanned array have proven more versatile than older systems, so developing software for these systems to track tactical drones provides a solution short of developing a new radar system. The Army must enable its radars to better "look up" while also improving their abilities to see tactical UAS when "looking out."

Conclusion

The 25th Infantry Division overcame initial shortcomings in integration within the decide-detect-deliver-assess cycle to maximize the dynamic execution of the deliberate targeting process. Further development of U.S. Army counter-UAS capabilities and an effective counter-UAS approach are essential to meeting the challenges of the battlefields of today and the battlefields of future. From counterinsurgency to large-scale ground combat operations, UAS present threats to U.S. Army forces today and should be anticipated to continue to do so. Immediate actions and changes can maximize counter-UAS effectiveness within current capabilities as the Army and the joint force continue to build effective and robust multi-echeloned counter-UAS capabilities to meet the threat today and threats expected to emerge in the next eight years. ■

Notes

Epigraph. Jamie Jarrard, 25th Infantry Division commanding general, to the division staff during a Warfighter Exercise 20-03 target decision board, 11 February 2020.

1. U.S. Army Techniques Publication (ATP) 3-60, *Targeting* (Washington, DC: U.S. Government Publishing Office [GPO], 7 May 2015), 2-1.

2. Dan Gettinger, *The Drone Databook* (Annandale-On-Hudson, NY: Center for the Study of the Drone at Bard College, September 2019), VIII–XIX, accessed 22 October 2020, https://dronecenter.bard.edu/projects/drone-proliferation/databook/. Recent proliferation, operational, and development trends are well documented in *The Drone Databook*. Remarkable for timeliness and scope, his "key findings" are concise and immediately helpful and buttressed with thoroughly researched and detailed information on all ninety-five countries now known to possess unmanned aircraft systems (UAS). It is perhaps the best open-source document on the subject.

3. Arthur Holland Michel, *Counter-Drone Systems*, 2nd ed. (Annandale-On-Hudson, NY: Center for the Study of the Drone at Bard College, December 2019), accessed 22 October 2020, https://dronecenter.bard.edu/files/2019/12/CSD-CUAS-2nd-Edition-Web.pdf. Michel provides an excellent and timely publication on current counter-UAS systems. His paper, "Counter-Drone Systems (2nd Edition)," provides a timely counter-UAS system database but is especially useful for its background, C-UAS 101, counter-drone kill-chain, and challenges sections. Advances in UAS technology, proliferation, and costs of counter-UAS systems are of interest.

4. Edward A Guelfi, Buddhika Jayamaha, and Travis Robison, "The Imperative for the U.S. Military to Develop a Counter-UAS Strategy," *Joint Force Quarterly* 97 (2nd Quarter, 2020): 4–12, accessed 22 October 2020, https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-97/jfq-97_4-12_Guelfi-Jayamaha-Robison.pdf?ver=2020-03-31-113800-930. The current gaps in U.S. Army and joint doctrine and capabilities are well described and documented in the article. One of its contributors, Ed "JAGIC-Magic" Guelfi, served as a joint air-ground integration cell (JAGIC) chief during the 25th Infantry Division's Warfighter Exercise 20-03.

5. ATP 3-01.81, *Counter-Unmanned Aircraft System Techniques* (Washington, DC: U.S. GPO, 13 April 2017), 1-2. NATO and the Center for a New American Security's Kelley Sayler provide and use alternative categorizations for UAS.

6. Joint Publication (JP) 3-01, *Countering Air and Missile Threats* (Washington, DC: U.S. GPO, 21 April 2017), II-8. Offensive counterair is defined as "offensive operations to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems both before and after launch, and as close to their source as possible." Defensive counterair is defined as "all defensive measures designed to detect, identify, intercept, and neutralize or destroy enemy forces attempting to penetrate or attack through friendly airspace"; Dillon R. Patterson, "Defeating the Threat of Small Unmanned Aerial Systems," *Air & Space Power Journal* 31, no. 1 (Spring 2017): 15–25, accessed 2 November 2020, https://www.airuniversity.af.edu/Portals/10/ASPJ_Spanish/Journals/Volume-29_Issue-2/2017_2_03_patterson_s_eng.pdf.

Application of the offensive and defensive counterair framework to defeat the threat created by small UAS is advocated by Patterson in his article and is further applied by the author of this article based upon Patterson's original use.

7. Guelfi, Jayamaha, and Robison, "The Imperative for the U.S. Military to Develop a Counter-UAS Strategy," 4–12.

8. National Academy of Sciences, Engineering, and Medicine, *Counter-Unmanned Aircraft System (CUAS) Capability for Battalion-and-Below Operations: Abbreviated Version of a Restricted Report* (Washington, DC: The National Academies Press, 2018), 1, https://doi.org/10.17226/24747. This abbreviated version of the restricted report captures current and anticipated challenges and shortfalls in the Army's counter-UAS capabilities.

9. ATP 3-91.1, *The Joint Air Ground Integration Center* (Washington, DC: U.S. GPO, 17 April 2019), A-13—A-15.

10. Ibid., A-14.

11. Ibid., A-15.

12. This idea was presented by Lt. Gen. Gary Brito at the Unified Challenge 19.2 roundtable discussion on 23 August 2019. His specific idea was to link a Warfighter and combat training center rotation. The author has added the element of multi-domain live-fire integration based on observations from Lightning Strike 2019.

13. P. W. Singer and August Cole, *Ghost Fleet* (Boston: Houghton Mifflin Harcourt, 2015); P. W. Singer and August Cole, *Burn In* (Boston: Houghton Mifflin Harcourt, 2020); John Hackett, *The Third World War: The Untold Story* (New York: Macmillan, 1979).

14. Harold Coyle, *Team Yankee* (New York: Presidio Press, 1987).

15. The series includes *The Musicians of Mars: A Story of Synchronization for the Company/Team Commander*, *Musicians of Mars II, Musicians of Mars III: The Cobra Strikes*, and *Musicians of Mars IV: The Mustangs' War (Deliberate Attack).* These publications can be found on the Center for Army Lessons Learned "Publications" website at https://usacac.army.mil/organizations/mccoe/call/publications.

16. Maj. Ben Hartig described this leader professional development session and larger series in the 23 August 2019 roundtable for Unified Challenge 19.2 with Brito.

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

18. Sydney Freedberg, "Drone Defense: Army Anti-Artillery Radar Tracks UACs," Breaking Defense, June 2016, accessed 22 October 2020, https://breakingdefense.com/2016/06/drone-defense-army-anti-artillery-radar-tracks-uavs/.

Soldiers from Company A, 1st Battalion, 111th Infantry, 56th Stryker Brigade Combat Team, conduct a night live-fire iteration of a combined arms exercise 11 June 2019 during Exercise Decisive Strike 2019 at the Training Support Centre in Krivolak, North Macedonia. (Photo by Staff Sgt. Frances Ariele L. Tejada, U.S. Army)

Leveraging Multi-Domain Military Deception to Expose the Enemy in 2035

Lt. Col. Stephan Pikner, PhD, U.S. Army

The operational problem facing the Army in the year 2035 will fundamentally differ from problems it has previously confronted. The legacy challenge for which the Army's current platforms and doctrine are still optimized was a problem solved by breaking the Soviets' second echelon of

assault forces with precision long-range fires, fixed-wing air interdiction, and deep strikes by rotary-wing attack aviation. Today, and more so in 2035, the United States' emerging great-power competitors pose an entirely different challenge. By threatening U.S. access into a theater and denying the assembly areas needed to stage for a decisive counterattack, U.S. adversaries have undercut America's preferred, expeditionary way of war. This anti-access/area denial (A2/AD) approach hinders the ability to effectively respond to rapid, limited aggression, which leaves allies and partners vulnerable to a wide range of coercive and subversive activities.[1] Central to A2/AD is a well-defended, redundant, and largely hidden network of sensors and shooters that can locate, target, and strike friendly forces moving into and staging within a theater of operations.[2] To meet this challenge, the Army must adopt a novel approach to finding and fixing the critical components of an adversary's A2/AD complex to ensure freedom of action in 2035.

Finding the key nodes of an adversary's A2/AD network in 2035 requires an inversion of the traditional logic of reconnaissance. While cavalry squadrons and regiments can effectively fight for information on the disposition of advancing enemy echelons, finding the critical components of an integrated A2/AD complex is an altogether different issue. Rather than exposing vulnerable friendly forces as they methodically seek out a largely static and well-camouflaged adversary with fire and maneuver, future land forces can provoke an opponent into unmasking the long-range sensor and strike assets central to its A2/AD system by leveraging multi-domain military deception. In particular, this stimulation of an adversary's targeting and strike complex must consider how artificial intelligence (AI)-informed decisions will be made. In the near future, America's opponents will likely use such automated systems to fuse a wide range of information into targeting proposals for human decision-making. By triggering the premature activation and deployment of an adversary's high-value assets in its attempt to find, fix, and strike phantom American targets, multi-domain military deception can be central to an integrated effort to find and destroy the enemy on future battlefields.

This argument for multi-domain military deception as central to finding U.S. adversaries on the battlefields of 2035 unfolds in three parts. First is a brief doctrinal background on military deception as it stands today. Second, and more comprehensively, is a discussion of the probable evolution of adversary A2/AD systems, with a focus on the strengths and potential weaknesses of AI support to targeting. Third is a series of recommendations the Army should consider to best employ multi-domain deception to find the enemy in 2035, with great-power oriented field armies as the integrator for these activities.

Doctrinal Background on Military Deception

The doctrinal and historical background for military deception is well established. Broadly speaking, military deception activities "are planned and executed to cause adversaries to take actions or inactions that are favorable to the commander's objectives."[3] In the specific context of stimulating an adversarial A2/AD system, this involves amplifying signatures of decoy units and continuously substituting the signatures of real units with simulated ones, thereby overloading an adversary with an overwhelming number of false positives.[4] This approach of generating a large number of false positives—the impression of targets when in fact there are none—contrasts with the traditional notion of camouflage, which attempts to create a false negative of no target by masking the signatures of friendly forces. Central to the success of deception efforts is their multi-domain character; in an era of increasingly widespread, sophisticated, and varied sensors, spoofing only one type does little against an adversary capable of rapidly fusing multiple sources of information. "Multi-domain deception," as proposed by Christopher Rein, "requires close and careful coordination across the warfighting domains to ensure that lapses in one do not undo efforts in other areas."[5]

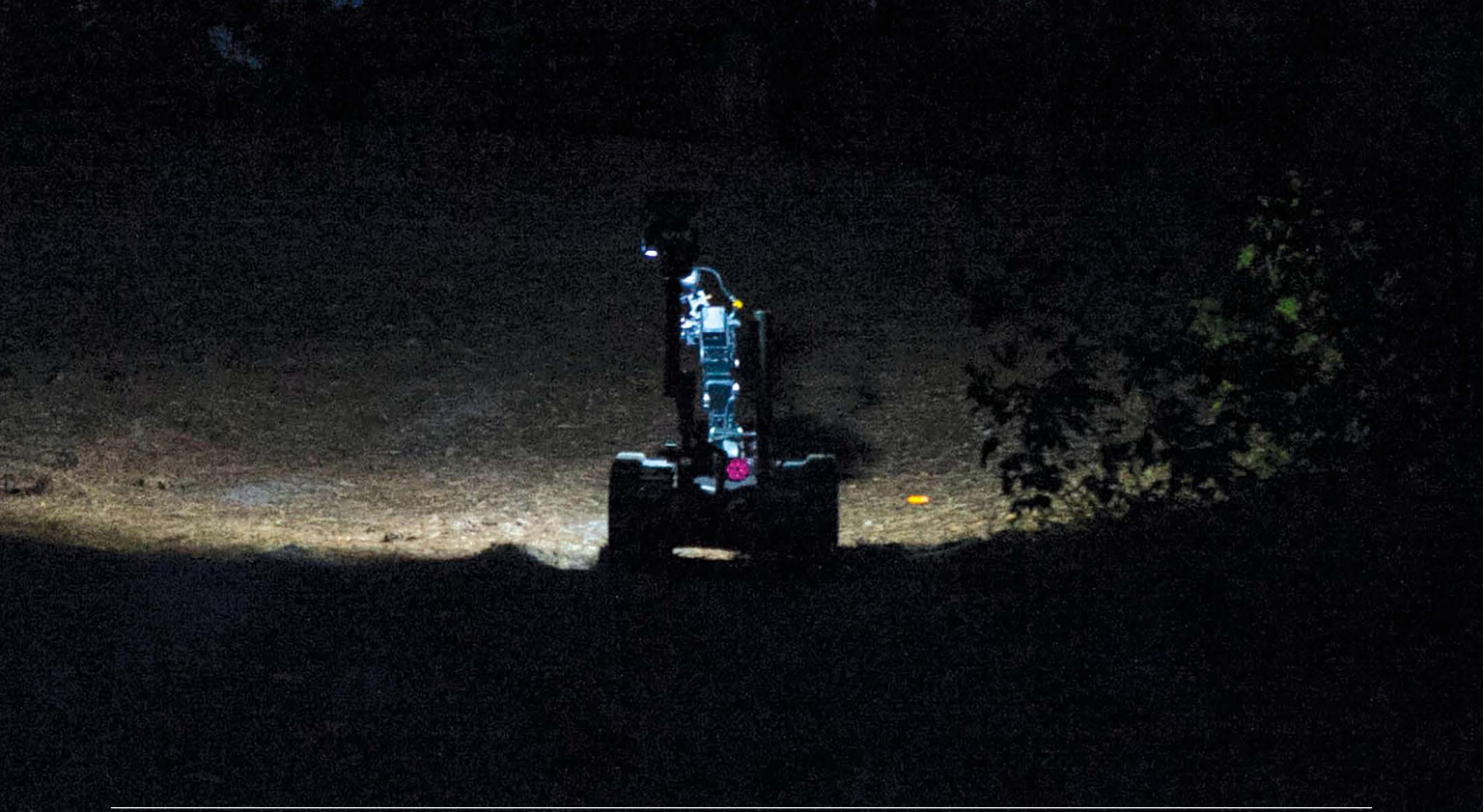
A TALON robot driven by an explosive ordnance disposal (EOD) technician assigned to EOD Mobile Unit 2 moves toward a suspicious item 17 April 2019 during nighttime improvised explosive device training held at Joint Expeditionary Base Little Creek-Fort Story in Virginia Beach, Virginia. (Photo by Chief Mass Communication Specialist Jeff Atherton, U.S. Navy)

The Probable Evolution of Adversary A2/AD Systems

Gaining an accurate understanding of an opponent's A2/AD architecture involves integrating information gathered through a variety of means. Overreliance on a single method, such as intercepted electronic communications or overhead imagery, can result in unbridgeable gaps in understanding. The United States has long been unmatched in its battlefield awareness, but its great-power competitors are rapidly gaining ground due to a pair of interrelated developments. First, the increased sophistication, fidelity, affordability, and variety of sensors have made gathering militarily relevant information easier and cheaper. Turning that information into understanding, however, requires a second step, and its impending automation may prove to be revolutionary. The promise of machine learning to fuse raw information rapidly and accurately into actionable targeting proposals will greatly complicate the tasks of hiding—and surviving—on the future battlefield.

Widespread advances in low cost, off-the-shelf platforms and sensors such as drones and high-resolution cameras alongside near real-time, open-source information such as social media posts and commercially available satellite imagery have transformed both the scale and fidelity of information available and the number of international actors who have access to it. Previously only available to leading powers, such sensors have proliferated widely in the past decades. This trend shows no sign of abating; as the means of detection become cheaper, more reliable, and capable of gathering high-quality information, the information advantage enjoyed by the United States for the past several decades will erode further.[6]

Increasing the diversity and quality of information gathering means solves one half of the challenge. The second half—fusing information from multiple sources to paint a comprehensive portrait of a target—is a more challenging task. Currently, this is a labor-intensive process involving cross-functional teams of analysts painstakingly poring over massive quantities of data captured by increasingly high-resolution sensors. By one estimate, it would take "eight million people just to analyze all of the imagery of the globe that will be generated in the next twenty years."[7] Advances in machine learning, however, may significantly improve and accelerate the fusion of gathered information. Machine-learning classifiers, which "take an input sample and identify it as one of several output classes," are particularly well suited to fusion and targeting.[8] In an AI support to A2/



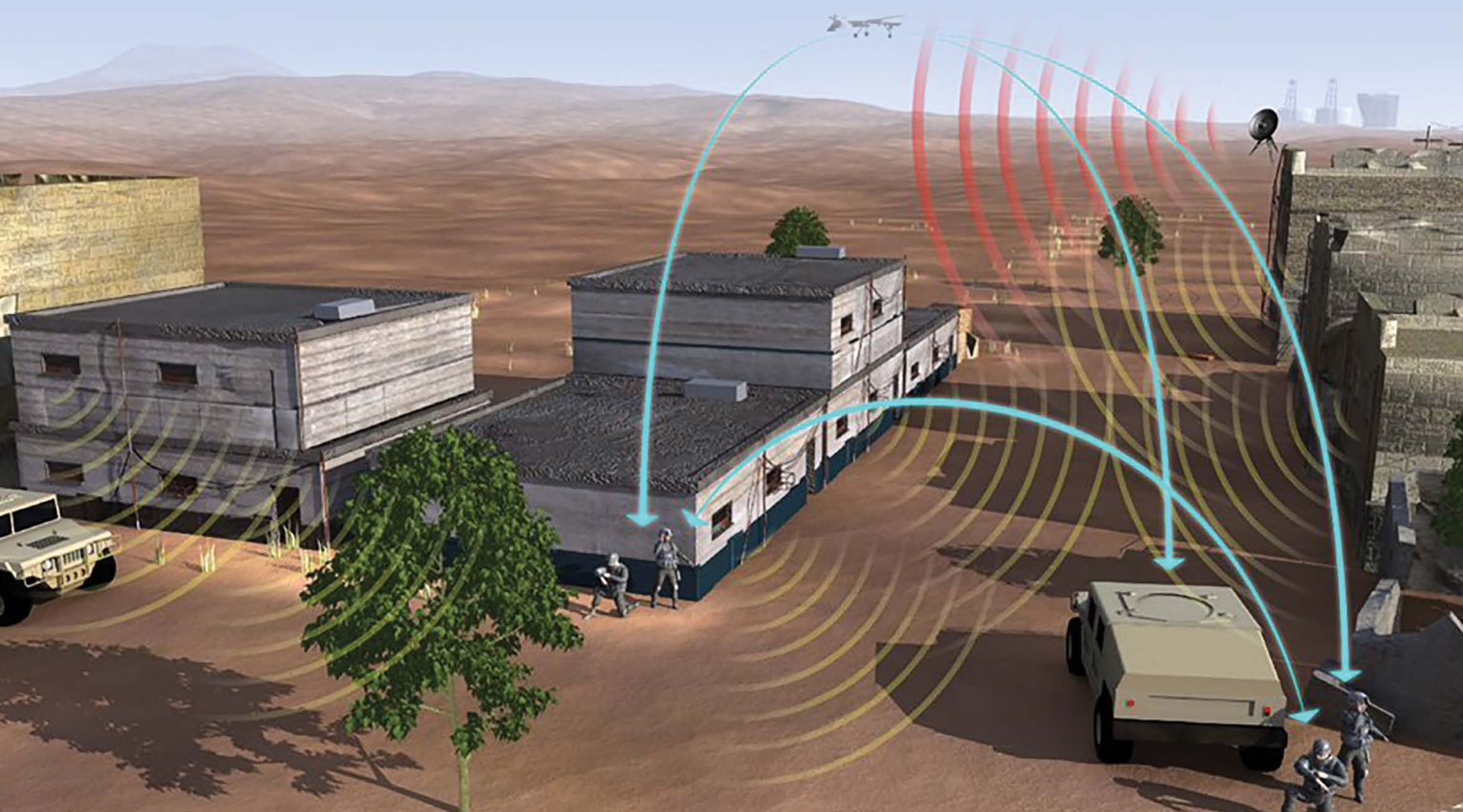
AD targeting context, the input sample would be data gathered through a range of sensors, and the output classes would be a classification of the target. A properly trained machine-learning algorithm with access to a wide range of accurate data would be then able to find the proverbial needle in the haystack and accurately classify a target, greatly accelerating and improving the hitherto laborious information fusion process.[9]

Much like its diminishing edge in sensors, the United States will not have a monopoly on these automated fusion techniques. By 2035, U.S. adversaries will likely have leveraged machine-learning techniques to fuse information gathered from a wide array of sensors to target their A2/AD weapons. This will present a novel set of challenges in how friendly forces conceal themselves. The wholesale collection of a wide range of signatures of friendly forces may nullify friendly efforts to camouflage in a monodimensional way. For example, minimizing electromagnetic emissions may have a negligible effect against an adversary that can still detect a unit's thermal, civilian contracting, or social media signature. In more general terms, creating a cohesive false negative against a highly sensitive, multi-domain sensor system will be almost impossible—the adversary will detect something, and well-trained AI will be able to extrapolate an accurate picture of the target from what is detected.

While daunting, this potential revolution in U.S. adversary's information-gathering and fusion techniques presents an opportunity for friendly forces to find the enemy in the battlefields of 2035. If done cohesively, novel multi-domain military deception can warp an adversary's algorithms and exploit organizational and procedural tensions between machine-learning-produced proposals and human decision-makers. This deception is not an end unto itself; to clarify the uncertain and contradictory targeting decision information, an adversary will be forced to expose its A2/AD architecture by using increasingly active means that emit unambiguous signatures. Deceiving an adversary into exposing critical nodes of its A2/AD architecture is central to finding well-hidden enemy forces in 2035.

Machine learning is not impervious to spoofing. Machine learning relies more heavily on readily quantifiable data as inputs than existing processes in which

New technologies will convert and integrate electromagnetic signals from multiple sources into digital data that can be processed at unprecedented speeds to enhance the warfighter's ability to see through enemy deception measures to identify and neutralize threats on the modern battlefield. Technological advancements will also dramatically upgrade the ability of friendly forces to deceive enemy intelligence collection efforts through improved electronic warfare measures. (Illustration courtesy of the Defense Advanced Research Projects Agency)



humans can place ambiguous evidence in context. Sensors narrowly focused on detecting specific, measurable electromagnetic, acoustic, thermal, gravitational, visual, vibrational, geotagged social media, or computer-aided text analysis data must feed cleanly into a machine-learning algorithm. This algorithm, in turn, is trained by forming correlations between similar signatures and known target characteristics.[10] Its accuracy hinges on the richness of its training dataset, where true positives and valid, associated covariates form a basis for the algorithm to be tuned and updated. In a military context, the true positives would be actual cases of the target, and the associated covariates would be the full range of measurable signatures across all domains. Currently, the fusion of multi-domain information happens through manpower-intensive cells on military staffs; machine learning offers the opportunity for this same process to happen rapidly, automatically, and through the recognition of patterns of correlations that may elude human cognition. Deliberately muddying the waters through military deception operations that obfuscate how a true target looks can undermine this learning process, tricking an AI-enabled A2/AD system to look in the wrong place for the wrong signatures. Or, as Edward Geist and Marjory Blumenthal put it, friendly forces can employ "fog of war machines" to confuse adversarial sensors and the associated machine-learning processes.[11]

This increased reliance on quantifiable data streams to feed a machine-learning-driven targeting algorithm can also open a critical vulnerability within an adversary's organization: it comes at the expense of human expertise and intuition, making the entire system vulnerable to multi-domain deception. The halting, uneven development of AI over the past several decades is littered with examples of seemingly clever machines that, when posed with real-life challenges beyond the narrow scope of their training, are completely baffled.[12] In contrast to conventionally programmed systems, there is no team of engineers who can easily tweak the code to better support the human decision-makers in the system but rather a black box where outputs are generated by hidden layers of weighted links within a neural network formed by iterating through training data.[13] This lack of clarity as to how the machine learns may cause friction in an AI-enhanced human decision-making system. Prior to a real-world failure, a machine-learning algorithm's assumed omniscience may diminish the relative value of human decision-making, creating the dilemma that when the machine-learning system is most needed it is least trusted, while the human-driven alternative to it has atrophied in status and capability.[14]

Deceiving an adversary's machine-learning-driven targeting system can trick the adversary into either activating high-signature sensors or striking at phantom targets. In future land conflict, this opens an important window of opportunity to deliver friendly joint counterbattery fires against the enemy's "kill chain" of sensors, command and control nodes, and weapons platforms.[15] What multi-domain military deception brings to future warfare is the potential to spoof the machine—to confuse an AI-augmented adversary's targeting chain—and through that deception, expose its reconnaissance and strike assets.

Recommendations

Developing and fielding the organizations, doctrine, training, and equipment needed for effective employment of multi-domain military deception requires a deliberate and coordinated approach.[16] This section outlines four specific considerations for a force capable of leveraging multi-domain deception to find the enemy in 2035. First, the components of an integrated, multi-domain deception posture must be flexible and adaptable to maintain a sustained deception effect against a learning adversary. Second, multi-domain full-spectrum deception cannot begin in a crisis but rather must be grounded in baseline conditions set during competition below the threshold of armed conflict. Third, as it is highly likely that land operations will involve allies and partners fighting alongside U.S. ground forces, multi-domain deception will be enhanced by including them into a theater-wide scheme. Lastly, multi-domain deception must not be viewed as an end unto itself but rather a means to prompt an adversary to "show its hand." By provoking an enemy's A2/AD kill chain to pursue phantom formations,

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multi-domain deception can stimulate—and therefore expose—critical components of its network to destruction.

The first consideration in developing multi-domain deception is the interactive, competitive, and evolutionary dynamic of military deception. Successful deception depends as much on an adversary's perceptions and interpretations of friendly signatures as it does on the emissions that formations generate. In addition to the technical dimensions of generating credible apparitions, there is a critical organizational element that is grounded in the U.S. adversary's military culture: what may fool Americans may not spoof an adversary, and methods that may be effective against one competitor may be discounted by another. Deception efforts must continuously adapt as adversary biases, capabilities, and doctrine evolve.

Second, successful deception in a crisis of conflict must be built on a foundation established in peacetime. Persistent competition below the threshold of armed conflict should include deliberate efforts to monitor, mask, and simulate the full spectrum of friendly land force signatures. The goal of this is twofold: first, to comprehensively "see ourselves" and second, to influence the training data sets that U.S. adversaries are building on friendly forces in peacetime to train their AI targeting systems. To achieve these goals, friendly formations operations in peacetime must be thoroughly monitored by teams tasked with building a comprehensive profile of a unit's signatures and emissions. This profile will be the baseline of what can be detected and exploited by an adversary's A2/AD sensors. These teams would monitor friendly forces in both simulated tactical engagements and during deployment to real-life forward locations. From this data, gathered in peacetime competition during rotational deployments and exercises, a thorough, all-spectrum picture of how land formations appear to the full range of an adversary's sensors can be painted.

That comprehensive signature of friendly forces catalogued in peacetime can be used in two distinct ways. The first is to mask the footprint of true formations by minimizing their emissions. Contrary to the conventional wisdom of "train as you fight," many of the steps that would be taken to mask a unit's footprint should only be taken in a real-world crisis. Exercising them routinely during peacetime competition would allow an adversary to learn alternate "tells" of a unit's location and disposition that are harder (or impossible) to mask during conflict. For example, minimizing a unit's electromagnetic footprint during a rotational deployment may drive an adversary to search more closely for other, less easily concealable signatures as key indicators of friendly forces.

In addition to informing how best to mask the true location of a friendly unit in crisis, the comprehensive signature of friendly forces can be replicated as a deception technique. This signature not only includes the military equipment of a friendly formation but also the social media and commercial contracting emissions that are produced by the deployment of such a force. Friendly deception units that can simulate the characteristics of full combat formations can act as "honey pots" that draw attention away from actual formations and fool the enemy into exposing critical components of its A2/AD kill chain.

Third, future warfare in the land domain is almost guaranteed to take place in a coalition context. To maximize the tactical effectiveness of multi-domain military deception, the signatures of allied and partner land formations should be measured and mimicked in a manner similar to American ground forces. At the theater level, this includes military deception operations involving ports of debarkation, strategic force hubs, and other critical infrastructure that enables friendly forces to surge into an area of operations. As these facilities are often near population centers and typically have dual civilian and military functions, special consideration must be given to allied concerns about and constraints on military deception activities. Clear lines reinforcing the protected status of certain facilities and personnel (e.g., hospitals, religious sites, medical personnel) must be drawn and communicated with U.S. allies to avoid any perception that these efforts would violate the Law of Armed Conflict.[17]

Finally, the overarching purpose of this multi-domain military deception effort is to find the enemy on the battlefields of the future. It is in presenting an irresistible, but false, target to the adversary where multi-domain military deception facilitates finding the enemy. Stimulating the enemy's integrated system of sensors and shooters by simulating the presence of lucrative, but phantom, targets can expose the high value, highly survivable assets in their kill chain. Effective deception can trigger a full range of adversary sensors—reconnaissance teams, electronic attack systems, satellites, unmanned aerial vehicles, ground surveillance radars, and cyber assets to activate in search of a chimera. An enemy's A2/AD weapons such as theater ballistic missiles, long-range artillery, and special forces would similarly deploy from secure, camouflaged

sites to strike what they believe are actual friendly concentrations. Anticipating this activation, friendly intelligence, surveillance, and reconnaissance systems, synchronized with the multi-domain military deception plan, can anticipate, sense, and exploit this overt and active enemy activity. Instead of an ineffective and costly search against hardened and camouflaged components of an A2/AD system, multi-domain military deception can trick our future adversaries into exposing themselves prematurely.

Implementing these recommendations requires detailed understanding of a great-power competitor, the proper level of friendly authorities and capabilities, and the posture during competition below the threshold of armed conflict to maintain and modulate an enduring deception campaign. In the Army's current structure, this task would most likely fall between the corps and the Army Service component command. As the Army adapts to great-power competition, the final recommendation of this article is that a field army, focused on competing against a specific adversary, should be the proponent for and integrator of multi-domain military deception operations.[18] Unburdened of the theater-wide responsibilities of the Army Service component command, and in contrast to a corps oriented on a specific adversary in peacetime competition, a field army would be best positioned to design and prosecute an enduring, cohesive, and tailored military deception campaign. Through this deception, the Army can force its adversaries to strike out blindly against shadows, exposing the critical components of their A2/AD architecture to detection, destruction, and ultimately, defeat. ■

Notes

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Analytic Tradecraft Standards

An Opportunity to Provide Decision Advantage for Army Commanders

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The Army Military Intelligence (MI) Corps has a challenging requirement to merge the expectations of its parent warfighting service with those of the intelligence community (IC). While distinct, these two communities naturally converge when providing defense intelligence at the joint and national levels. The best practices in one community can provide insights that improve performance in the other. In this regard, the nine analytic tradecraft standards in Intelligence Community Directive (ICD) 203, *Analytic Standards*, can be useful in further professionalizing Army all-source analysis. The Army lacks tradecraft standards to ensure analytic rigor throughout the intelligence process, undermining the role of analysts as providers of a unique service that commanders cannot obtain elsewhere. Commanders have no shortage of options when soliciting insights about the operational environment. Army analysts in uniform have an advantage as they are fellow warfighters who can relate to their commanders, but that alone is not enough. The Army's implementation of ICD 203 and the creation of nested analytic tradecraft standards would further enhance the value of the MI Corps to commanders by filling a significant gap in how analysts are trained.

Far from being a purely IC invention, analytic tradecraft is instinctively what Army commanders have always wanted from their intelligence staffs. For example, Gen. Norman Schwarzkopf recognized the need for common IC standards well before the first publication of ICD 203 in 2007. During congressional testimony in 1991, Schwarzkopf provided critiques of the intelligence support he received as commander of U.S. Central Command during Operation Desert Storm. He stated, "I personally feel that there's a serious need to develop a standardized methodology within the intelligence community for making estimates and predictive analysis."[1] He further commented how IC assessments were "unhelpful" because they were heavily "caveated" and contained "so many disclaimers." Today, three of the nine analytic tradecraft standards in ICD 203—the standards for uncertainty, argumentation, and accuracy—would address any problems like those identified by Schwarzkopf in 1991.

Other senior Army officers recognized the benefits of what we now call analytic tradecraft. Throughout his career, Gen. Colin Powell applied a set of rules for his intelligence staffs: "Tell me what you know. Tell me what you don't know. Then tell me what you

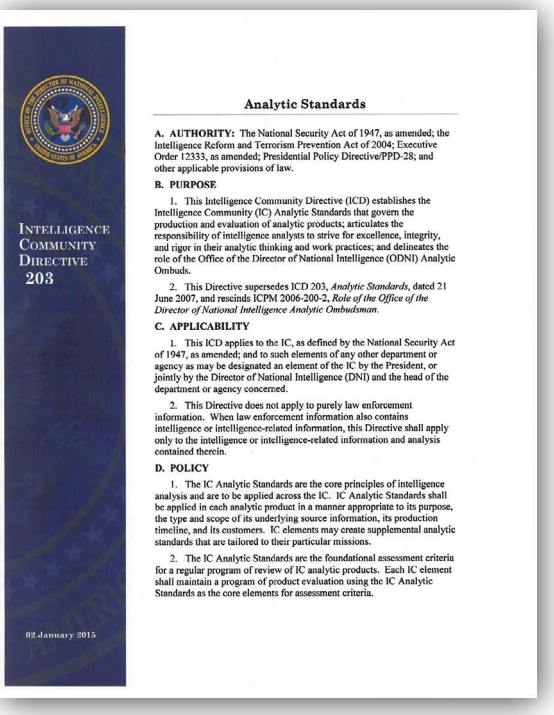
Pfc. Shawn Mount (*right*), an intelligence analyst from the 18th Combat Sustainment Support Battalion, gives Maj. Gen. Jack O'Conner, commander of the 21st Theater Sustainment Command, a briefing on enemy activity 16 May 2014 using a sand table of the Hohenfels Training Area the soldier built in Hohenfels, Germany. (Photo by 1st Lt. Henry Chan, U.S. Army)

think. Always distinguish which from which."[2] These rules closely mirror the analytic tradecraft standards for distinction and uncertainty. Gen. Stanley McChrystal also came to appreciate the tradecraft standard for distinction before it was officially codified in ICD 203, specifically the requirement to transparently identify key assumptions. He acknowledged that his special operations headquarters in late 2003 assumed that al-Qaida in Iraq had a "traditional pyramid-shaped hierarchy" when in reality the group consisted of "tangled networks" that exhibited "unfamiliar patterns."[3] McChrystal's command conducted operations against al-Qaida based on this faulty assumption. Chris Fussell, a former Navy SEAL officer under McChrystal at the time, remarked how "biases" led to this faulty assumption that the command eventually corrected "nearly too late."[4]

The Army and the other military services are significantly behind the rest of the IC in further professionalizing their all-source analytic workforce. Since 2001, two national commissions examined intelligence failures associated with the 9/11 terrorist attacks and Iraq's weapons of mass destruction programs prior to 2003. Both commissions identified deficiencies in the IC's analytic performance. Some IC organizations have already addressed these deficiencies by issuing ICD 203 implementation guidance and developing nested analytic tradecraft standards. However, the Army has yet to act upon the widely documented failures over the last two decades. A 2018 Department of Defense (DOD) inspector general report concluded that the "majority" of uniformed analysts assigned to combatant commands (CCMDs) "had no prior training on ICD 203."[5] This report further concluded that uniformed

analysts were "often less proficient in applying ICD 203 standards … than their civilian counterparts." As a learning organization, the Army must heed the lessons learned since 2001 and examine best practices throughout the IC for relevance to the ground warfighting mission (see table, page 92).

The central role of all-source analysis makes tradecraft a pressing requirement for the Army. The intelligence warfighting function is unique because it elevates the mere act of thinking to the level of a core competency (i.e., intelligence analysis).[6] The MI Corps' most decisive interaction with commanders on a battlefield is through its all-source analytic community. Analysis is the final output that represents the type of refined knowledge that commanders ultimately expect from their intelligence staffs. This reality is reflected in the fact that commanders approve priority intelligence requirements—which are inherently analytic requirements—but they do not necessarily approve the supporting information or collection requirements. Strict standards should govern any core competency that has such a direct role in enabling decisions and framing commanders' visualization of the operational environment. The Army currently provides no service-wide direction on how to implement ICD 203 analytic tradecraft standards, which limits its ability to ensure all-source analysis is conducted with a level of rigor that commanders deserve.


INTELLIGENCE COMMUNITY DIRECTIVE 203

02 January 2015

Analytic Standards

A. AUTHORITY: The National Security Act of 1947, as amended; the Intelligence Reform and Terrorism Prevention Act of 2004; Executive Order 12333, as amended; Presidential Policy Directive/PPD-28; and other applicable provisions of law.

B. PURPOSE

1. This Intelligence Community Directive (ICD) establishes the Intelligence Community (IC) Analytic Standards that govern the production and evaluation of analytic products; articulates the responsibility of intelligence analysts to strive for excellence, integrity, and rigor in their analytic thinking and work practices; and delineates the role of the Office of the Director of National Intelligence (ODNI) Analytic Ombuds.

2. This Directive supersedes ICD 203, *Analytic Standards*, dated 21 June 2007, and rescinds ICPM 2006-200-2, *Role of the Office of the Director of National Intelligence Analytic Ombudsman*.

C. APPLICABILITY

1. This ICD applies to the IC, as defined by the National Security Act of 1947, as amended; and to such elements of any other department or agency as may be designated an element of the IC by the President, or jointly by the Director of National Intelligence (DNI) and the head of the department or agency concerned.

2. This Directive does not apply to purely law enforcement information. When law enforcement information also contains intelligence or intelligence-related information, this Directive shall apply only to the intelligence or intelligence-related information and analysis contained therein.

D. POLICY

1. The IC Analytic Standards are the core principles of intelligence analysis and are to be applied across the IC. IC Analytic Standards shall be applied in each analytic product in a manner appropriate to its purpose, the type and scope of its underlying source information, its production timeline, and its customers. IC elements may create supplemental analytic standards that are tailored to their particular missions.

2. The IC Analytic Standards are the foundational assessment criteria for a regular program of review of IC analytic products. Each IC element shall maintain a program of product evaluation using the IC Analytic Standards as the core elements for assessment criteria.

To view Intelligence Community Directive 203, *Analytic Standards*, visit https://www.dni.gov/files/documents/ICD/ICD%20203%20Analytic%20Standards.pdf.

There are several implications for the Army's lack of routine and consistent application of analytic tradecraft standards. First, analysts are more vulnerable to cognitive biases. As Dr. Richards Heuer, author of *The Psychology Intelligence Analysis*, stated, "Cognitive limitations cause people to employ various simplifying strategies and rules of thumb to ease the burden of mentally processing information."[7] These simplifying strategies are the source of cognitive biases. These biases cause analysts to rely on preexisting "mental models" formed through past experiences, rather than objective realities on the ground.[8] Second, analysts who already apply critical and creative thinking to mitigate cognitive biases are doing so largely in a vacuum without the benefit of institutionalized analytic tradecraft standards to ensure consistent application across the force. Finally, Army analysts face interoperability challenges when collaborating with their counterparts throughout the IC. The analytic tradecraft standards in ICD 203 promote interoperability throughout the IC by providing a common framework while allowing each organization to tailor how it implements the standards.

The Evolution and Components of Analytic Tradecraft

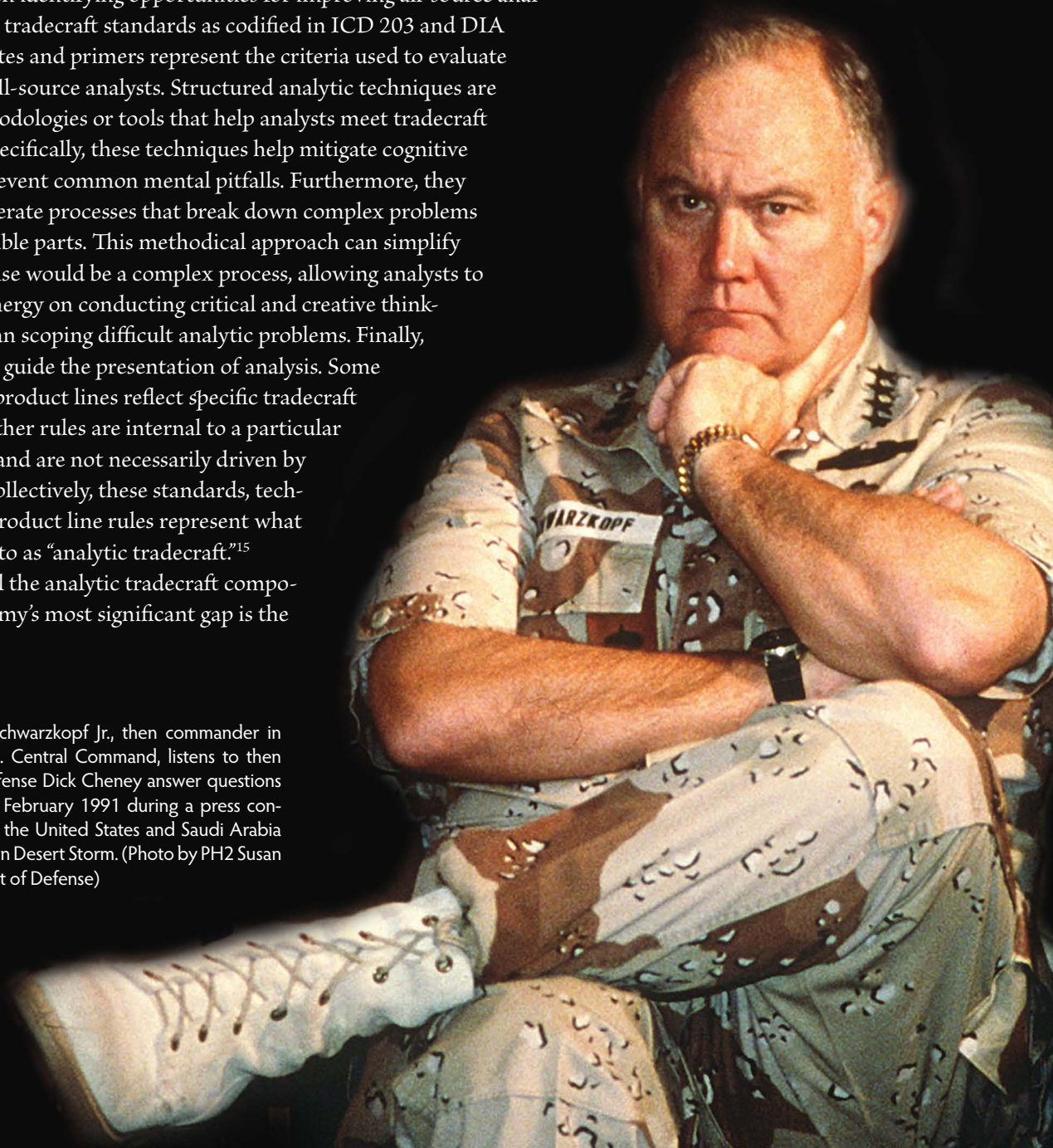
The evolution of analytic tradecraft provides best practices that the Army can leverage. The need for IC-wide standards for all intelligence functions—not just for analysis—was clearly documented in the 9/11 commission report that examined the circumstances leading to the terrorist attacks of 11 September 2001.[9] The 2004 Intelligence Reform and Terrorism Prevention Act established the Office of Director of National Intelligence (ODNI) and required it to establish IC-wide analytic tradecraft standards.[10] The need for such standards received further emphasis in 2005 when the Weapons of Mass Destruction Commission documented IC failures to apply "fundamental logical and analytic principles" prior to the 2003 U.S. military intervention in Iraq.[11] In 2007, ODNI codified eight analytic tradecraft standards (eventually nine) when it published ICD 203 (see table).[12] Some IC organizations have developed their own tailored standards using ICD 203 as

a baseline. These experiences provide valuable insights on how to tailor and apply national-level standards to an all-source analytic organization's unique mission.

The Defense Intelligence Agency (DIA) represents a useful case study on how to apply ICD 203 within a defense context. The DIA Office of the Research Director publishes tradecraft notes and primers that contain implementation guidance and agency-specific standards nested under those found in ICD 203. These notes and primers form the core of DIA's curriculum for its initial-entry training of civilian analysts in the Professional Analyst Career Education course. The DIA tailors its guidance and standards to its defense-oriented mission and product lines. For example, the ICD 203 tradecraft standard for accuracy provides broad guidance to "express judgments as clearly and precisely as possible."[13] The DIA expands upon this standard by requiring analysts to make judgments only on "outcomes, actions, or behavior." The agency generally prohibits assessments on a foreign actor's "mental states or beliefs" because they are inherently untestable and difficult to evaluate without specialized expertise.[14] DIA issues similar guidance and agency-specific standards for other ICD 203 tradecraft elements.

Analytic tradecraft has multiple components that are important to understand when identifying opportunities for improving all-source analysis. Analytic tradecraft standards as codified in ICD 203 and DIA tradecraft notes and primers represent the criteria used to evaluate the work of all-source analysts. Structured analytic techniques are various methodologies or tools that help analysts meet tradecraft standards. Specifically, these techniques help mitigate cognitive biases and prevent common mental pitfalls. Furthermore, they employ deliberate processes that break down complex problems into manageable parts. This methodical approach can simplify what otherwise would be a complex process, allowing analysts to focus their energy on conducting critical and creative thinking rather than scoping difficult analytic problems. Finally, product lines guide the presentation of analysis. Some rules within product lines reflect specific tradecraft standards. Other rules are internal to a particular product line and are not necessarily driven by tradecraft. Collectively, these standards, techniques, and product line rules represent what the IC refers to as "analytic tradecraft."[15]

Among all the analytic tradecraft components, the Army's most significant gap is the



Gen. Norman Schwarzkopf Jr., then commander in chief of the U.S. Central Command, listens to then Secretary of Defense Dick Cheney answer questions from the media February 1991 during a press conference held by the United States and Saudi Arabia during Operation Desert Storm. (Photo by PH2 Susan Carl/Department of Defense)

Table. Intelligence Community Directive 203 Analytic Tradecraft Standards and Defense Intelligence Agency Application

Intelligence Community Directive (ICD) 203 analytic tradecraft standards	Defense Intelligence Agency (DIA) application of ICD 203
Sourcing: Properly describe the quality and credibility of underlying sources, data, and methodologies used to arrive at analytic conclusions.	**Sourcing**: DIA is more specific in its guidance than ICD 203, requiring products to have source characterizations, source summary statements, and endnote citations.
Uncertainty: Properly express and explain uncertainties associated with major analytic conclusions.	**Uncertainty**: Like ICD 203, DIA's guidance focuses on two concepts: likelihood of events and confidence levels. DIA provides a specific framework to determine both.
Distinctions: Properly distinguish between underlying evidence and analysts' assumptions and judgments.	**Distinctions**: DIA introduces the idea of signaling language to help with distinctions. It also introduces a technique called key assumptions check.
Alternatives: Always consider plausible alternatives to the main analytic conclusion.	**Alternatives**: DIA provides specific guidance on how to develop and present analysis of alternatives.
Relevance: Demonstrate relevance by addressing implications for analytic conclusions provided to intelligence consumers.	**Relevance**: DIA explains this standard in specific terms, telling analysts to "go beyond the obvious" and identify "vulnerabilities and leverage points."
Argumentation: Prominently display the main analytic conclusion and distinguish from subordinate conclusions. Combine evidence and reasoning to support conclusions.	**Argumentation**: DIA guidance discusses argument mapping, linking logic, and argument evaluation as tools to meet the broad standard in ICD 203.
Analytic line: Be transparent about how an analytic conclusion is different than previously published analysis.	**Analytic line**: DIA provides example language to use in communicating changes to previous analytic conclusions.
Accuracy: Ensure clarity of message in all analytic products.	**Accuracy**: DIA prohibits relative assessments (e.g., "increases the risk of") and assessments of mental states or beliefs.
Visualization: Use visual information to clarify, complement, or enhance the presentation of analysis.	**Visualization**: DIA discusses the different types of visuals: tables, charts, timelines, maps, imagery, photos, custom infographics, and interactive graphics.

(Table by authors)

lack of codified standards. The Army lacks its own tailored version of ICD 203 that is approved by a central authority and consistently applied across the force. In other words, the Army does not provide guidance and tailored standards to help its analysts understand ICD 203 in a service-specific context. This gap can lead to the misconception that analytic tradecraft is inconsistent with the Army's mission. At their core, the analytic tradecraft standards in ICD 203 reflect universal principles related to critical and creative thinking that could easily apply outside of an intelligence context. However, the Army must provide implementation guidance and service-specific standards to make analytic tradecraft practical for its analysts. Without guidance and tailored standards, the Army will struggle to bridge the wide gap between the national-level standards of ICD 203 and the practitioner's interpretation of how to implement them in a local context.

The Army has already implemented some components of analytic tradecraft. The MI Corps teaches its own variation of structured analytic techniques designed for battlefield application. Some of these techniques are identical to those taught to DIA analysts. For example, step four of the intelligence preparation of the battlefield (IPB) process incorporates two techniques that are taught to DIA analysts. First, Army analysts conduct what the DIA refers to as "hypotheses generation" whenever they develop multiple enemy courses of action during IPB. Second, they conduct what the DIA refers to as "analysis of competing hypotheses" when creating an event matrix to identify which course of action the enemy will conduct. Other structured analytic techniques are unique to the Army's mission, such as the time-event chart and the framework for assessing the civil considerations of areas, structures, organizations, people, and events. To display the results of these techniques, doctrinal publications provide example products and templates—the rough equivalent of DIA product lines—that units can use.

Army Interoperability with the Intelligence Community

There are budgetary and funding considerations that must be understood in order to properly characterize the Army's relationship with the IC. By default, ICD 203 and other ODNI directives are not binding on the entire Army unless specifically dictated by policy. Although it is one of seventeen members of the IC, the Army manages its own intelligence funding stream and exercises significant autonomy over how its soldiers are trained. The ODNI manages implementation of the National Intelligence Program, whereas the Office of the Secretary of Defense—more specifically, the Undersecretary of Defense for Intelligence—manages the Military Intelligence Program. Under the Office of the Secretary of Defense's direction, the military services manage their own Military Intelligence Program funding sources that provide resources for much but not all of their intelligence capabilities.[16] As a result, service cultures heavily influence how MI capabilities are developed. In general, the services have prioritized battlefield integration by developing their intelligence force as interoperable elements within their larger service-specific formations.

Legislative, policy, and doctrinal factors can further explain the autonomy of the services in developing their own MI capabilities. The 2004 Intelligence Reform and Terrorism Prevention Act is clear that

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Maj. James S. Kwoun, U.S. Army, is assigned to the Defense Intelligence Agency where he teaches agency analysts on tradecraft standards. He previously served as a branch chief in the same agency, supervising all-source analysts who produced authoritative political-military and terrorism-related assessments on North and West Africa. Prior to his service at the Defense Intelligence Agency, Kwoun served in intelligence positions at the combatant command level and various assignments at the brigade level and below. His overseas tours and deployments include the Republic of Korea, Iraq, and Afghanistan.

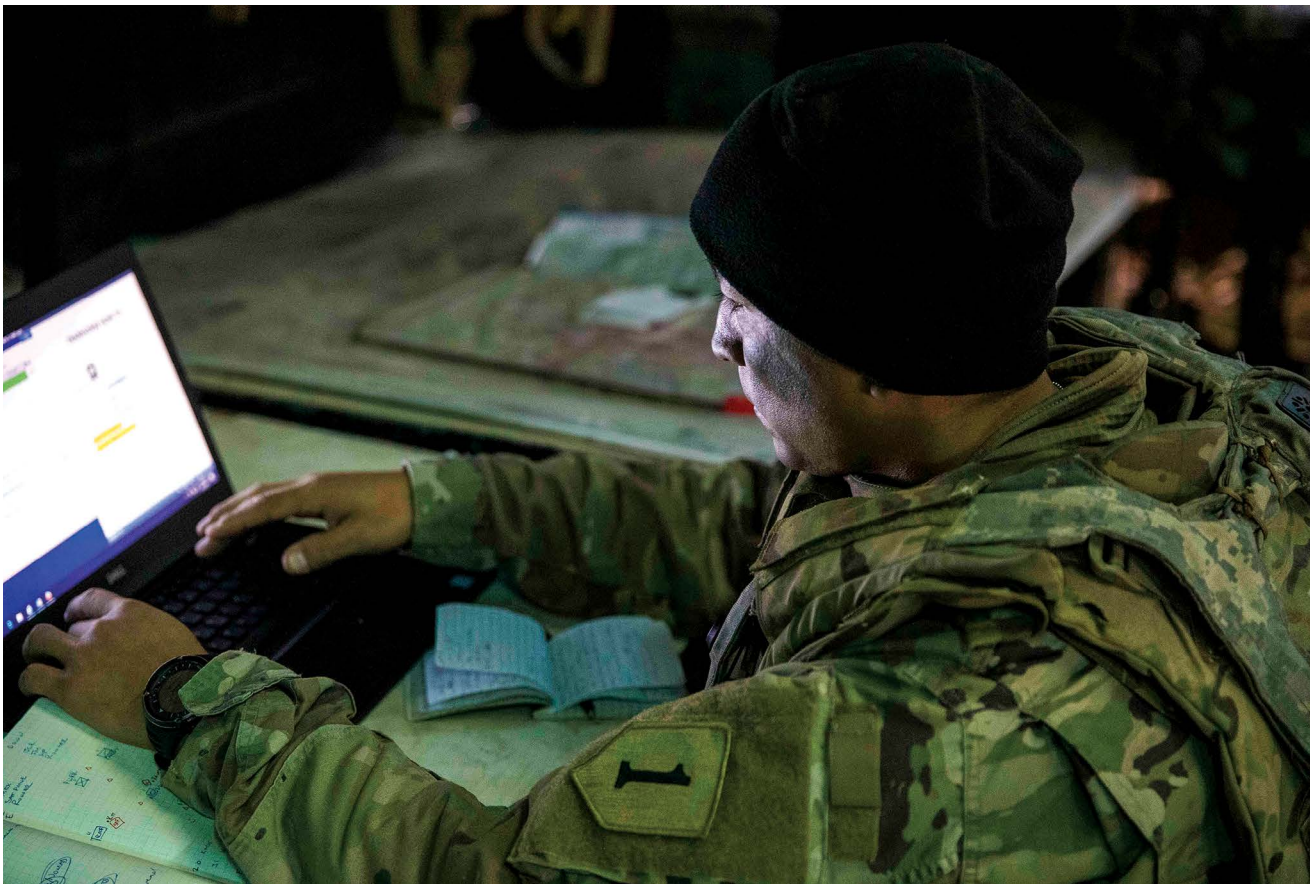
ODNI policies regarding "standards for education, training, and career development … shall not be inconsistent with the personnel policies otherwise applicable to members of the uniformed services."[17] Furthermore, DOD policy authorizes each of the services to maintain "intelligence capabilities necessary to fulfill service-specific intelligence needs."[18] Finally, doctrine advises joint commanders to "allow service and special operations tactical and operational forces … to function generally as they were designed," which includes the analytic and collection capabilities organic to many units.[19] The consensus is that the services require wide latitude in developing and employing organic intelligence capabilities to succeed in their respective warfighting domains. Given this latitude, the Army has chosen to focus its analysts on learning battlefield processes in direct support to ground commanders at the tactical and operational levels.

"The Army has chosen to focus its analysts on learning battlefield processes in direct support to ground commanders at the tactical and operational levels."

This focus, while critical to success in ground combat, has created interoperability issues between the Army and the rest of the defense intelligence enterprise (DIE), the DOD component of the IC. The Army routinely collaborates with DIE organizations that have already implemented ICD 203, creating a need for horizontal alignment of analytic tradecraft across the enterprise. The Army is a significant force provider for DIE and a smaller subset of that community called the defense intelligence all-source analysis enterprise (DIAAE). The DIAAE consists of DIA, CCMD joint intelligence operations centers (JIOCs), and service intelligence centers.[20] Collectively, these organizations represent DOD's strategic all-source analytic community. The National Ground Intelligence Center, one of four service intelligence centers, represents the Army in the DIAAE. The Army also contributes individual personnel to joint organizations in the DIAAE, namely to DIA and CCMD JIOCs. The Army's role in providing strategic-level assessments requires the adoption of analytic tradecraft standards that are compatible with those used by the rest of the enterprise.

The services' failure to implement ICD 203 is one of the primary obstacles preventing tradecraft interoperability among the DIAAE organizations responsible for producing strategic-level assessments for DOD decision-makers. Currently, only DIA civilians, analysts assigned to the agency's headquarters, and CCMD JIOCs are required to learn common analytic tradecraft as part of the Professional Analyst Career Education Course. The service intelligence centers may have local analytic tradecraft standards, but so far they have not been formally adopted by the parent military services. The lack of common analytic tradecraft is problematic because each DIAAE organization is an authoritative producer on topics managed under the Defense Intelligence Analysis Program, a framework overseen by DIA that assigns analytic responsibilities.[21] A community that conducts analysis based on the same framework should use common standards. Each DIAAE organization could benefit by broadly aligning itself with the DIA's tradecraft standards, given the central role of the agency in integrating the DOD's strategic analytic community.

The Army's improved integration with other DIAAE and IC organizations will ensure that its unique perspective is incorporated into all-source analysis disseminated to decision-makers throughout the interagency community. The Army MI Corps' contribution to U.S. national security goes beyond its activities at the tactical and operational levels. Army officers and enlisted personnel are assigned throughout the DOD and the IC, routinely providing strategic analysis for senior commanders and civilian policy makers. The MI Corps has unique insights that the interagency community values, but it must ensure that its analysts are trained to work alongside their DIAAE and IC counterparts to deliver these insights in strategic-level



Warrant Officer Alan Mendoza, an all-source intelligence technician assigned to 2nd Battalion, 34th Armored Regiment, 1st Armored Brigade Combat Team, reviews significant activity 8 April 2019 during exercise Allied Spirit X in Hohenfels, Germany. (Photo by Sgt. Thomas Mort, U.S. Army)

forums. Creating tailored analytic tradecraft standards based on ICD 203 would promote interoperability with organizations beyond the Army. Reflecting the need for warfighters to think beyond their respective services, Gen. James Mattis once said,

> In this age, I don't care how tactically or operationally brilliant you are, if you cannot create harmony—even vicious harmony—on the battlefield based on trust across service lines, across coalition and national lines, and across civilian/military lines, you need to go home, because your leadership is obsolete. We have got to have officers who can create harmony across all those lines.[22]

Alignment of analytic tradecraft must also occur vertically across all echelons below the strategic level. The intelligence staffs of higher headquarters provide assessments that frame problems for subordinate units. In turn, subordinate units refine these assessments, providing details that only units closer to the fight can obtain. In his memoirs, Mattis described how intelligence staffs in Iraq in late 2003 had significant differences in their assessments regarding the insurgency.[23] He recounted how the 82nd Airborne Division assessed an organized insurgency based on "coordinated patterns of attack." He further described how the V Corps, the core of Combined Joint Task Force 7 at the time, assessed that violence was the work of "robbers and a few disgruntled former soldiers." Mattis described these assessments as "odd" given that Gen. John Abizaid, then commander of the U.S. Central Command, described the insurgency as "a classical guerrilla-type campaign." This situation underscores the need for common underlying standards across all echelons. Analytic disagreements can be healthy only if transparency and integrity exist in the underlying process.

Soldiers from the 341st Military Intelligence Battalion conduct low-level voice interception 8 February 2020 at Joint Base Lewis-McChord, Washington, in preparation for Panther Strike, a brigade-level exercise at Camp Williams, Utah. The battalion exercise focused on integration of signal intelligence, counterintelligence, geospatial intelligence, and human intelligence collection. (Photo by Joseph Siemandel, Washington National Guard Public Affairs)

Addressing Potential Misconceptions About Analytic Tradecraft

The Army must accept the premise that analytic tradecraft can be just as useful at the tactical level as it is at the strategic level. The application of tradecraft will be different at each level, but the need for critical and creative thinking does not disappear at lower echelons. In fact, analysts at the tactical level are often the most vulnerable to cognitive biases. The urgency of ground combat and the rapid tempo of operations can create incentives for analysts to employ the "simplifying strategies" that Heuer argued were the source of cognitive biases.[24] The Army has a moral imperative to mitigate these biases and generate competitive advantages on the battlefield to support those soldiers closest to the fight. Improvements to tactical-level analysis will also yield direct strategic benefits. As Maj. Gen. Bob Scales wrote in 2016, "all our enemies have recognized that our vulnerable strategic center of gravity is dead Americans."[25]

Far from hindering rapid thinking, analytic tradecraft will enable all-source analysts to operate more effectively under time constraints. When pressed for time, most analysts' natural reaction will be to rely on their intuition and existing mental models of how to perceive the battlefield.[26] While a soldier's instincts are valuable, there are many problems with making intuition the sole mechanism that guides analysis. Doctrinal processes, such as IPB, can help analysts narrow their focus on relevant aspects of the operational environment. However, analysts are still left to rely on their

own individual intuition when making assessments, creating circumstances conducive to cognitive biases. The Army's implementation of analytic tradecraft standards will provide a universal framework and structure for thinking that analysts currently lack. Over time, analysts' proficiency in applying tradecraft will become more instinctive as they gain experience. Thus, the Army can train its analysts to think effectively under time-sensitive circumstances by making critical and creative thinking a natural part of what they do.

The application of analytic tradecraft can be abbreviated just like units routinely do with doctrinal processes on a time-sensitive battlefield. The Army already embraces the idea that learning something in its deliberate form will enable its abbreviated application under time constraints. As Field Manual 6-0, *Commander and Staff Organization and Operations*, states, the military decision-making process (MDMP) is conducted deliberately if time allows, but commanders "may alter the steps of the MDMP to fit time-constrained circumstances."[27] The deliberate application of MDMP is arguably more time-consuming than most structured analytic techniques used by national intelligence agencies. It is also useful to consider an analogy involving the three types of integrating cells in Army command posts: plans, future operations, and current operations.[28] Each of these cells works within a different planning horizon, but personnel in every cell must still have a common understanding of how to develop an operation plan and order. Similarly, analysts at the tactical and operational levels must have the same foundational understanding of critical and creative thinking (i.e., analytic tradecraft) as their civilian counterparts at the strategic level.

Recommendations

The Army should voluntarily subject its analysts to ICD 203 to align itself with the rest of the IC and further professionalize its all-source analytic community. As highlighted earlier, ICD 203 is not binding on the entire Army by default. The Army can implement the current version of ICD 203 without automatically subjecting the entire force to future directives from ODNI that may not be appropriate. Adherence to ICD 203 will significantly improve the Army's interoperability with other DIAAE members and IC all-source analytic organizations. Joint doctrine recognizes these potential benefits, specifically stating that all-source analysts operating in a joint capacity "should comply" with ICD 203.[29] To ensure consistent application across the force, there must be one primary authority in the Army on all analytic tradecraft matters similar to the role played by the DIA Office of the Research Director. Consistent application of analytic tradecraft would enhance battlefield integration by giving the Army a common vocabulary and frame of reference during analyst-to-analyst discussions and more importantly, during analyst-to-commander discussions.

As the Army conceptualizes its own approach to implementing ICD 203, it must carefully balance three primary requirements. First, the Army should establish its own analytic tradecraft standards tailored for ground combat. Ground combat presents analytic challenges that are significantly different than those faced by other IC members. Without tailored standards, analysts will be forced to rely purely on their own interpretation of how to apply national-level standards to their local circumstances. Second, different parts of the MI Corps will need to apply and enforce analytic tradecraft standards in their own way. The National Ground Intelligence Center, for example, may need to apply tradecraft in a manner like the DIA based on their common role of providing strategic-level assessments as part of the DIAAE. Finally, the Army must ensure that whatever tailored tradecraft it develops is nested under the common standards of ICD 203 to maximize interoperability with the rest of the IC. Balancing these requirements would enable the Army to interchangeably fulfill multiple roles: as a warfighter with organic intelligence capabilities, as a member of the DOD's strategic analytic community, and as a member of the national IC.

Once Army-specific analytic tradecraft standards are established, they should be comprehensively integrated into doctrine. Doctrinal publications must explicitly label these standards as fundamental principles that apply to the Army's all-source analytic community rather than mere best practices for analysts to consider. Additionally, publications should integrate tradecraft standards in sections that discuss foundational processes such as IPB and the Army design methodology. There are already direct parallels between ICD 203 and existing doctrinal processes

that can facilitate this integration. The integration of tradecraft into doctrine, however, must go beyond merely listing each analytic tradecraft standard in separate chapters within publications. The Army must communicate that tradecraft standards represent an ethos that should reflect everything all-source analysts do rather than representing a simple checklist to examine after products have already been developed. Ultimately, this entire effort will improve the Army MI Corps' ability to execute its current doctrine.

belies the difficulty of creating service-specific standards and applying them during operations. Training scenarios can help analysts gain experience making decisions involving tradeoffs when applying tradecraft. Analysts may sometimes choose to omit certain tradecraft elements during briefings but may apply them to written products. Tradecraft standards do not limit an analyst's flexibility in making informed decisions on how best to communicate with commanders. DIA acknowledges that similar decisions may need to be

> The key to implementing analytic tradecraft in the Army will be to establish a spectrum that outlines how deliberately leaders can enforce standards under different circumstances.

The Army should leverage parallels between existing publications and ICD 203 when integrating analytic tradecraft standards into doctrine. For example, Army Doctrine Publication 5-0, *The Operations Process*, describes the importance of "breaking old habits of thought" and countering "biases" throughout the operations process.[30] The doctrinal definition of the Army design methodology includes the words "critical and creative thinking."[31] These doctrinal passages are nearly identical to how the IC describes the role and purpose of analytic tradecraft. Additionally, IPB already reflects some tradecraft standards in ICD 203. IPB requires the development of a most likely threat course of action, the primary analytic conclusion derived from subordinate assessments regarding the terrain, weather, civil considerations, and threat capabilities. This effort is consistent with DIA's tradecraft standard for argumentation that requires the presentation of a "primary analytic message" supported by "subordinate assessments."[32] Finally, Army analysts are adhering to the tradecraft standard for alternatives when they develop a most dangerous threat course of action that alerts commanders to a low-probability/high-impact scenario.

The Army should also incorporate its analytic tradecraft standards into training at its Intelligence Center of Excellence, combat training centers, and other venues. When read initially, ICD 203 can appear simple and straightforward. However, its simplicity

made at the strategic level. For example, ICD 203 requires the consideration of alternatives for every assessment, but DIA guidance states that "not every alternative generated in the thinking stage will necessarily warrant presentation to clients."[33] The Army can train analysts to make decisions on how to apply analytic tradecraft standards using existing scenarios, curriculums, and programs of instruction.

The key to implementing analytic tradecraft in the Army will be to establish a spectrum that outlines how deliberately leaders can enforce standards under different circumstances. Some circumstances may allow for a more deliberate process, including the use of structured analytic techniques and multiple layers of product reviews, to ensure that all-source analysis adheres to tradecraft standards. If time and space allow, this type of process may be ideal for analysts supporting long-range planning or future operations. However, other environments may require rapid assessments to support commanders in fluid situations. In these cases, leaders must apply their judgment on the extent to which they should abbreviate the analytic process based on the variables of mission, enemy, terrain, troops available, time, and civilian considerations; commander's intent; the unit's decisive operation; and the main effort at any given time. Even if the analytic process is heavily abbreviated, leaders can mitigate the risks of omitting tradecraft by making informed decisions based on full awareness of what is being left out.

Concluding Thoughts

The widely recognized merits of analytic tradecraft standards make for an easy decision by the Army to implement ICD 203. All-source analytic organizations across the IC have already developed their own tradecraft standards using ICD 203 as the starting point. Within the DOD, DIA's analytic tradecraft program is the most mature since it also applies to the vast majority of civilian analysts working in CCMD JIOCs, who are agency employees. The core ideas contained within ICD 203 could easily apply to any mission because they reflect universal principles related to critical and creative thinking. In fact, private firms led by former IC analysts offer consulting services and lessons on analytic tradecraft to businesses that want to better understand their commercial environment.[34] In other words, tradecraft expertise is something businesses are willing to purchase in the free market, which speaks to its inherent and universal value. The Army must seize the opportunity to develop its own analytic tradecraft expertise, leveraging its organic resources and relationships throughout the IC.

This article provides a conceptual foundation for more detailed planning to implement ICD 203 across the Army. This planning must involve leaders outside of the MI Corps, especially commanders throughout the force. The Army must also leverage its relationships with IC organizations that have already tailored ICD 203 to their unique missions. In particular, the DIA's experiences applying ICD 203 could be useful, given the agency's focus on defense issues. These interactions will address a key tenet of the Army's concept of multi-domain operations, namely the importance of "interoperability across service, interagency, and multinational partners" in future conflicts.[35] The MI Corps has an opportunity to cultivate a unique combination of ground warfighting acumen and analytic tradecraft expertise within its all-source analytic community. In addition to providing decision advantage on the battlefield, this unique combination of skills would provide a valuable perspective in strategic and interagency forums that can shape critical decisions impacting our soldiers. ■

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FUTURE WARFARE WRITING PROGRAM

Call for Speculative Essays and Short Works of Fiction

Military Review calls for short works of fiction for inclusion in the Army University Press Future Warfare Writing Program (FWWP) for 2021. The purpose of this program is to solicit serious contemplation of possible future scenarios through the medium of fiction in order to anticipate future security requirements. As a result, well-written works of fiction in short-story format with new and fresh insights into the character of possible future martial conflicts and domestic unrest are of special interest. Detailed guidance related to the character of such fiction together with submission guidelines can be found at https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/Future-Warfare-Writing-Program-Submission-Guidelines/. To read previously published FWWP submissions, visit https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/.

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From Cambrai to Cyberspace

How the U.S. Military Can Achieve Convergence between the Cyber and Physical Domains

Maj. Anthony M. Formica, U.S. Army

The United States has run out of time for developing approaches to compete in the cyber domain, and it must use the assets and forces currently available to prevent future strategic setbacks. The United States' most likely geopolitical adversaries have developed operational concepts that fuse operations in the cyber domain with operations in the physical domains of land, sea, air, and space. The fusion makes almost impossible the timely consensus required to identify and act in response to threats. Some of the more spectacular successes of this emergent way of warfare are known colloquially as "Georgia," "Crimea," and "Ukraine," suggesting that the

convergence predicted by the Army's operating concept already happened roughly a decade ago. The Army and joint force cooperatively need to develop both an immediate solution and a new doctrinal framework while remaining clear-eyed about the challenges that convergence poses to U.S. elements of national power, its ethical and legal approaches to warfighting, and its conception of the profession of arms.

"An Urgent Warning"

Gen. Sir Richard Shirreff's 2016 novel *War with Russia: An Urgent Warning from Senior Military Command* contains a fictional description of Moscow initiating a war with Latvia. Long before conventional Russian military forces cross the narrow border separating their country from Latvian territory, Russian bots and trolls stage an elaborate social engineering effort that exposes the ethnic Russian population of Riga to "a constant stream of Russian TV broadcasts and social media highlighting the discrimination, the lack of employment opportunities, and the [Latvian] laws against speaking Russian."[1] Russian special operatives foment mass protests in the Latvian capital and stage the assassinations of young ethnic Russians during the ensuing unrest; Russian media immediately spins the murders as the work of deranged Latvian nationalists. The Russian president announces after twenty-four hours have elapsed that he has a responsibility to protect the lives of all Russians everywhere, and so deploys the Russian armed forces to this end. Meanwhile, the North Atlantic Treaty Organization (NATO), of which Latvia is a member, has not yet agreed on whether there is an actual threat to Latvian sovereignty unfolding in real time. Latvia is effectively annexed without the movement of a single NATO plane, ship, or soldier.

Shirreff retired from the British army in 2014; his last duty position was serving as the deputy supreme allied commander, Europe, the third-highest military position within NATO. His experience watching the events that metastasized into the Russian annexation of Crimea clearly informed his account of a future war between the Russian Federation and the NATO Alliance. His fictitious Latvian scenario is a close play-by-play approximation of the way the Russians prepared the battlefield in February 2014, when Russian cyber warriors relentlessly promoted the idea of "Ukraine as a neo-Nazi state," and where irregular Russian forces, private military companies, and nonuniformed militia organizations fanned the flames of social disorder.[2] Shortly thereafter, Crimea voted itself into the Russian Federation, albeit illegally.[3] Again, the United States and its NATO allies wrung their hands, held numerous meetings, and issued many statements—but none acted nor achieved the minimum consensus necessary to direct action to forestall Russia's victory.[4]

Both the fictitious and real accounts of the emergent Russian way of warfare highlight the role of cyber-enabled information operations and irregular forces working at the operational level to generate strategic success. Critically, both accounts depict these forces as operating in tandem to produce complimentary and reinforcing effects. Western audiences tend to pay attention to visible effects, such as the lost territory, the changed flags over government offices, and the "little green men" carrying guns in riotous streets. Doing so at the expense of the invisible effects that precede these more dramatic images is a mistake and compromises the United States' ability to effectively engage in today's great-power competition. Yesterday's Crimea and Georgia are tomorrow's Suwalki and Latvia: they will happen just below the threshold of conventional conflict, and the first effects that will shape and enable them to be annexed will play out on the digital terrain of the information environment. These effects will capitalize on the way the cyber domain has fundamentally redefined U.S. strategic notions of time and space; they will be designed to disrupt the cognition and coordinated action of Western leaders just long enough to allow U.S. adversaries to secure their objectives.

The Army operating concept anticipates the merging of the capabilities and assets of the physical and digital domains with the term "convergence."[5] The concept's title gives away the aspirational nature of convergence. *The U.S. Army in Multi-Domain Operations 2028* envisions events that are seven years

Previous page: A Mark IV tank of H Battalion, "Hyacinth," ditched in a German trench while supporting 1st Battalion, Leicestershire Regiment, 20 November 1917 near Ribecourt, France, during the Battle of Cambrai. This battle demonstrated the potential of armored warfare and caused the German Wehrmacht to change the way it fought to enable mutually supportive infantry, armor, and artillery. Similarly, U.S. forces must determine how physical and digital soldiers can be mutually supportive at the operational and tactical levels of war. (Photo by Lt. John Warwick Brooke; courtesy of the Imperial War Museum, © IWM Q 6432)

away. Unfortunately, America's adversaries achieved convergence yesterday. Fighting U.S. adversaries on the physical battlefield in 2021, 2028, or 2035 will hinge on a U.S. ability to find our adversaries in the terrain of cyberspace *today*. There is no time to develop a five-year plan in Brussels or reinvent the wheel through constructing yet another combatant command. For the United States to fight and win in a contemporary operating environment, it needs to integrate the many disparate but extant pieces of its intelligence collection and kinetic strike elements of national power *now*. It needs to construct task organizations and report channels that can rapidly detect enemy movement in cyberspace, rapidly direct real-world forces to respond to those threats, and mutually support the convergence of digital and physical capabilities.

From Cambrai to Cyberspace

There is not a senior captain or junior major in the Army who has not had the vocabulary of novelty and modernity stamped on his or her soul while learning how to comprehend his or her profession. Modern warfare, these officers are assured, is a complex, dynamic, and uncertain affair; information is imperfect, technology is constantly evolving, and translating political ends into tactical means is more difficult than ever. The cyber domain tends to feature prominently in this cognitive framework, representing as it does for many officers an abstract, intangible realm that is always present yet never seen. This invisible omnipresence partners with other technological trends such as artificial intelligence, automated weapon systems, and big data analysis to reinforce the common perception that the future is beyond any one individual's understanding, likely to move too fast to be kept up with, and dangerous on a scale never before seen in the history of the arms profession.

The infantrymen of World War I would contest this set of assumptions. The advent of cyber-enabled warfare is in many respects a reincarnation of the advent of armored warfare in the Great War over a century ago. Then, as now, a new tool transformed the way that tacticians perceived both space and time: tanks moved too fast and too far for conventional notions of the battlespace to remain relevant. Before the Battle of Cambrai, the front was the place where two armies met; it was generally limited in scope to the range of artillery, and time was counted in days. After Cambrai, the front was feasibly any location within one hundred kilometers of a moving tank platoon, and time had to be gauged in hours.

The tank was the classic "new thing" that tends to inspire revolutions in military affairs.[6] It disrupted every prior notion about the profession of arms' physical and temporal parameters. Some armies adapted well to this new reality, weaving tactical experiences and experiments into a coherent doctrine for armored warfare; others did not. Cambrai was a victory for the British mechanized community and stood as a seminal proof of concept for armored warfare, yet the British did not interpret it as such during the interwar period. The German army learned a different lesson from its Cambrai experience and dedicated its interwar mechanized experiments to integrating infantry and artillery into a supporting role for tank columns.[7]

The difference between the British and the German approach to armor was stark: the latter appreciated that a new modality of conflict had been created because of a tool, while the former persisted in believing that the old rules and doctrinal structures still applied. The British approach to the dilemma posed by the tank was to essentially ask how the new thing added to old, preferred British ways of fighting. In contrast, the Germans asked how their old, preferred way of fighting must change because of the new thing. Analogies are by nature imperfect things, and so it would be a mistake to view the tank as a perfect analog to cyber capabilities. Real-world forces cannot "extend" the operational reach of cyber forces in the same way that Wehrmacht infantry and artillery extended the operational reach of Panzer columns.

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That does not imply, however, that America's physical and digital soldiers cannot be mutually supportive of the operational and tactical levels of war—as America's current adversaries have resoundingly and repeatedly showed it over the past decade.

Fait Accompli

Russia's actions in both the real case of Crimea and the fictitious Latvian one that opened this article are examples of what the U.S. Army describes as fait accompli attacks: offensive operations that are "intended to achieve military and political objectives rapidly and then to quickly consolidate those gains so that any attempt to reverse the action by the U.S. would entail unacceptable cost and risk."[8] Fait accompli attacks consist of both covert and overt military activities in the physical world employed in conjunction with information operations designed to "create ambiguity to prevent or delay political recognition, decision, and reaction."[9] The United States' most likely nation-state adversaries understand that the best way to defeat America's rapid-response OODA (observe, orient, decide, act) loop is to disrupt the first step of that sequence and make the consensus required to observe a threat impossible.[10]

While most of America's geopolitical rivals have recognized cyber-enabled information warfare as an indispensable tool for offsetting the United States' preponderance of conventional military superiority, Russia's application of these technologies and techniques tends to receive the most public attention from Western analysts; part of this is due to recent events, such as election interference efforts around the world orchestrated by Moscow, and part of it stems from Russia's legacy of Soviet-era active measures.[11] Ukraine provides an illuminating example of Russian cyber-enabled information operations at work, with blackouts of the Ukrainian power grid complementing social engineering, targeted disinformation campaigns, and agents of influence mobilizing internal opposition and fake elections.[12] These subversive activities played out predominantly in the cyber domain, both in the form of software-hardware attacks and in the form of cyber-enabled information operations designed to make reality unintelligible. By the time the United States and its Western allies had acknowledged the scope and scale of the threat, Russian proxy forces had been augmented by several thousand pieces of heavy equipment, including T-90 tanks, long-range artillery, air defense, and electronic warfare devices.[13]

There are clear differences between the Russian approach to and the American template for the convergence of cyber-enabled information warfare and physical, real-world effects. The Crimean as well as the Ukrainian cases cannot be cleanly cleaved into antebellum and postbellum time frames, at least not by an intellectually honest observer. The more accurate framework is suggested in America's own *National Security Strategy*, which observes that America's rivals have "become skilled at operating below the threshold of military conflict … with hostile actions cloaked in deniability."[14] Cyberspace operations were prominent, if not preeminent, before the tanks and nonuniformed soldiers entered the scenario, and continued to play an information-centric role afterwards, not only by setting conditions for the employment of conventional forces but also by complimenting their efforts by weaving a web of muddled facts and plausible deniability.

Meanwhile, U.S. joint doctrine explicitly states that information operations occur only during times of military operations.[15] U.S. doctrine construes the information environment as existing between cognitive, informational, and physical dimensions, and states that cyberspace is included within the information environment.[16] The separate joint publication describing cyber operations does so in broad terms of offense, defense, and network security, but like information operations, it construes the augmentation of military forces with cyber capabilities as something that only occurs during wartime, "normally authorized by a military order."[17] American cyber planning straddles antebellum and postbellum and reflects a collective belief that the cyber domain supports intelligence collection before the onset of war and augments the air, land, sea, and space domains afterward. The proof of this belief is the Title 10- and Title 50-derived need to keep the National Security Agency and U.S. Cyber Command organizationally separate yet headed by the same individual.[18]

Fait accompli attacks as practiced by Russia succeed in part because they do not bifurcate the roles of cyber operations before and after the formal onset of hostilities. The entire point is to avoid the formal onset of hostilities by fomenting uncertainty in an adversary's cognition of events and maneuvering within the resultant window of opportunity. Intelligence collection, information operations, and physical attacks

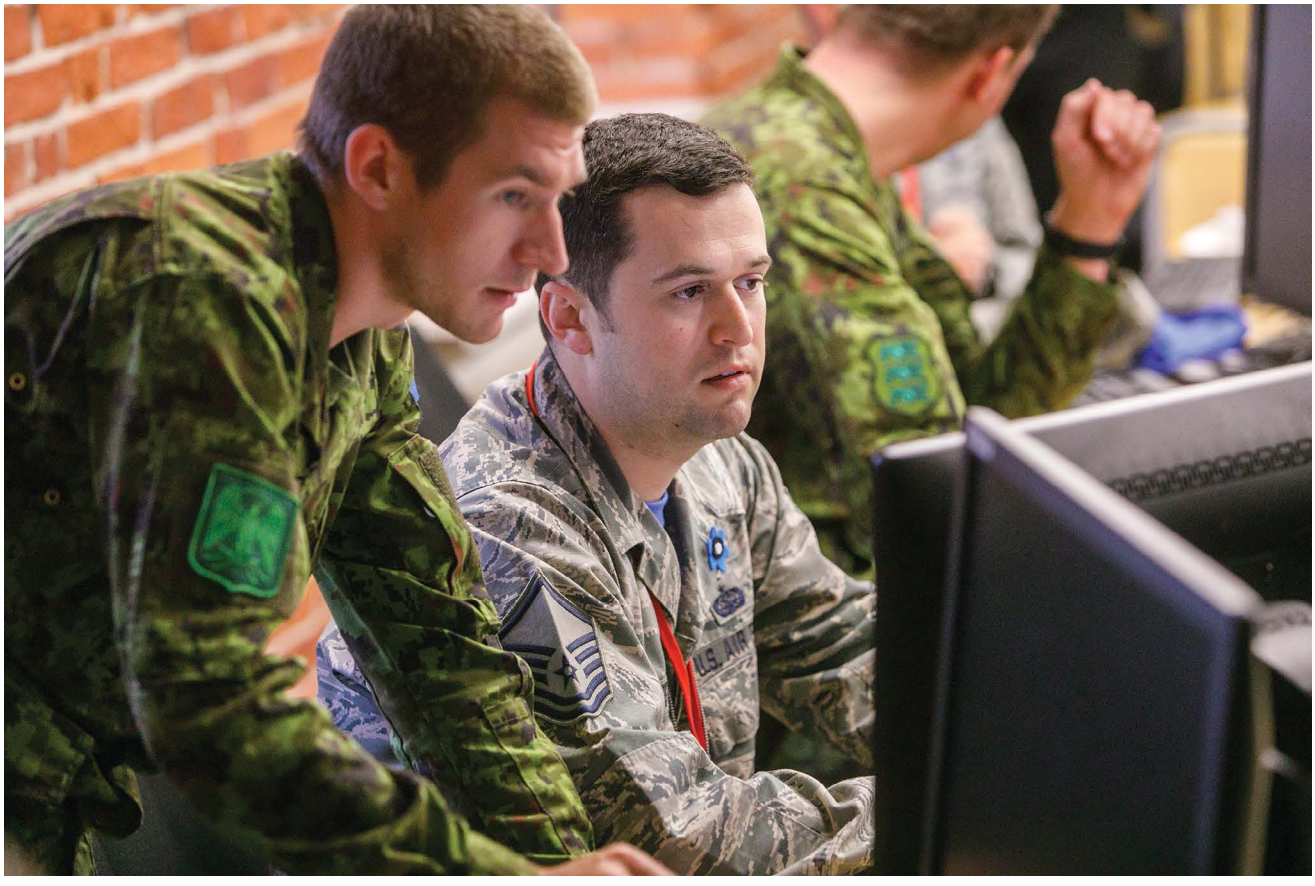
on hardware and software occur at all points in both time and space in the operating environment, simultaneously enabling and complimenting the activities of conventional and unconventional troop formations. Another significant reason fait accompli attacks work is because America's own approach to the cyber domain is so stringently bifurcated and optimized for a particularly narrow conception of conflict by which nations exist in a state of either peace or of war.

Pfc. Dylan Taylor (*left*), a cyberspace operations specialist, Staff Sgt. Isaac Ware, a noncommissioned officer in charge of an expeditionary cyberspace electromagnetic activities crews, and Capt. Richard Shmel (*right*), a cyberspace operations officer, participate in a 915th Cyber Warfare Battalion field training exercise 9 October 2020 at Muscatatuck Urban Training Center in Butlerville, Indiana. (Photo by Steven Stover)

Cambrai Catches Up with Cyberspace

We have already seen the costs stemming from this gap in our cyber thinking: they are called South Ossetia, Crimea, and the Donbas. We do not call these incidents strategic defeats only because we use a distinctly twentieth-century schema and a nineteenth-century vocabulary to frame our understanding of twenty-first-century conflict. The joint force is diligently manning a modern equivalent of the trenches, expecting a coming battle that conforms to previous notions of how conflict works; it has not sunk in yet that the tanks have long since rumbled by and are threatening Paris. The United States does not see a conflict happening because it is not observing the battlefield, and it is not observing the battlefield because it has not classified it as a battlefield. By the time the United States recognizes that a threat actually exists and communicates that across all stakeholders within its government and those of its allies, several days have gone by and its adversary has established a foothold.

The Russians are following in the tread marks left by the Germans. They have taken the cyber domain—a "new thing"—that fundamentally transforms how space and time operate during war, and adapted their entire conception of conflict because of it. America, in



Air Force Master Sgt. Robert Kocsis (*right*) confers with an Estonian soldier 25 April 2018 during Locked Shields 2018 in Tallinn, Estonia. NATO's annual Locked Shields exercise is the largest and most complex live-fire cyber defense exercise in the world. (Photo courtesy of the NATO Cooperative Cyber Defence Centre of Excellence)

contrast, is asking how the cyber domain can augment its historical conception of warfare. This is not the fault of any particular group of officers, nor is it the result of deliberate ignorance. The simple fact is that the cyber domain is hard to understand and exceptionally diffuse in its potential military applications. There is a powerful temptation to simplify the problem set by either focusing only on the concrete and quantifiable (e.g., hardware, software, physical infrastructure, coder hiring policies) or entrusting the Nation's cybersecurity to private companies (e.g., Raytheon, Microsoft, and, until recently, Amazon).[19]

However, this does not change the fact that Ukraine and Crimea are not aberrations; they are the future of conflict. Actors like Russian President Vladimir Putin will continue to turn to the cyber domain as their first theater of operations so long as America's absence from the battlefield slows down its cognition of events. So long as the United States and its allies continue to focus on the men with guns and the tanks moving toward Kyiv and not on the host of hostile actions that precede them, it will remain significantly behind its enemies in its ability to shape and respond to events. Moreover, the United States does not have the time to develop a cyber plan for the year 202x in conjunction with, for example, NATO. Even though convergence has frequently happened on NATO's doorstep, it also happened nearly ten years ago. Construing the nexus of the cyber domain and battlefield effects as a future problem to be dealt with through procurement or technological innovation ignores what U.S. enemies have been practicing as a reality for the better part of a decade. The current situation demands that the United States use what it currently has, both to establish a credible deterrent against future fait accompli attacks and to help it and its allies make the cognitive transition to the new age of warfare.

Toward a Solution: A Few Good NATO Force Integration Units

The tank was not developed for global deployment in all environments and all terrains; the United States' response to the modern incarnation of cyber-information-physical domain convergence should not be, either. Its first step should be triaging its cyber vulnerabilities. The United States must be prepared to tailor regionally focused cyber responses with forces and assets it already has on hand. To that end, I recommend that the United States focus first on where there is most obviously a threat: Europe's borders with the Russian Federation, particularly the Baltic states of Lithuania, Latvia, and Estonia.[20] The United States should look to stand up tailored force packages (TFPs) specifically designed to detect convergence between cyberspace and the real world, and to respond in kind with real-world forces when situations demand.

> "The Russians are following in the tread marks left by the Germans. They have taken the cyber domain—a 'new thing'—that fundamentally transforms how space and time operate during war, and adapted their entire conception of conflict because of it."

The template the United States should use in building such TFPs should be substantially informed from the 1986 creation of U.S. Special Operations Command, particularly in emphasizing the placement of the optimal combination of people, resources, and decision-making authorities in an organization.[21] Instead of serving as their own detached line of effort, the cyber components of TFPs would be but one feature of a joint endeavor to focus the elements of national power on a discrete and enduring problem. TFPs would have to be able to not only identify threats as they manifest in the cyber domain but also be able to rapidly respond to those threats with the authority, precision, and speed the modern battlefield requires. Any cyber-physical TFP in the Baltics must have the functional form of a seamless link between sensing, deciding, and shooting nodes.

NATO force integration units (NFIUs) are ideally suited to serve as the chassis for this concept. NFIUs exist in each Baltic capital and were initially designed to foster collaboration between the armed forces of their host nations and the NATO Very High Readiness Joint Task Force in times of crisis; they specifically provide broad planning support to allow the rapid deployment of NATO forces to the eastern members of the alliance.[22] The United States could surge the right combination of people, resources, and authorities to the NFIUs to create a parallel convergence early-warning fusion cell. Convergence fusion cells should not only onboard TFPs from the Department of Defense and the National Security Agency but also have the ability to combine personnel and data streams from the local Central Intelligence Agency station, Federal Bureau of Investigation liaison at the U.S. embassy, and law enforcement personnel from both the host country and regional enabler countries.[23] The primary mission of convergence fusion cells would be to combine intelligence from cyberspace and the information environment with developing events in the physical world to detect a fait accompli attack in its infancy and to have the ability to respond quickly enough to prevent the attack from being carried out.

Convergence fusion cells would require flattened reporting channels and clear authorities to rapidly translate observation of a threat into orientation of national assets on it. In drawing again from the example of U.S. Special Operations Command's creation, there needs to be an assistant secretary-level individual who is the primary recipient of convergence fusion cell data streams and who in turn has the authority to direct action based on that data.[24] Simultaneously, this individual needs to have both immediate and peer access to other critical decision-makers in the National Security Council to enable consensus, whole-of-government planning, and synchronization of government lines of effort. Simply because the Trump administration rescinded Presidential Policy Directive 20 does not make it advisable to pull off operations in the cyber domain in isolation.[25] The Russian model of warfare requires that the United States prepare to not only

shut down troll farms and hacker units in cyberspace but to also be ready to move real-world troops, aircraft, and ships to preempt a fait accompli attack. Diplomacy has a prime and instrumental role in making this possible.

The status of forces agreements (SOFA) under which the U.S. military operates in a host of countries worldwide require an upgrade for the digital age.[26] The American military has numerous units that it maintains on a high alert status for immediate contingency deployment, and some of these units have developed operational concepts for deploying to support an ally during times of crisis. The scale and scope of the military operations these forces can conduct on host nation soil may be governed by the SOFA that exists between the U.S. government and the host nation. The United States' ability to no-notice deploy 10th Special Forces Group teams to hunt for and destroy Russian tanks entering Lithuanian territory as part of a fait accompli, versus sending a company from the 173rd Airborne Brigade Combat Team to help defend Vilnius, hinges on a shared understanding of risks, indicators, and required actions between the two governments. If the NFIU-based convergence fusion cells help both governments find the enemy preparing to deploy in the cyber domain, SOFAs allow them to preemptively design the force packages that can be expeditiously deployed against the enemy's follow-on forces in the physical world. While undoubtedly arduous and problematic, this level of engagement and serious thinking about emergent threats is what is required in the age of convergence. Any lag time between America's sensors, decision-makers, and shooters only entices its adversaries to lick their chops.

Challenges, Risks, and Requirements

New task organizations as represented by the convergence fusion cells, flattened reporting and decision channels, and a diplomatic framework to enable real-world shooters to rapidly respond to cyber-world sensor observations all suggest an approach to the age of convergence that can be implemented using what the U.S. government and military already have at their disposal. That is not the same thing as saying this transformation will be without risks or difficulties. The first and most obvious difficulty will be integrating all of the elements of American statecraft within the instrument of power represented by the convergence fusion cells.

Suppose that a convergence fusion cell detects the warning signs of election meddling emanating from the Russian Internet Research Agency (IRA) that are deliberately attempting to foment societal division within Estonia, and that at the same time, the Russian armed forces conduct a snap military drill in the Western Military District surrounding Saint Petersburg. The U.S. government decides to focus its efforts on degrading the IRA's ability to conduct cyber-enabled information warfare, principally through a combination of U.S. Cyber Command-directed offensive strikes against the IRA's digital architecture, financial asset seizures orchestrated by the Department of Treasury against Russian oligarchs, and Department of Justice indictments against prominent Russian military and political leaders. The question remains whether this is a military, economic, or law enforcement response. The answer in the age of convergence is "yes," implying that the U.S. government will need to think about how its elements of statecraft relate to each other in a world where functional specializations merge and separate continuously in the digital and physical worlds. The convergence fusion cells can be given clear authorities, manning and equipment, and reporting channels, but these measures will not be sufficient to orient the entire American state apparatus on the patterns of thinking, collaborating, and decision-making that convergence portends.

The age of convergence also requires that the United States seriously rethink its legal approach to armed conflict. It is not novel to observe that cyberwarfare challenges conventional notions of distinction, proportionality, military necessity, honor, and humanity. Many nations' cyberwarriors are nonuniformed civilian contractors; can they be targeted for kinetic strikes under the current Law of Armed Conflict perceptions of distinction if they are deliberately fueling social unrest in an allied country?[27] Shutting down the servers that run the electric plant powering an enemy's antiaircraft radar might reduce the need to fire a Tomahawk missile at that facility, but it might also accidentally kill everyone in the intensive care unit attached to the same power grid. America's current Law of Armed Conflict framework does not provide a clean answer to the implicit questions of military necessity and humanity attending the decision to launch this notional cyberattack. Convergence has not created these issues, but it has brought them into sharp relief. Again, authorities, personnel, and equipment can only go so far in clarifying the targets convergence fusion cells can identify and the rules of engagement that flow from target designations. True domination of the cyber-physical

domains' convergence requires clear ethical precepts and legal standards for the employment of armed force.

In addition to setting our own house in order organizationally and legally, American policymakers face the problems and risks associated with integrating the convergence fusion cell concept with the rest of NATO. The NFIU-based convergence fusion cells will require NATO augmentation to avoid becoming either a de facto or de jure bilateral American security agreement with individual Baltic nations. The NATO Very High Readiness Joint Task Force will need to be incorporated into any plans requiring the rapid response of real-world forces to events unfolding in the cyber domain; the dearth of a military equivalent to the Schengen Zone is only more problematic for European security in light of convergence's reality. There are myriad actions that must be undertaken to make the convergence fusion cell concept a viable, long-term solution to an enduring security dilemma, but that should not distract from the fact that immediate action is required and that the United States is uniquely postured to provide the expertise, capabilities, and leadership to start the process.

A poster outside Downing Street, London, in 2014 asking the British government to take action against Vladimir Putin for the Russian invasion of Ukraine. During the invasion, Russian cyber warriors relentlessly promoted the idea of "Ukraine as a neo-Nazi state," while irregular Russian forces, private military companies, and nonuniformed militia organizations fanned the flames of social disorder. (Photo by Mim Friday, Alamy)

Finally, there is also a risk of seeing a flash without experiencing a bang. The convergence fusion cells might perceive a threat forming; the United States might deploy its highly prized and expensive special operations forces in response to that threat, only to never see the threat manifest in the physical world. This risk underscores why it is important not to deploy cyber reconnaissance capabilities in isolation but rather to have them operating in conjunction with the full arsenals of the United States, NFIU host nations, NATO, and regional partners. Intelligence works best when it is multisourced. Additionally, U.S. leaders must be comfortable with what success looks like for the convergence fusion cells; it looks like SOF, or the 82nd Airborne Division, or fighter squadrons from Aviano Air Base that deploy but never actually fire a shot. One reliable sign of a successful deterrence effort is the absence of conflict.

Conclusion: Converging on Combat Leaders

These recommendations are intended to confront modern conflict with the assets on hand because expediency requires it. They are bridging actions only and do not obviate the need for force management responses to novelty and modernity. Convergence, the continual merging of the effects of the digital and physical worlds, requires new mentalities as much if not more than it requires new equipment, and so requires America's military leaders to ponder several foundational questions. The

United States needs to grapple with what foreign internal defense looks like in an age of cyber-enabled information warfare. It needs to consider whether the competencies and skills that America looks for in creating its most innovative, agile, and responsive forces are in need of revision. The cyber domain cannot and must not be the sole purview of computer coders and programmers any more than Army supply discipline should be the sole purview of supply room noncommissioned officers.

This raises the question of how the United States should train and educate its military's combat leaders, its paratroopers and submariners, its artillerymen and bombers, so that they can conceptualize the cyber realm. Combat leaders must grasp how the "always present but never seen" domain influences the physical employment of their forces; doing this is the only way for them to design innovative ways of fusing information, cyber capabilities, and physical assets into new modalities of warfighting, and for them to responsibly manage the joint force that will be required in 2028, 2035, and beyond. In this sense, the Army's conception of multi-domain operations is very much a modern analog of AirLand Battle; it is a response to material realities that cannot be wished away and an opportunity to redesign America's approach to both warfighting and the warfighter. The United States can only take advantage of this opportunity if it trains tomorrow's tactical commanders to "see" the battlespace, even when it exists in part or in whole in a digital environment.

Most officers have heard a variation of the idea, popular in military history courses, that armies that lose current wars spent too much time preparing for the last war they fought. The age of convergence has, thankfully, given the U.S. military repeated and loud warnings that it is here for the foreseeable future. America's defense leaders need to understand that however they prefer to construe current geopolitics and national strategic planning—such as large-scale combat operations, near-peer competition, great-power competition, and the like—Americans are all living under the new realities of time and space that convergence has wrought. The decisions the United States makes now regarding its current and future conceptions of conflict will determine whether it goes the way of the British or the Germans, if Suwalki goes the way of Crimea, or whether America has met the conditions to break out of its *while* loop.[28] ■

The author would like to thank Professor Nathaniel Raymond of Yale's Jackson Institute for Global Affairs for proofreading this article and helping to sharpen the recommendations regarding the employment of convergence fusion cells. Raymond's insight on previous examples of interagency/multinational collaboration, particularly in Macedonia, were indispensable; similarly, Raymond helped me think through the long-term implications that the age of convergence has for the way America thinks about its force structure and force requirements beyond the immediate needs of the present and for the ways it challenges long-standing American notions of the ethics and legal strictures by which wars should be fought.

Notes

1. Richard Shirreff, *War with Russia: An Urgent Warning from Senior Military Command* (New York: Quercus, 2016); *Merriam-Webster*, s.v. "bot," accessed 9 November 2020, https://www.merriam-webster.com/dictionary/bot. A bot is a computer program that performs automatic repetitive tasks, especially one designed to perform a malicious action; *Merriam-Webster*, s.v. "troll," accessed 9 November 2020, https://www.merriam-webster.com/dictionary/troll. A troll is a person who intentionally antagonizes others online by posting inflammatory, irrelevant, or offensive comments or other disruptive content.

2. Sergey Sukhankin, *Unleashing the PMCs and Irregulars in Ukraine: Crimea and Donbas* (Washington, DC: The Jamestown Foundation, September 2019), 6–10, accessed 20 October 2020, https://jamestown.org/program/unleashing-the-pmcs-and-irregulars-in-ukraine-crimea-and-donbas/.

3. Steven Pifer, "Five Years after Crimea's Illegal Annexation, the Issue is No Closer to Resolution," *Order from Chaos* (blog), The Brookings Institution, 18 March 2019, accessed 20 October 2020, https://www.brookings.edu/blog/order-from-chaos/2019/03/18/five-years-after-crimeas-illegal-annexation-the-issue-is-no-closer-to-resolution/.

4. Kurt Volker, "Where's NATO's Strong Response to Russia's Invasion of Crimea?," *Foreign Policy* (website), 18 March 2014, accessed 20 October 2020, https://foreignpolicy.com/2014/03/18/wheres-natos-strong-response-to-russias-invasion-of-crimea/.

5. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TP) 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 6 December 2018), 20.

6. MacGregor Knox and Williamson Murray, *The Dynamics of Military Revolution, 1300-2050* (New York: Cambridge University Press, 2001), 12. I am applying the Knox-Murray definition of *revolution in military affairs*, which describes a series of events that "military organizations embark on … by devising new ways of destroying their opponents. To do so, they must come to grips with fundamental changes in the social, political, and military landscapes … *Revolutions in military affairs require the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare or to a specialized sub-branch of warfare* [emphasis added]."

7. Williamson Murray, "Armored Warfare: The British, French, and German Experiences," in *Military Innovation in the Interwar Period*, ed.

Williamson Murray and Allan R. Millet (New York: Cambridge University Press, 1996), 40.

8. Ibid., 11.

9. Ibid.

10. The OODA (observe, orient, decide, act) loop is an iterative cycle first postulated by retired Air Force Col. John Boyd, by which individuals and organizations observe a threat, orient on the threat, decide on how to respond to the threat, and act against the threat.

11. *Soviet Active Measures: Hearings Before the House Permanent Select Committee on Intelligence*, 97th Cong. (1982), 2; Michael V. Hayden, Heather A. Conley, and Seth G. Jones, interview by John J. Hamre, 11 June 2018, transcript, "Russian Active Measures: Past, Present, and Future," CSIS-TCU Schieffer Series, Center for Strategic and International Studies, Washington, DC, accessed 20 October 2020, https://www.csis.org/analysis/russian-active-measures-past-present-and-future; TP 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, 5–6. The term "active measures" was coined during the Cold War to describe Soviet influence operations, which blended covert actions with information operations and Soviet diplomatic ventures.

12. Phillip A. Karber, "Russia's 'New Generation Warfare,'" National Geospatial-Intelligence Agency, 4 June 2015, accessed 20 October 2020, https://www.nga.mil/MediaRoom/News/Pages/Russia%27s-%27New-Generation-Warfare%27.aspx (site discontinued).

13. Ibid.

14. The White House, *The National Security Strategy of the United States of America* (Washington, DC: The White House, 2017), 3, accessed 20 October 2020, https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf.

15. Joint Publication (JP) 3-13, *Information Operations* (Washington, DC: U.S. Government Printing Office, 27 November 2012, Incorporating Change 1, 20 November 2014), GL-3. The full definition of information operations is "the integrated employment, during military operations, of information-related capabilities in concert with other lines of operation to influence, disrupt, corrupt, or usurp the decision-making of adversaries and potential adversaries while protecting our own. Also called IO."

16. Ibid., I-2.

17. JP 3-12, *Cyberspace Operations* (Washington, DC: U.S. Government Publishing Office, 8 June 2018), II-1–II-2.

18. Andru E. Wall, "Demystifying the Title 10-Title 50 Debate: Distinguishing Military Operations, Intelligence Activities & Covert Action," *Harvard National Security Journal* 3 (2011): 101.

19. Naomi Nix and Bloomberg, "Why Amazon's Suit Over the $10 Billion Cloud Contract It Lost to Microsoft Will Be So Hard to Win," *Fortune* (website), 22 November 2019, accessed 20 October 2020, https://fortune.com/2019/11/22/amazon-microsoft-jedi-cloud-trump-lawsuit/.

20. Office of the Secretary of Defense, "Summary of the 2018 National Defense Strategy of the United States of America" (Washington, DC: Department of Defense, 2018), 1–2; TP 525-3-1, *The Army in Multi-Domain Operations 2028*, 7. The decision to explicitly focus on the Baltics and implicitly on Russia is in step with current U.S. defense thinking and joint concepts, which acknowledge China as the long-term geopolitical rival to the United States but identify Russia as the current "pacing threat for technical and tactical purposes."

21. Goldwater-Nichols Department of Defense Reorganization Act of 1986, Public Law No. 99-433, 100 Stat. 1017 § 212(a)(2) (1986).

22. "NATO Force Integration Units (NFIU)," Supreme Headquarters Allied Powers Europe, accessed 3 May 2020, https://shape.nato.int/operations/nato-force-integration-units; "NATO Force Integration Units," NATO, last updated September 2015, accessed 20 October 2020, https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2015_09/20150901_150901-factsheet-nfiu_en.pdf.

23. Saska Cvetkovska et al., "The Secret Players Behind Macedonia's Fake News Sites," Organized Crime and Corruption Reporting Project, 18 July 2018, accessed 20 October 2020, https://www.occrp.org/en/spooksandspin/the-secret-players-behind-macedonias-fake-news-sites. Macedonia stands out as an example of a regional enabler country; it has partnered with the United States and several Western European nations to "probe possible links between Russians [and] U.S. citizens." Not all countries will have equal experience in identifying, tracking, and shutting down the various manifestations of convergence activities, which implies that those with more experience should take on a greater leadership role.

24. Charles Nemfakos et al., *The Perfect Storm: The Goldwater-Nichols Act and Its Effect on Navy Acquisition* (Santa Monica, CA: RAND Corporation, 2010), 8. The Goldwater-Nichols Act of 1986 that created the U.S. Special Operations Command also created the Office of the Assistant Secretary of Defense-Special Operations and Low-Intensity Conflict. This office and the individual who headed it were intended to prevent future recurrences of Operation Eagle Claw, the abortive special operations attempt to rescue American hostages from the U.S. embassy in Iran; specifically, they were supposed to work to ameliorate the identified shortcomings of "muddled and multiple chains of command, poor interservice planning and coordination … [and] the inability of one service to communicate to another."

25. Eric Geller, "Trump Scraps Obama Rules on Cyberattacks, Giving Military Freer Hand," Politico, 16 August 2018, accessed 20 October 2020, https://www.politico.com/story/2018/08/16/trump-cybersecurity-cyberattack-hacking-military-742095. Presidential Policy Directive 20 (PPD-20) was an Obama administration policy that only allowed military cyber operations to proceed after lengthy and multiple high-level discussions between various government agencies. While intended to have the effect of synchronizing U.S. policy, many defense planners perceived PPD-20 as significantly delaying the responsiveness of America's cyber forces.

26. Desiree Dillehay, "Status of Forces Agreement: What is it and Who is Eligible," Army.mil, 18 September 2019, accessed 20 October 2020, https://www.army.mil/article/227245/status_of_forces_agreement_what_is_it_and_who_is_eligible. A Status of Forces Agreement "provides the basis for the legal status of military, U.S. civilian employees and dependents who are stationed on orders in NATO partner countries."

27. *APT1: Exposing One of China's Cyber Espionage Units* (Alexandria, VA: Mandiant, 2013), 10, accessed 20 October 2020, https://nsarchive2.gwu.edu/NSAEBB/NSAEBB424/docs/Cyber-083.pdf; Robert S. Mueller, III, *Report on the Investigation into Russian Interference in the 2016 Presidential Election, Volume I of II* (Washington, DC: U.S. Department of Justice, 2019), 14–27. Publicly available reporting suggests, for example, that both the Chinese People Liberation Army's Unit 61398—the military organization suspected to have been behind some of China's most extravagant episodes of cyberespionage—and the Russian Internet Research Agency are significantly staffed, supported, and funded by civilian contractors.

28. Bill Lubanovic, *Introducing Python: Modern Computing in Simple Packages*, 2nd ed. (Sebastopol, CA: O'Reilly Media, 2020), 87–89. Loops are frequently used in computer programming languages to execute a set of operations repeatedly and endlessly, until or unless specific criteria are met. After the criteria are met, the loop is broken, and the rest of the code can run forward.

Operationalizing Culture

Addressing the Army's People Crisis

Col. Joseph E. Escandon, U.S. Army

We also owe our people a working environment free of discrimination, hate and harassment … I will fight hard to stamp out sexual assault, to rid our ranks of racists and extremists, and to create a climate where everyone fit and willing has the opportunity to serve this country with dignity. The job of the Department of Defense is to keep America safe from our enemies. But we can't do that if some of those enemies lie within our own ranks.

—Secretary of Defense Lloyd J. Austin III

Events over the past year present the Nation with significant challenges—a global pandemic resulting in the death of hundreds of thousands of Americans, large-scale protests for social justice following the death of George Floyd, and a divisive political environment that found expression in a contested election and the storming of Capitol Hill. These issues, as well as larger social, economic, and political shifts, touch America's Army in a way that directly challenges the underpinnings of Army culture. The death of Spc. Vanessa Guillen and the findings of the subsequent "Report of the Fort Hood Independent Review Committee" (FHIRC) are of such significance that senior Army leaders not only held several Fort Hood leaders accountable but also endorsed all of the FHIRC's recommendations.[1] Furthermore, the revelation that a number of former and retired service members were involved in the attack on Congress brought into question the presence of extremists in the ranks, an issue that laid relatively dormant since the mid-1990s.

Starting with last summer's unrest, both serving and retired military leaders have powerfully expressed the need for change, not out of political expediency but out of institutional necessity. A key pillar of the Army's strategic culture is the ideal that the Army is, and must be, the Nation's "loyal servant and progeny," and therefore a reflection of the society that it serves.[2] To address these issues, Army senior leaders responded swiftly and forcefully with changes to priorities and policies. "The Action Plan to Prioritize People and Teams" solidified people as the Army's number one priority, replacing readiness, which was deemed to have "resulted in an unsustainable operational tempo (OPTEMPO) and placed significant demands … and stress on the force."[3] As a direct result of the FHIRC, Army leadership formed the People First Task Force, the purpose of which is to not only implement the recommendations of the FHIRC but also to ensure that "leaders at every echelon play a role in driving culture."[4] In the summer of 2020, and what now seems especially prescient, the Army established Project Inclusion to implement diversity, equity, and inclusion goals, which are seen as crucial for adjusting to a future environment marked by significant demographic and cultural shifts that will not only impact recruiting but unit cohesion and readiness.[5]

Over a relatively short time frame, the Army has successfully responded to these problems, largely as the result of forward-thinking and engaged leadership. A year prior to release of the FHIRC, Army Chief of Staff Gen. James McConville clearly articulated what he saw as the service's number one priority—people.[6] McConville noted the need to transform not only how people are managed but also how they are treated. McConville's intent was amplified by publication of the "Army People Strategy," a document that provides the Army with a clearly defined vision and strategic direction to meet that intent. The document focuses on implementation of personnel policy, accessions, and improved quality of life, with the intent to ensure readiness and build combat power by managing talent and building cohesive teams. The strategy clearly supports development of the multi-domain operations concept, noting that where the

Soldiers from the 4th Brigade Combat Team, 1st Cavalry Division, attend Sex Signals class 22 September 2009 at Fort Hood, Texas. The class presented diverse skits depicting the adverse consequences of sexual harassment and assault. Despite the introduction of many such training programs, concerns have persisted over many years regarding issues related to sexual harassment, reports of prejudice, and unequal treatment of women and minorities in the military. This has led the U.S. Army to introduce Project Inclusion in a more determined effort to eradicate unacceptable attitudes and behaviors, and to improve diversity, equity, and inclusion across the force with the aim of building cohesive teams. This effort includes a worldwide series of listening sessions, in-depth investigation of allegations of racial disparity in the military justice system, and removal of photos from officer promotion boards, which began in August 2020. (Photo by Sgt. Rebekah Lampman, U.S. Army)

United States may have lost its decisive edge in technology to adversaries such as China and Russia, people will be its "enduring strategic advantage."[7]

The "Army People Strategy" is built on a framework of four lines of effort: acquire, develop, employ, and retain talent to achieve strategic outcomes, and it lists culture as one of three key enabling objectives. The strategy provides a sound framework for defining and thinking about culture, but given recent events, cultural change is now more than an enabler, it is a decisive fight requiring a dedicated effort to ensure strategic guidance is executed at the lowest echelons. The FHIRC's assessment of Fort Hood's climate regarding sexual assault amplifies this point.

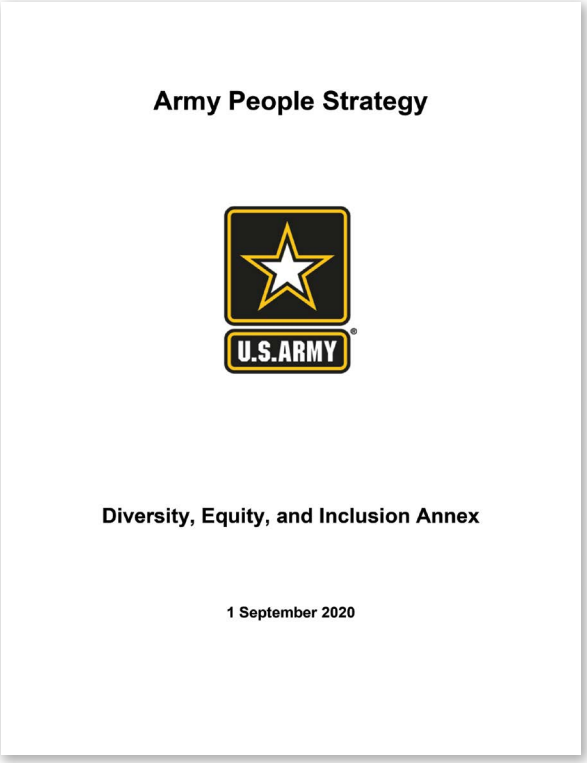
> Unfortunately, it was attributable to a lack of commitment and leadership–spanning not one single command, but a series of commands across the Corps, Division and Brigade echelons to focus efforts where they were needed the most: deep into and below the Company/Troop levels into the enlisted ranks.[8]

Addressing this problem throughout the force requires the operationalization of culture at the brigade-and-below level, as engaged leadership and focus are required for success. This means using the Army's operations process to translate strategic guidance into action that results in change.

Why Culture Matters

According to the "Army People Strategy," "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."[9] In his confirmation hearing before the Senate Armed

Services Committee, Secretary of Defense Lloyd Austin definitively linked culture to performance, and historical analysis supports this proposition.[10] As one scholar noted in his examination of the Western way of war, while superiority in weapons is important, it is the values of discipline, morale, initiative, and flexibility that are the true measures of overall effectiveness.[11] By the same measure, negative aspects of culture degrade readiness and performance. Hence, the "Army People Strategy" discusses culture across a spectrum. At one end of the spectrum is the positive-those ideal cultural aspects embodied in the seven Army Values that build the kind of Army to which we aspire. At the opposite end of the spectrum is the negative-sexual harassment and sexual assault, suicide, discrimination, hazing/bullying, domestic violence, extremism, retaliation, and reprisals (behaviors and attitudes that erode unit readiness by destroying the trust, cohesion, and teamwork that are central to effectiveness).[12] Over the last two decades, some of these issues posed significant institutional challenges to the Army, with sexual harassment/assault response and prevention (SHARP) and suicide prevention as strategic priorities. Army leaders have also contended with disabusing the force of toxic leadership, enabling gender integration, and, once again, addressing racial discrimination and extremism.



For those interested in reading "Army People Strategy: Diversity, Equity, and Inclusion Annex," visit https://www.army.mil/e2/downloads/rv7/the_army_people_strategy_diversity_equity_and_inclusion_annex_2020_09_01_signed_final.pdf.

While military professionals tend to view culture as an internal issue, it nonetheless has a wider external audience. In the past several years, multiple negative examples have called service culture and leadership into question and eroded the American public's confidence in the U.S. military. Recent examples include the revelation that U.S. Navy SEALs may have been involved in murder, war crimes, and drug use while deployed. There is also the Marines United social media scandal of 2017, which involved male marines posting nude photos of female marines and exhibiting misogynistic behavior and attitudes. Proliferation of misconduct and the perception that military culture is not adapting to reflect social attitudes and policy led the Biden administration to announce a ninety-day commission to address sexual assault, as well as reverse previous executive orders restricting diversity training and banning transgender people from military service. All of these steps were taken within President Joseph Biden's first week in office, clearly communicating the commander in chief's intent.

Despite these issues, overall institutional service culture reflects positive values, as evidenced by the performance of the U.S. military over nearly twenty years of war. This is in sharp contrast to the Vietnam War, where Army culture failed to withstand significant stress. Effective military culture has enabled an extremely high level of unit cohesion and combat effectiveness while adapting to significant challenges. The complexity of the current and future environments consists of even greater challenges not just posed by the changing social fabric of our nation but also by the evolving character of war. Navigating these challenges will require examining them through the holistic lens of culture.

Leadership: The Decisive Element of Combat Power?

The "Army People Strategy" tells us why culture is important to the Army, provides a vision for culture, and prescribes three instruments for affecting that vision:

> **Define:** Build upon the positive and powerful aspects of current Army culture, creating a people-focused Army culture that destroys harmful behaviors and builds trust across all formations. Amplify the positive behaviors that align with our vision of cohesive teams … Incorporate new cultural elements to meet the challenges of the Information Age.
> **Drive:** Leaders drive change in culture by clearly defining it, communicating it openly and effectively, inspiring others, and modeling it conspicuously and authentically.
> **Align:** Conduct periodic organizational cultural assessments and integrate all people data to dynamically assess, realign, and redefine Army culture as our strategy and mission demand.[13]

Leaders use these instruments to determine not only why culture must change but also "how it should change."[14]

Effective and sustainable change requires leadership, which is the decisive element of combat power. Of the three instruments, drive, which the strategy clearly links to leadership, is central to any process. Drive directs leaders to define, communicate, inspire, and model to achieve culture change. These descriptors of leadership by personal example are absolutely necessary but do not account for the requirements of organizational and strategic-level leadership.[15] While direct-level leadership influences individuals, squads, platoons, and companies, it is not effective in leading change in large organizations and institutions where leaders perform leadership not only by example but also through a variety of tools such as leader development programs, policies, training guidance, and the Uniform Code of Military Justice. Any comprehensive approach to culture must take these into account.

Review of Gen. Robert Neller's congressional testimony in the Marines United case provides clear understanding of why the drive instrument must be more comprehensive. Neller's disappointment was on full display as he was questioned about how the Marines United scandal not only occurred but also involved leaders. Visibly frustrated, he tried to reassure senators that this incident did not reflect the Marine Corps' values and culture or the behavior of most marines.[16] As the commandant of the Marine Corps, Neller, like many senior leaders, was the standard bearer for his organization and led by personal example—defining, communicating, inspiring, and modeling the culture reflected in the Marine Corps values. He set policy, approved the doctrine taught in Marine Corps leader development courses, and selected leaders committed to those values and who enforced policy and standards. Nonetheless, at some point, personal example and the modeling of core values failed to trickle down to those who perpetrated Marines United.

Even in an idealized world where leadership at every level models core values, personal misconduct and criminal behavior will still exist. However, the examples noted above indicate more than just individual discipline problems. They also reveal that the fix is beyond the drive instrument articulated by the strategy. Why is this so? The answer is found in the concept of complexity. Today's military services have been at war for nearly twenty years; at the same time, they are challenged by the impacts of that war and significant social and political change in the society that they serve to protect. As time advances, so does the velocity of that change, requiring adaptation at an unprecedented rate.

In 1992, presidential candidate Bill Clinton advocated a policy change that would allow homosexuals to serve openly in the military. Following a lengthy and heated political debate, the 1993 compromise policy "Don't Ask, Don't Tell" was put in place. After nearly two decades, the Don't Ask, Don't Tell Repeal Act of 2010 removed the ban. When the law finally took effect, it happened as an almost nonevent. Changes in American social attitudes, as well as a substantial amount of time to absorb those changes, enabled military culture to adapt to a new normal. Today, the military is faced with multiple, layered challenges—sexual

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harassment/assault, suicides, and gender integration into combat occupational specialties, just to name a few. Compounding the problem is that the effective rate of required change is immediate. This produces a level of complexity that challenges our traditional notion of military leadership. In his discussion of the impact of complexity on problem-solving and planning processes, retired Brig. Gen. Huba Wass de Czege highlighted the limitations of traditional notions of military leadership:

> The Greeks taught Western Civilization to think heroically, to create a vision of the future of an idealized "end" one desires, and to overcome any and all obstacles to force that ideal creation of one's mind onto the real world.[17]

Unfortunately, the complex, adaptive nature of today's environment is resistant to the solutions that heroic leadership by itself can generate. Tackling this level of complexity still requires heroic leadership to understand a problem, visualize a desired environment, and then drive change. But driving change also requires a comprehensive approach that penetrates to the lowest echelons and is resilient to the negative influence of leaders displaying counterproductive leadership; in other words, those who refuse to implement, let alone embrace, culture change.

> "Employment of an operational approach facilitates inclusion of the define and align instruments of culture. It also allows Army leaders to understand the complexity inherent in the strategic environment."

Culture and Ethics in Question: A Case Study

In 2020, following several high-profile cases of misconduct, the United States Special Operations Command (USSOCOM) undertook an examination of its culture and ethics. The "USSOCOM Comprehensive Review" concluded that while USSOCOM does not have a "systemic ethics" issue, evidence revealed cases where "USSOCOM's culture focused on SOF [special operations forces] employment and mission accomplishment to the detriment of leadership, discipline and accountability."[18] In support of this conclusion, the report highlighted several issues. First, continuous operational tempo over nearly two decades of war has challenged unit integrity and leader development while also eroding readiness. Second, the report noted that "the normalization of unit disaggregation displaces leaders from units" in order to meet overwhelming requirements.[19] In other words, multiple requirements pulled leaders away from their primary duties, leaving less experienced, and perhaps less capable and mature leaders, in charge. Third, the report highlighted insufficient junior leader development, oftentimes at the mercy of operational requirements resulting in an "unbalanced approach to professional military education" and degraded discipline and accountability.[20] Of greatest concern was the revelation that leadership development was outsourced instead of handled by those meant to do so. Finally, the report notes that operators with combat deployments "are held as an almost infallible standard bearer for the rest of the organization to emulate—seemingly if it is a positive or negative standard."[21] This cultural phenomenon is a direct challenge to the professional military ethic.

The USSOCOM review is noteworthy in that it provides insight into problems among a force that is composed of some of America's most capable professionals and led by some of its most capable leaders. SOF operate in small elements that are trusted to perform with limited supervision and to the highest level of disciplined initiative, which includes ethical conduct. Ultimately, the review reveals that the values of the organization are not, in some cases, penetrating down to the lowest levels, despite the personal example set by senior leaders. These issues should not be considered SOF unique. As articulated in the FHIRC, many of these problems can be found in the Army and pose significant challenges to unit culture. The USSOCOM review also acknowledges that previous efforts to address some of these issues were attempted but failed. The report

Soldiers assigned to the 1st Battalion, 502nd Infantry Regiment, 2nd Brigade Combat Team, 101st Airborne Division (Air Assault), provide security 15 July 2017 during a simulated force-on-force training exercise as part of Network Integration Evaluation 17.2 at Fort Bliss, Texas. Effective military operational culture that instills a high level of discipline enables an extremely high level of unit cohesion and combat effectiveness. (Photo by Pfc. Joseph Friend, U.S. Army)

emphasized that a strong implementation plan and the will to execute it were essential to affecting real change, thereby acknowledging that leadership alone is insufficient to address the issue.[22]

Driving Culture: Heroic Leadership and Operational Approach

While heroic leadership is the decisive element for driving change and managing culture, complexity requires that leadership must be exercised through an operational approach. According to Army Doctrinal Publication 5-0, *The Operations Process*, "Commanders complete their visualization by conceptualizing an *operational approach*—a broad description of the mission, operational concepts, tasks, and actions required to accomplish the mission."[23] Employment of an operational approach facilitates inclusion of the define and align instruments of culture. It also allows Army leaders to understand the complexity inherent in the strategic environment, thereby enabling the Army at echelon to adapt as required. Finally, the operational approach allows brigade and battalion commanders to operationalize the strategic guidance of the "Army People Strategy" and drive change down to the lowest level.

At the tip of the spear are company commanders, who exercise direct leadership and influence. However, they are at the entry level of command, have the least training and experience with the concept of culture, and are at risk of viewing change as compliance or political correctness instead of a critical enabler of combat readiness. In order to influence this key audience, brigade commanders must lead change through personal example and a dedicated operational

Soldiers from the 2nd Brigade Combat Team, 101st Airborne Division (Air Assault), watch as a CH-47 Chinook flown by soldiers from the 101st Combat Aviation Brigade, 101st Airborne, sling loads the Tactical Control Node-Light 15 June 2017 at Fort Campbell, Kentucky. Building effective teams requires trust, cohesion, and teamwork, as well as leveraging the talents of people. (Photo by Sgt. Bradford Alex, U.S. Army)

approach, thereby ensuring that company-level commanders are invested in the processes and outcomes. To accomplish this purpose, brigade commanders must operationalize culture through the operations process–understand, visualize, describe, direct, assess, and lead.[24] Before culture can be operationalized, the brigade commander must consider a few key factors attributable to the environment.

First, an operational approach that accounts for the complexity of the environment is required to define, drive, and align culture within an organization. Over the past twenty years, the Army has largely dealt with issues one at a time, though attempts were made to integrate these programs (e.g., the Ready and Resilient Campaign). Second, culture is not just commander business, it is leader business. Officers, warrant officers, and especially noncommissioned officers at all echelons of the brigade must possess a shared vision of unit culture. Driving culture to the lowest level requires that every leader understands his or her role, works to achieve tangible results, and is held accountable for the outcome. Third, senior leaders cannot assume that their understanding of culture, values, and ethics is the same as their subordinates' understanding of those concepts. While the Army Values, the Army profession, and the Army Ethic are taught in the training and education base, they are not uniformly reinforced in the operational force, and hence, they may be seen as ideals that do not necessarily apply in the "real world" of their unit. Immature and incompetent leaders reinforce this notion. Finally, senior leaders should not assume that subordinate leaders understand culture or are necessarily thinking about it in a focused, deliberate, or integrated way. Without this cognitive structure, leaders will fail to adapt, let alone see the need to adapt.

Operationalizing Culture: A Way

While the operational approach is the solution for solving the problem by changing the environment from its current state to the desired state, the operations process provides the means to implement the approach while ensuring an enduring focus on what must be one of the commander's top priorities. The process allows the commander to enable change in time and space to not only achieve the vision but to also address issues of immediate concern. It also allows the commander to apply and prioritize resources and policies as required and sets the conditions to request support from higher echelons to solve problems that he or she cannot. Finally, the operationalization of culture sends a clear message to subordinate commanders, leaders, soldiers, and families that adaptation in pursuit of building cohesive teams is integral to winning.

> "Culture is not just commander business, it is leader business. Officers, warrant officers, and especially noncommissioned officers at all echelons of the brigade must possess a shared vision of unit culture."

The following example is provided as one way that a commander can operationalize culture. This example is based on my experience as the commander of 2nd Brigade Combat Team (BCT) "STRIKE," 101st Airborne Division (Air Assault), from 2017 to 2019. Prior to assuming command, I viewed culture as a key pillar in mission accomplishment for several reasons. Like any BCT commander, I wanted to lead a band of brothers and sisters comprised of physically and mentally tough, steely-eyed killers able to adapt to every challenge and accomplish any mission. While that was my overall vision, my experience taught me the need to address some specific culture challenges requiring change. First, I wanted to transform our warfighter culture from one that had been focused on counterinsurgency to one that met the requirements for high-intensity, large-scale combat operations. The second challenge was to address the proliferation of negative behaviors and attitudes that contributed to the degradation of standards, discipline, and overall readiness. Lastly, I sought to improve leader, especially junior noncommissioned officer, and soldier development through a positive approach. This meant changing focus and teaching soldiers what they should be, know, and do instead of focusing on telling them what not to do (the "Don't" approach) as espoused by the weekly safety brief.[25]

My intent was to create a comprehensive approach to culture with a simple yet powerful narrative—STRIKE Culture. This two-word phrase, built around the unit's moniker (STRIKE), served as a common language that every leader and soldier in the BCT understood and embraced. It served to link the unit's proud heritage and identity with standards and expectations. Additionally, the intent of this big idea was to tackle all of the challenges, described above, through a holistic and integrated approach that incorporated resources with the expertise and energy of leaders. We would not look at a sexual harassment/assault problem as a single issue with a specific program. Instead, we looked at it through the lens of overall culture with the intent to address the root causes. Hence, I dedicated significant time and effort to STRIKE Culture, not just through direct leadership and personal example but through a deliberate process and continuous engagement with all levels of command.

Understand and Visualize: The Culture Seminar

In order to define, drive, and align culture, a commander must start with understanding and a vision. To lead effective change, a commander must create shared understanding and a shared vision. Subordinate commanders and leaders must then own that vision through a common purpose and language. The brigade commander's key tool for leading change is his or her leader professional development program. For STRIKE Culture, step one of operationalizing culture was to leverage the leader professional development program to deliver a daylong culture seminar. The

audience was composed of the BCT-, battalion-, and company-level command teams, all field grade officers and BCT primary staff, and a host of subject-matter experts and enablers from across the installation. This structure was designed to build a team of teams capable of using their experience and expertise to identify problems and then develop solutions that the teams would be responsible for executing. Participants not organic to the BCT were invited to share their expertise and divergent views. The seminar also included a guest speaker from the Naval Postgraduate School who discussed the importance of organizational culture and various models for building culture.[26]

Following this presentation, the audience was divided into seven groups, each led by a battalion commander and command sergeant major, and focused on a specific problem set (e.g., sexual harassment/assault, suicide, soldier development, and unit standards). The groups were charged with developing potential solutions and metrics for assessment. Near the end of the day, each group provided the audience an overview of its findings and recommendations. My final comments synthesized our shared understanding and vision, ensuring the BCT's senior leadership was invested in the process and the outcome and understood culture was a priority.

Describe and Direct: The Culture Campaign Plan

The natural outgrowth of the culture seminar was to refine the operational approach into a campaign plan. This meant building a conceptual framework with which we could structure the problems, solutions, and assessments under distinct lines of effort (LOEs) that tied the vision to outcomes. Fortunately, our division leadership had used a similar process and was also building a campaign plan. We were able to adopt their structure and tailor it for the BCT-and-below fight. Once complete, our campaign plan was captured on three PowerPoint slides, keeping it simple and accessible.

The division campaign plan was composed of three LOEs: (1) enhance the climate and mobilize the culture, (2) strengthen and maintain optimal human performance, and (3) strengthen Army families to thrive. These three LOEs provided us with a framework into which we could easily integrate our own developed operational approach. For the first LOE, the BCT used a developed objective simply known as STRIKE Culture, which focused on leader and soldier character development, unit cohesion, and strengthening organizational climate. For the second LOE, we used STRIKE Tough- the optimization of physical and mental performance. For the third LOE, we used STRIKE Families, which was closely linked to the Family Readiness Group Steering Committee and objectives associated with that program. While we used STRIKE Culture for the first LOE to better align with the division, all of our programs were components of STRIKE Culture.

The "Army People Strategy" discusses the use of people data to manage culture. Our campaign used such data, focusing on established data collection streams such as reenlistment data, command climate surveys, crime trends, and sexual harassment/assault statistics, to name a few. Such data allowed us to focus on specific issues, primarily negative, and determine if our programs and policies were having the intended effect. Creating new data collection requirements was only done to address the toughest, most complex issues; otherwise, there was great risk of the campaign devolving into a data collection effort, thereby creating a distractor for leaders and sending the wrong message about the culture that the unit sought to develop and sustain.

While we used discrete data sets to address specific negative behaviors, we also had a need to assess STRIKE Culture on a large scale to determine our lethality and unit cohesion. This was expressed in our streamer program. Adding to the division's air assault and physical fitness streamers were BCT marksmanship, physical toughness, and discipline streamers that were awarded to company-level formations that met established performance standards. Units then displayed these streamers on their guidons. The purpose of these awards was to generate a commitment to excellence and a competitive spirit between organizations–the more units that had the streamers, the greater the impact of STRIKE Culture. This approach also sent the message that our culture was about uplifting unit morale, cohesion, teamwork, and discipline. Leaders at every level worked hard to earn the right to display their streamers, in the process building lethal, high-performing teams.[27]

Lead and Assess: The Blackheart Pulse

The Blackheart Pulse (BHP) was a BCT battle rhythm event that was executed once a month and

Command Sgt. Maj. Thomas Conn, 2nd Brigade Combat Team, 101st Airborne Division (Air Assault) command sergeant major, presents a streamer to Battery C, 1st Battalion, 320th Field Artillery Regiment in Spring 2019 at Fort Campbell, Kentucky. Streamers are awarded to company-level formations to generate a commitment to excellence and a competitive spirit between organizations. This approach lifts unit morale and enhances unit cohesion, teamwork, and discipline. (Photo by Maj. Kevin T. Andersen, U.S. Army)

given the same priority as the training, command and staff, and unit status report meetings.[28] This was done to ensure a focus on culture and the campaign plan. The BHP's audience consisted of BCT and battalion command teams, key BCT staff, and representatives from support organizations such as embedded behavioral health and the Military and Family Life counselor. Representatives from installation support services also attended for situational awareness and to provide subject-matter expertise. The BCT chaplain served as the meeting's lead action officer, ensuring coordination, integration, and synchronization of issues and special projects. The brigade's family readiness liaison was also a key player and created a link between the BHP and the family readiness steering committee.

The BHP was an evolution of what was previously known as the high-risk soldier meeting. This change evolved from the requirement to monitor and assess the progress of the campaign and focus on issues that were identified as part of the brigade's fight. The meeting agenda consisted of several phases. Each meeting started with discussion of a focused subject, such as suicide awareness, drunk driving, etc. This focus area was the result of previous commander guidance, which directed the staff and support agencies to provide an analysis of the problem set as well as potential solutions. The presentation was used to generate discussion, primarily focused on battalion command teams. The next phase of the meeting allowed time for each battalion command team to provide a short brief on unit trends and discuss its own culture campaigns. The last phase of the meeting was focused on targeting aimed at proactively addressing templated issues. This phase began with a review of the biorhythm, an

annual calendar that examined trends associated with particular times of the year. For example, we looked at summer as the time when soldiers and families would be doing more outdoor activities and be at a higher level of risk. We also reviewed historical data, which indicated times when we would see increased levels of high-risk behavior. The most important effect of the meeting was the ability to maintain focus on assessing and building unit culture with a comprehensive approach in time and space.

Conclusion

The introduction and foreword of the seminal work on training, *Common Sense Training*, note that the U.S. Army's overwhelming defeat of Iraq during the First Gulf War was the result of the post-Vietnam renaissance in training, not high-tech weaponry. Like the book, this article aspires to be "a working philosophy for leaders."[29] The book emphasizes that "leadership is so much a part of the conduct of training that at times it is difficult to tell where one stops and the other starts," and so it is with the operationalization of culture.[30] Training is, and will remain, the most important activity that the Army does to prepare to fight and win on the battlefield, and that priority should not change. Nonetheless, the complex challenges of the future will require that we apply focus and resources to culture. The "Army People Strategy" provides solid strategic guidance to do this, but like training, culture must be a philosophy applied by leaders. Similarly, leadership must be intertwined with the operationalization of culture at every level. It is simply no longer enough to address issues as singular problems requiring a special program that is not connected to a larger operational approach. Every commander must look at culture as a mission essential task list, understand the current proficiency of those tasks, and determine how to sustain and improve accomplishment of those tasks; but more importantly, he or she should also build an enduring culture that enables trust, cohesion, and teamwork. The changing face of our Army and the requirement to successfully conduct multi-domain operations demands that culture be a priority at every level of the Army. It also demands that commanders have a solid plan and the will to carry it out. ■

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Notes

Epigraph. "Senate Armed Services Committee Hearing on Nomination—Austin III," C-SPAN video, 37:03, 19 January 2021, accessed 19 January 2021, https://www.c-span.org/video/?507826-1/defense-secretary-nominee-lloyd-austin-testifies-confirmation-hearing.

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27. The STRIKE streamer program originated from a similar program implemented by Gen. Stephen Townsend when he served as the commanding general, 10th Mountain Division.

28. The structure and intent of the Blackheart Pulse meeting originated from a similar program implemented by Brig. Gen. Mark O'Donnell when he served as the commander, 1st Brigade Combat Team, 10th Mountain Division.

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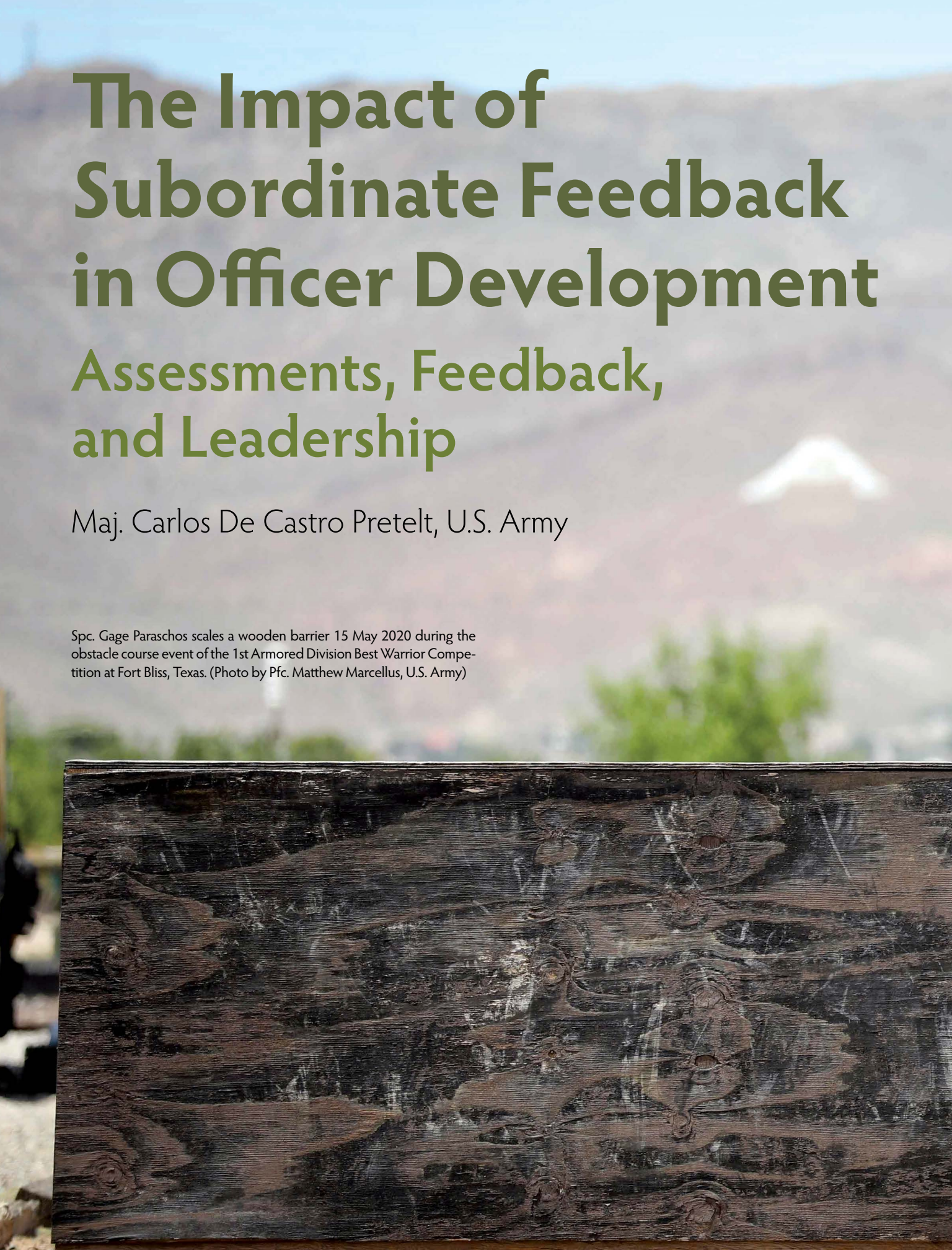
The Impact of Subordinate Feedback in Officer Development

Assessments, Feedback, and Leadership

Maj. Carlos De Castro Pretelt, U.S. Army



Spc. Gage Paraschos scales a wooden barrier 15 May 2020 during the obstacle course event of the 1st Armored Division Best Warrior Competition at Fort Bliss, Texas. (Photo by Pfc. Matthew Marcellus, U.S. Army)

The discipline which makes the soldiers of a free country reliable in battle is not to be gained by harsh or tyrannical treatment. On the contrary, such treatment is far more likely to destroy than to make an army.

—Lt. Gen. John M. Schofield, U.S. Army

Leadership and learning are indispensable to each other.

—John F. Kennedy

Army officers are promoted utilizing a system that measures numerous factors, including their achievements, future potential, and adherence to Army values.[1] Unfortunately, this type of assessment has two main shortcomings. First, due to its design, the system habitually only uses the feedback from one person, the rater, as the sole source of input on the evaluation of the individual. Second, the system has a substantial blind spot because it only focuses on measurable achievements and provides perfunctory checks on the methods and behaviors implemented to achieve them. The confluence of these systemic limitations, coupled with short-term rotations, has at times resulted in the promotion of individuals with dubious leadership skills, enabling the unchecked growth of a corrosive organizational climate.[2] Fortunately, this may be about to change. The Army's recent changes to how it evaluates field grade officers, and in particular, the selection for command positions, may finally provide enough incentive to incorporate subordinate feedback in the development of officers as a necessary requirement for the advancement of its best leaders.

Does Subordinate Feedback Matter?

Subordinate feedback and its overall value in the development of leaders has been a resurgent topic of

conversation dating back to at least 1998.[3] The notion of utilizing this type of feedback as a tool for the edification of leaders has been analyzed by both military and corporate scholars; it was even included in the 2014 National Defense Authorization Act (NDAA), whereby the Department of Defense was tasked with completing an assessment on the implementation of a multi-source feedback program as part of a performance evaluation report.[4] Yet, in spite of its enduring popularity, the idea has continually failed to take hold.

Recent initiatives by the Army, such as the Colonels Command Assessment Program (CCAP) and the Battalion Commander Assessment Program (BCAP), suggest there may be significant benefits to further exploring subordinate feedback and illustrate the Army's drive to use more nontraditional sources of information in the assessment of its officers.[5] Those officers who participate in the BCAP and CCAP are evaluated by panels of experts, subordinates, and peers on a number of observed metrics, including adverse personality traits that could prove detrimental in a unit.[6] This recent advance in the assessment of future leaders is groundbreaking because it could serve as the strongest argument yet in support of the integration of subordinate feedback as a necessary part of an officer's development plan. By creating a direct linkage between career advancement and the development of certain key personality traits, the BCAP and the CCAP may have finally created an impetus for officers to understand how they are perceived by subordinates.

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The Limits of Single-Source Evaluations

The current officer evaluation system and its various iterations throughout the years have been a consistent target for critics. Most of the negative comments are focused on its lack of objectivity, the limits of the block check system, its inability to differentiate performance versus effort, and the imbued potential for favoritism.[7] In particular, the evaluation system has been accused of forcing raters to overlook constructive criticism and risk taking, instead focusing on promoting the appearance of an officer with zero demerits who lives in perpetual organizational stasis.[8] It is worth noting that these shortcomings do not denote malice by the rater, but rather illustrate a fault in the overall information-gathering mechanisms of the system. Due to its habitual use of the rater as the singular source of data, the system forces its user to make educated guesses about areas where he or she may not have firsthand knowledge, enabling internal biases which negatively impact the objectivity of the system.[9] This results in an incomplete assessment that hinders self-development, prevents the documentation of constructive criticism, and creates an inflated estimate of performance.

In 2009, an Army Research Institute survey found that 88 percent of the interviewed officers believed themselves to be in the top 25 percent of their respective peer groups.[10] While somewhat comical, this disparity sadly illustrates the main concern about the current evaluation system. Officers are not receiving enough constructive criticism on past performances, thus enabling an inflated sense of achievement that prohibits them from accurately assessing themselves. Had these individuals been evaluated under a system promoting pointed, constructive criticism, perhaps their self-assessments would have been more accurate. Research has shown that subordinate feedback can help ratees have an improved understanding of their performance because it is not solely focused on achievements but on the impact of their actions on their subordinates.[11] At the same time, the feedback can be used as a recurrent azimuth check to ensure officers develop constructive personality traits in preparation for their assessment during the BCAP and the CCAP.

Prior Attempts at Multi-Source Feedback

The now defunct Multi-Source Assessment and Feedback (MSAF) program remains as one of the best-known initiatives the Army has implemented to gather subordinate, peer, and superior feedback with the goal of guiding the self-development of officers. When executed correctly, the multi-source feedback was supposed to

Candidates attempt to traverse an obstacle at the Leader Reaction Course 23 January 2020 during the Battalion Commander Assessment Program at Fort Knox, Kentucky. The Battalion Commander Assessment Program is designed to determine fitness for command and strategic leadership potential. (Photo by Staff Sgt. Daniel Schroeder, U.S. Army)

provide an accurate assessment of an individual's performance to help guide their self-development.[12]

Unfortunately, a key aspect of the Army's MSAF program is that it was more of an optional self-development initiative. Among its greatest flaws, the system enabled only the rated officer to choose which individuals could give feedback, resulting in favoritism and the suppression of those who would have negative, albeit potentially constructive, opinions of the ratee.[13] To further exacerbate this issue, the final tally of the survey was only viewable by the rated officer, ensuring that any negative comments on the performance of the officer remained out of reach by his or her rater. With no forcing mechanism to ensure the rated officer incorporated any constructive criticism toward his or her professional development, the MSAF program became a perfunctory check. Unable to demonstrate its value against time and personnel costs, the MSAF program was eventually halted in 2018.[14]

Reincorporating Subordinate Feedback

To avoid some of the pitfalls associated with prior efforts to incorporate multi-source feedback and enhance the officer evaluation system, it is critical to begin by establishing the right parameters and structure for the system. The goal of incorporating subordinate feedback as a developmental tool is not to serve as a platform to vent frustrations about an officer but as a venue to formally communicate a cause for concern that may prevent that person's advancement. The intent is for the leader to become better acquainted with some of his or her potentially noncollaborative personality traits so that he or she may address these challenges well before assessment at the BCAP or the CCAP. The proposed feedback should be used mainly as a developmental tool but may also influence the evaluation the officer receives. To achieve this, the survey should be crafted based on the following suggestions to ensure it is relevant, anonymous, expedient, and accountable to subordinates and superiors alike.

The first challenge is accurately selecting who provides the feedback. To address the selection bias found in the prior MSAF program, only immediate subordinates should have the option to provide an assessment of their rater. This ensures that the individuals answering the questions have firsthand knowledge of the officer's performance. Concerned individuals may point out that officers with a small number of subordinates may not have a large enough sample size to receive an accurate assessment of their performance; however, the goal of the survey is not to serve as a personality test but as a way to identify prominent traits that may hinder promotion.

"Concerned individuals may point out that officers with a small number of subordinates may not have a large enough sample size to receive an accurate assessment of their performance."

The second challenge is selecting who will receive the results of the survey. To decrease any chances of retribution against subordinates, the results of the survey should be anonymous and only accessible by the officer's rater. This would also help address one of the main limitations of the current evaluation system, and it would decrease any inclination toward personal biases by providing raters with an additional source of information. Additionally, by ensuring that only the officer's rater has access to the results, the survey places the responsibility for addressing these officer traits on the rater, directly addressing the lack of enforcement from the prior MSAF program, which often resulted in officers habitually ignoring any negative feedback they received.[15]

The third challenge is to develop a short survey accurate enough to capture the most salient points of the feedback. To achieve this, the survey should have no more than ten questions aimed at briefly assessing the levels of extraversion, agreeableness, conscientiousness, neuroticism, and emotional stability of the rated officer. The assessment of these personality traits is based on the "Big Five" factor model of personality, which has received significant attention as a tool to evaluate latent personality barriers to leadership improvement.[16] By breaking down the survey into five measurable areas, the audience is provided with context and avoids overlooking any potentially concerning behavior. In addition, each question should have a text box requiring the subordinate to write a specific narrative of the behavior in question.

The fourth and last challenge focuses on the overall recurrence of the feedback. Invitations to complete the survey should be sent digitally on a quarterly basis. The invitation should be sent via an automated system or by the officer's rater, utilizing an approved template. Subordinates would only have to fill out the survey if they observed any alarming behavior which may hinder promotion. This would help meet two objectives. First, by soliciting subordinate feedback every quarter, subordinates have an opportunity to provide more timely, accurate assessments. Second, the officer's rater could incorporate the received feedback as a developmental tool in quarterly counseling. The completion of the survey by subordinates would remain optional to help reduce personnel requirements and ensure the survey is only being used to report truly detrimental behavior.

To ascertain the structural validity and overall value of the proposed survey, the initiative should be initially tested as a pilot program. One suggestion is to begin at the field grade officer level. This will ensure that respondents have the maturity and experience to effectively voice constructive, valid, actionable, credible, and reliable concerns of behavior that could negatively impact the advancement of their superiors. If the pilot is successful, the initiative could be expanded to include company grade officers and first sergeants, providing those in leadership positions with even more time to work on their self-assessments before they are evaluated for positions of increased responsibility. As an additional benefit, the information from the surveys could even be added to a future assignments marketplace, creating a personality profile that helps place leaders in duty positions more closely aligned with their personal idiosyncrasies.

Participants prepare to take a computer-based psychometric assessment 12 September 2020 during the Army's first Colonels Command Assessment Program at Fort Knox, Kentucky. (Photo by Staff Sgt. Daniel Schroeder, U.S. Army)

Observations, Counterarguments, and Limits of the Initiative

Throughout the various readings, it was regularly mentioned that subordinate feedback should only be utilized for personal development instead of promotion.[17] The proposed program aims to follow this mantra while increasing its accountability by placing the rater as the receiver of all feedback. This will facilitate the creation of an officer development plan but could also impact the promotion potential if the rater believes his or her subordinate failed to reach the goals of the plan. Additionally, the proposed program does not address potential implications that may surge if the rated officer does not believe the information provided by his or her subordinates is accurate enough. Since the survey responses are anonymous, it would be difficult to know who provided any information. In these instances, the rater may have to apply more art than science during the counseling process to determine the validity of the comments.

An additional concern is the rater's ability to effectively help the subordinate curtail the behavior in question. Without specific training on this program, supervisors would be left to develop their own approaches, which may impact the program's overall effectiveness. Lastly, there could be some pushback against this initiative because it may share some superficial similarities to the Inspector General and Command Climate programs. The main difference is that under this proposed initiative, every field grade officer in a unit would receive feedback, not just those in command. Additionally, the information gathered from this initiative should never replace or be in conflict with the other programs. Their goals are objectively different.

Conclusion

Recent changes to how the Army evaluates an officer's potential for promotion have served to highlight some shortcomings of the current evaluation system, intensifying the need to provide future

leaders with the tools to address negative personality traits. Unfortunately, the limits of the current officer evaluation system preclude it from accurately evaluating these subjective traits. Incorporating subordinate feedback into an officer's development plan via quarterly counseling would provide raters with much needed information to accurately assess their officers while providing the rated officer with a better understanding of how he or she is perceived. This would help create better officers who can appreciate the limits of their awareness and develop solutions for future situations they are likely to find challenging.[18] ■

Notes

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17. Hardison et al., *360-Degree Assessments*, ix.

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The Well-Intentioned, Zero-Defect Officer Corps

Maj. Robert E. Murdough, U.S. Army

Capt. Jones stares at the email, trying to will her pulse to slow. She knew the moment would come eventually, but that does not make it easier.

This serves as notification that we have initiated an HQDA [Headquarters, Department of the Army] flag against this officer. DA [Department of the Army] Form 268 is attached. A Promotion Review Board has been initiated. Further guidance will follow.[1]

Four years ago, during her second company command, she received a general officer memorandum of

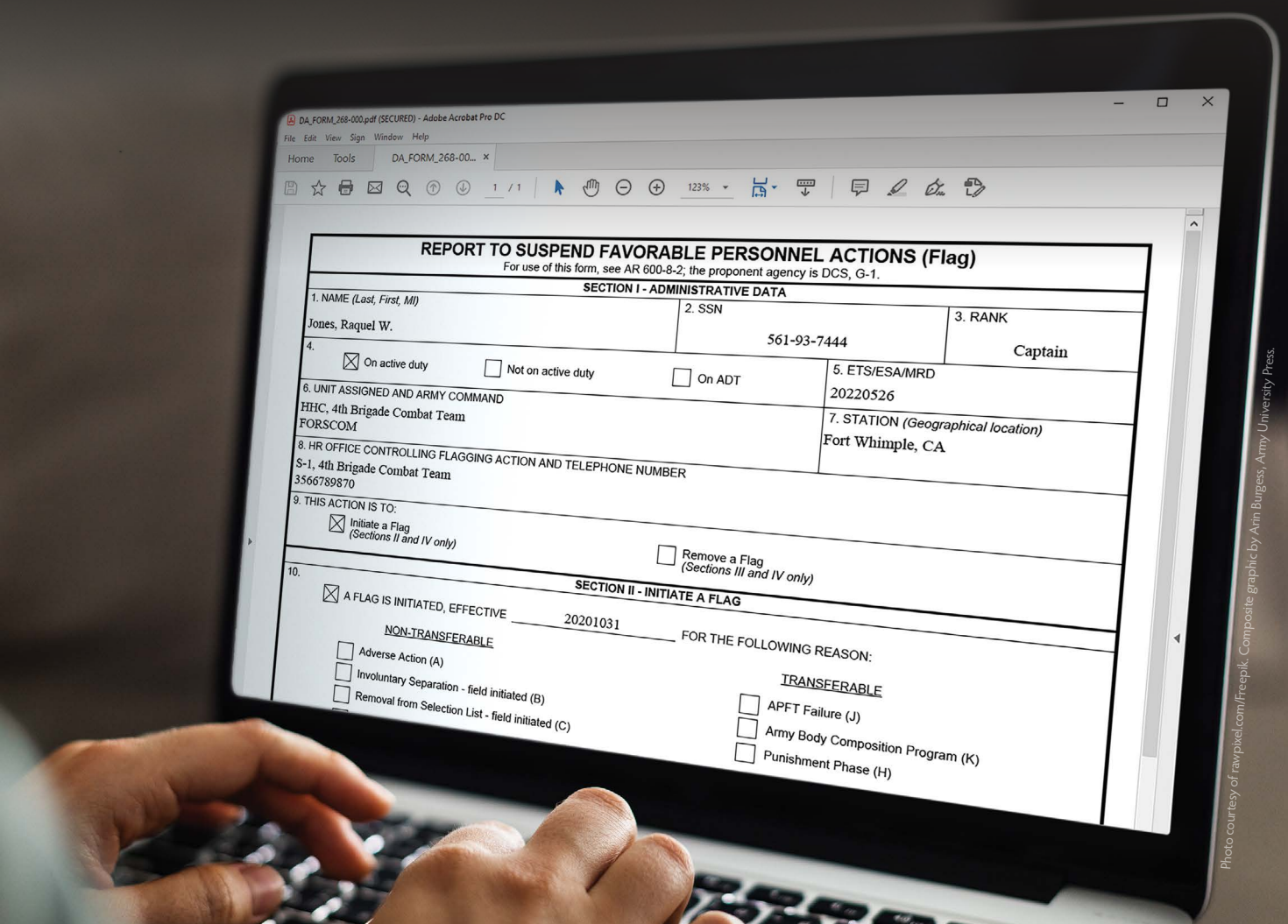

Photo courtesy of rawpixel.com/Freepik. Composite graphic by Arin Burgess, Army University Press.

reprimand (GOMOR) for "failure to treat subordinates with dignity and respect" after she lost her temper with an underperforming soldier. Eighteen months later, she successfully applied to move the GOMOR to the restricted portion of her Army Military Human Resources Record (AMHRR). She subsequently received three "excels" and "most qualified" evaluation reports. But when her promotion board file opened, the reprimand raised a red flag at Human Resources Command (HRC). Now Jones will spend the next twelve months revisiting and appealing this reprimand, unable to move to her next assignment in a permanent change of station with her family, with her career once again in jeopardy over something that happened nearly half a decade prior.

Generally, if an officer receives "derogatory information" (colloquially referred to as "bad paper") in his or her AMHRR, the officer can expect that HRC will eventually initiate elimination proceedings, which will require him or her to show cause for his or her continued retention on active duty.[2] Examples of such derogatory information include referred officer evaluation reports, records of nonjudicial punishment under Uniform Code of Military Justice Article 15, and GOMORs.[3] Nearly every commander understands that filing derogatory information in an officer's AMHRR vice a local personnel record will significantly constrain that officer's career and present him or her with a steep challenge to overcome. The Army selects commanders carefully, in part due to the considerable authority associated with command that requires careful discretion, consideration, and judgment. Yet, the Army aggressively undercuts this command prerogative *and* the possibility of redemption with the proliferation of additional requirements, records, and reviews.

Multiple well-intentioned Army policies combine to create a leadership climate as detrimental as it is underappreciated. Army command policy is rife with vague, hortatory expectations that carry material consequences despite its inherently subjective application. The proliferation and overuse of centralized records systems perpetuate and enlarge these consequences. These regulations combine to produce a compliance-focused environment that favors a zero-defect, risk averse officer corps in ways that are contrary to the Army's interests.[4]

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Broad, Subjective, and Retrospective Policies Do Not Lend Themselves to Clear, Consistently Enforceable Standards

Army Regulation (AR) 600-20, *Army Command Policy*, includes broad policies concerning equal opportunity (EO), sexual harassment, and other discriminatory harassment.[5] Subjective and sometimes retrospective proscriptions characterize each of the policies. For example, conduct can be sexual harassment if it "has the purpose *or effect* of unreasonably interfering with an individual's work performance or creates an intimidating, hostile, or offensive working environment [emphasis added by author]."[6] The Harassment Prevention and Response Program sternly prohibits hazing, bullying, discriminatory harassment, and online misconduct, but also makes punishable "other misconduct" even if it "may not meet the definitions … for hazing and bullying, yet may violate the dignity and respect of others."[7] These policies are by themselves well intentioned and fundamentally benign; treating others fairly is a necessary and uncontroversial component of leadership. Yet, a leader who contravenes any of these policies in the slightest way can face devastating consequences regardless of the severity of his or her infraction.

Problems originate with investigation and enforcement. Commanders must investigate formal complaints under the provisions of AR 15-6, *Procedures for Administrative Investigations and Boards of Officers*.[8] Typically, a single investigating officer (IO) conducts an administrative investigation.[9] To determine whether the allegation is substantiated, the finding must be "supported by a greater weight of evidence than supports a contrary conclusion," also known as the "preponderance of evidence" standard.[10]

In practice, a single IO must navigate the myriad of adjectives and conjunctions in the various policies to determine whether or not a person's behavior, even if unintentionally, "violated dignity and respect" or "had

the effect of creating an offensive working environment." The harassment prevention and response policy presents a particular challenge because it specifically prohibits hazing, bullying, and discriminatory conduct, further defining each of those terms. It then also purports to make punishable "other misconduct" that does not meet any of those definitions yet might still "violate the dignity and respect of others."[11] This expansion indicates that there is at least some category of "other misconduct" behavior that might be a punitive regulatory violation. The regulation makes no attempt to clarify where the division lies. In the end, the IO is compelled to label the allegation "substantiated" or not based largely on his or her subjective assessment of the case.[12]

> "Administrative measures such as counseling, corrective training and instruction, and administrative reprimands 'are primarily tools for teaching proper standards of conduct and performance and do not constitute punishment.'"

Mandatory Adverse Actions Deprive Commanders of their Ability to Assess, Lead, and Develop

Shoehorning broad, qualified, and retrospective standards into a binary substantiated/unsubstantiated framework is problematic enough but largely harmless. The real harm lies in the manner in which the Army uses the results of administrative investigations. Per Army policy, administrative measures such as counseling, corrective training and instruction, and administrative reprimands "are primarily tools for teaching proper standards of conduct and performance and do not constitute punishment."[13] A commander can use mistakes and failures as opportunities to grow and develop; she or he could also choose to impose consequences that, while serious, do not effectively terminate a soldier's service. This discretionary authority is an integral part of command.

However, any "substantiated EO complaint" or "any substantiated finding substantiated findings of sexual harassment" mandates adverse comments on the subject's officer evaluation report.[14] Thus, regardless of how minor the behavior or how unintentional its effect, the commander is prevented from using counseling and training to rehabilitate the officer without throwing his or her career into jeopardy. Yet these mandatory consequences only occur if there is an investigation. If the complainant files an informal complaint, the command may be able to resolve the complaint without the need to resort to an investigation.[15] A formal complaint for an identical incident will produce an investigation report and an entry into a central system of records, with all of the cascading effects that follow.[16] In other words, the complainant's selected forum, rather than the substance of the complaint, dictates whether the commander may resolve the issue at the lowest practicable level (the Army's preference) without triggering Army-level processes, including the mandatory adverse evaluation comments mentioned above.

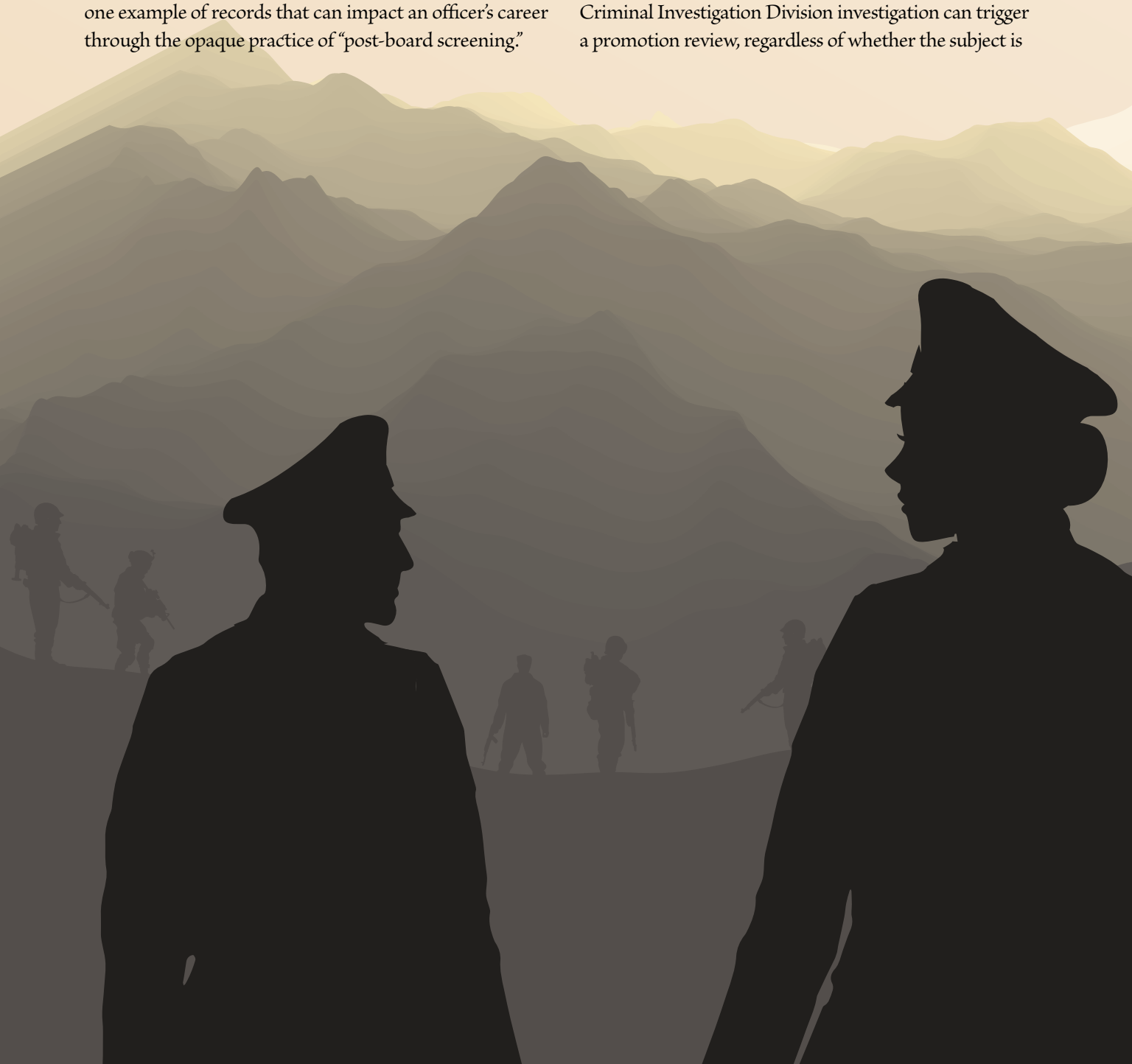
The Expanding Use of Centralized Systems of Record Completes the Zero-Defect System

In 2017, the inspector general (IG) of the Army realized a similar discrepancy existed with regard to inspector general complaints. If a soldier brought his or her complaint to the chain of command, the command could resolve it appropriately. If the soldier brought the same complaint to the local IG, substantiated allegations would be recorded in the Inspector General Action Request System.[17] Thus, though the command did not believe the incident warranted creation of a centrally stored record, the IG system would still create one that could have a deleterious effect on an officer's career for years. The inspector general realized that this created a disparate effect based solely on the complainant's choice of forum.[18] Therefore, Army Directive (AD) 2018-1, *Inspector General Investigations*, ended the practice of labeling IG complaints as "substantiated" or "unsubstantiated" following a command investigation.[19]

This directive revising the IG policy runs contrary to the current trend toward overusing centralized record systems. Before 2020, the Army did not require commands to enter informal complaints into a central database.[20] But the most recent revision of AR 600-20 now requires all informal harassment complaints be logged in the Military Equal Opportunity (MEO) database for fifteen years.[21] The Army continues to proliferate centralized systems of records, even beyond the policies of AR 600-20 to include virtually any allegation substantiated by the "more likely than not" standard typical of adverse administrative actions. Substantiated IG complaints are one example of records that can impact an officer's career through the opaque practice of "post-board screening."

Per AD 2016-26, *Screening Requirements for Adverse and Reportable Information for Promotion and Federal Recognition to Colonel and Below*, all officers recommended for promotion are subject to a review of records maintained by the Criminal Investigation Division, IG records, and the restricted portion of the AMHRR.[22] The Military Equal Opportunity database is not yet part of that list, yet it is highly plausible the Army would begin reviewing these records as well. Adverse information in any of these systems can trigger a promotion review board, which in turn can lead to the elimination process.[23]

As a consequence of AD 2016-26, any "founded" Criminal Investigation Division investigation can trigger a promotion review, regardless of whether the subject is



later exonerated, or authorities take no further action. The standard for a "founded" investigation is probable cause, an even lower standard than preponderance of evidence, and this determination is virtually impossible to rebut or appeal.[24] Moreover, AD 2016-26 erases the protections of the restricted portion of the AMHRR. Officers who receive a GOMOR or a record of nonjudicial punishment filed in their AMHRR may have the record moved to the restricted portion of their AMHRR if they later demonstrate that the document has "served [its] intended purpose."[25] By using information from the restricted portion as a basis to deny promotion, the Army vitiates officers' successful rehabilitation, which is a specific purpose of administrative reprimands and nonjudicial punishment.

Exacerbating the problem, in 2015 the Army created the Adverse Information Pilot Program to identify "credible information of an adverse nature documented in command directed investigations or inquiries related to field-grade officers [and to] centrally maintain summaries of this information."[26] Thus, the Army created another centralized system of records for *any* adverse finding of an investigation, specifically when the local commander's action does not otherwise create a permanent record (e.g., a simple counseling statement). Originally, this system was to be used only when considering officers to be promoted to general officer ranks. But in 2019, Congress required the secretary of defense to furnish "any credible information of an

adverse nature, to include any substantiated adverse finding or conclusion from an officially documented investigation or inquiry" to all selection boards considering officers for promotion to any rank above captain.[27] Congress added another requirement in 2021; even if a promotion selection board recommends an officer for promotion despite his or her adverse information, that officer must now be subject to another, Congressionally-required "special selection review board."[28] No matter how minor, *every* adverse finding in any form of inquiry or investigation is now likely to be career-ending.

Concomitantly, AR 600-8-2, *Suspension of Favorable Personnel Actions*, adds further professional and personal harm. An officer under investigation, pending adjudication of a reprimand or nonjudicial punishment, awaiting a promotion review board, or subject to the elimination process is "flagged." Flagging prevents, among other things, promotion and reassignment for the duration of the pending action.[29] In some cases, this takes months—for example, upon receiving a referred case, a promotion review board has 120 days to convene and then 180 days to notify the officer of the result.[30]

These systems and policies create a severe aggregate effect. An officer who makes an unintentionally offensive comment can find himself or herself the subject of an adverse investigation, an unfavorable referred evaluation, and multiple review boards over the course of several years. Processes build upon each other, all originating with the complainant's choice of forum and a subjective interpretation of certain adjectives within AR 600-20, even if that officer's commander (or for that matter the complainant) does not believe the incident should be career ending. Years after successfully overcoming a misstep, an officer expecting to relocate to a new assignment can find himself or herself suddenly subject to an obscure, months-long review process, upending arrangements for housing, schooling, and spouse employment. Even a favorable outcome leaves irreparable personal and professional damage. The Army remains largely indifferent to these combined collateral effects of independently well-intentioned policies.

Besides the ruinous impacts to individuals, these practices injure the Army itself. When the slightest lapse in behavior can irrevocably mar an officer's career, a climate of compliance forms wherein leaders care foremost about avoiding anything that might be perceived as improper rather than accomplishing the mission and improving their organization.[31] When the very possibility of an investigation is intimidating, leaders may hesitate to lead out of fear that disgruntled soldiers will weaponize one of the various complaint systems against them. This perception of a zero-defect climate depletes initiative, builds resentment, and fosters risk aversion in ways the Army has not adequately examined.[32]

Furthermore, the proliferation of centrally managed systems of records undercuts commanders' authority. In the right situations, the best commanders treat failures as learning opportunities; this can apply to ethical and moral behavior as well as tactical and technical performance. The Army trusts senior commanders to steward the profession and should allow them the flexibility to determine the appropriate sanction for malfeasance without repeatedly second-guessing that determination for years.[33] Conversely, some commanders may realize they effectively have no corrective options short of shattering an officer's career and, therefore, adjust the findings of investigations to avoid having to take such an action.[34] Commanders may also eschew investigations altogether, which inhibits an accurate ascertainment of the facts. These decisions tacitly condone the potential misbehavior, creating a separate problem.

Conclusion: Adjust the Climate by Adjusting the Policies

Adjusting the zero-defect climate need not give cover to leaders who treat subordinates harshly under the guise of "getting the job done." Nor should it mean that the Army must accept crass behavior. But, the Army can improve the culture without excommunicating every officer who falls short of the highest aspirational standards. The integration of current regulations creates a zero-defect climate where the most significant expectation of officers is "don't get in trouble." This fosters mediocrity, not excellence. Eliminating mandatory adverse evaluations, curtailing post-board screening, and restoring the protections of the restricted portion of the AMHRR would be simple yet significant steps toward balancing the culture of the Army. More broadly, the Army should reverse the trend toward using centralized systems of records for purposes for which they

Previous page: Graphic elements courtesy of GarryKillian/Freepik, www.freepik.com and www.all-silhouettes.com. Composite graphic by Arin Burgess, Army University Press.

were not intended. Doing so will enhance commanders' authority and by extension the strength of their commands. It will also produce a more proactive, resilient, and committed officer corps. ■

Notes

1. This scenario is fictitious; however, the example is generally based on the author's experience as a military attorney representing Army officers who faced the situations described throughout this article.

2. Army Regulation (AR) 600-8-24, *Officer Transfers and Discharges* (Washington, DC: U.S. Government Publishing Office [GPO], 2020), para. 4-2.

3. AR 600-37, *Unfavorable Information* (Washington, DC: U.S. GPO, 2020), para. 3-5. Although many officials can issue an administrative reprimand, only a general officer can direct a reprimand be filed in the Army Military Human Resources Record.

4. This article focuses on officers; however, the issues described herein present analogous problems for senior noncommissioned officers.

5. AR 600-20, *Army Command Policy* (Washington, DC: U.S. GPO, 2020). Chapter 6 outlines the Army Equal Opportunity Program, chapter 7 addresses sexual harassment, and paragraph 4-19 establishes policy on treatment of persons, including hazing and bullying.

6. Ibid., para. 7-7.a.(1)(c). The regulation does not further define "unreasonable interference," or what constitutes as an "intimidating, hostile, or offensive working environment."

7. Ibid., para. 4-19.a.(4).

8. Ibid., para. 6-6.b.(4)(b) and 7-8.n.(9). Commanders may choose to investigate the allegations personally. Commanders must report criminal allegations to military law enforcement.

9. AR 15-6, *Procedures for Administrative Investigations and Boards of Officers* (Washington, DC: U.S. GPO, 2016). Depending on their complexity, some investigations may employ assistant investigating officers.

10. Ibid., para. 3-10.b.

11. AR 600-20, *Army Command Policy*, para. 4-19.a(1)-(4).

12. Ibid.

13. AR 27-10, *Military Justice* (Washington, DC: U.S. GPO, 2016).

14. AR 623-3, *Evaluation Reporting System* (Washington, DC: U.S. GPO, 2019), para. 3-26.b.

15. AR 600-20, *Army Command Policy*, para. 6-6.b.(2).

16. Ibid., para. 6-6.g.

17. AR 20-1, *Inspector General Activities and Procedures* (Washington, DC: U.S. Government Printing Office, 2010 [obsolete]), superseded by AR 20-1, *Inspector General Activities and Procedures* (Washington, DC: U.S. GPO, 23 March 2020).

18. Leslie C. Smith and Christopher Gilpin, "Address to the Command and General Staff Officer's Course Class of 2020" (Army Command and General Staff School, Fort Leavenworth, KS, 22 October 2019).

19. Army Directive (AD) 2018-1, *Inspector General Investigations* (Washington, DC: Secretary of the Army, 2018). For most complaints, the inspector general's preference is to refer the allegation to the command for investigation and resolution, rather than directly investigate. Inspectors general will still record allegations as "substantiated" or "unsubstantiated" if an inspector general directly investigates the complaint.

20. AR 600-20, *Army Command Policy* (Washington, DC: U.S. Government Printing Office, 2014 [obsolete]), para. C-1.a.

21. AR 600-20, *Army Command Policy*, para. 6-6.b.(2)(h).

22. AR 600-8-29, *Officer Promotions* (Washington, DC: U.S. GPO, 2020), para. 2-6.b.

23. AD 2016-26, *Screening Requirements for Adverse and Reportable Information for Promotion and Federal Recognition to Colonel and Below* (Washington, DC: Secretary of the Army, 2016). For policy governing promotion review boards, see AR 600-8-29, *Officer Promotions*, chap. 7.

24. AR 190-45, *Law Enforcement Reporting* (Washington, DC: U.S. GPO, 2016), 105. "Determination that an offense is founded is a law enforcement decision based on probable cause supported by corroborating evidence and is not dependent on final adjudication."

25. AR 600-37, *Unfavorable Information*, para. 6-3.a.(5).

26. John M. McHugh, Memorandum for Principal Officials of Headquarters, Department of the Army, "Pilot Program for Providing Adverse Information for Brigadier General and Major General Promotion Selection Boards," 21 July 2015.

27. Public Law 116-92, National Defense Authorization Act for Fiscal Year 2020, Sec. 502 (Dec. 20, 2019), codified at Title 10, U.S. Code, Section 615(a)(3).

28. Public Law 116-283, National Defense Authorization Act for Fiscal Year 2021, Sec. 505 (Jan. 1, 2021), codified at Title 10, U.S. Code, Section 628a.

29. AR 600-8-2, *Suspension of Favorable Personnel Actions (Flag)* (Washington, DC: U.S. GPO, 2016).

30. AR 600-8-29, *Officer Promotions*, para. 8-4 and 8-9.

31. Jennifer G. H. Cox, "Proposing a New Strategy for Army Ethics Training," *Military Law Review* 224, no. 2 (2016): 561.

32. Army Doctrine Reference Publication 6-22, *Army Leadership* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]), para. 6-6, cited in Cox, "Proposing a New Strategy for Army Ethics Training," 568nn201–2, accessed 21 October 2020, https://www.loc.gov/rr/frd/Military_Law/Military_Law_Review/pdf-files/224-issue2-2016.pdf. "Overemphasis on compliance decreases individual motivation and inclination to creatively tackle problems, and may impair the operational adaptability of the individual and the overall morale of the unit."

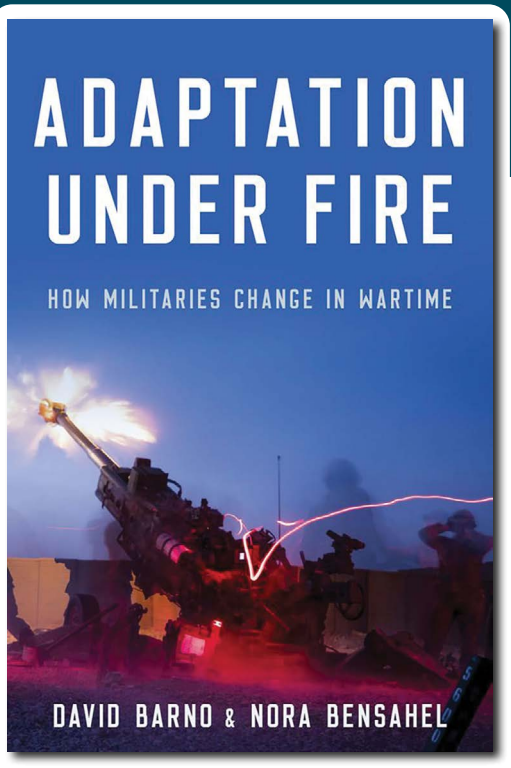
33. The disposition authority for officer and senior noncommissioned officer misconduct resides at the general officer command level in practically every Army organization and installation. General officers carefully selected for positions as commanding generals, with decades of education, training, and experience, should be more than capable of selecting a disposition for a particular case that serves the best interests of the Army.

34. AR 15-6, *Procedures for Administrative Investigations and Boards of Officers*, permits commanders to disapprove of or modify findings of administrative investigations, with certain limits.

REVIEW ESSAY

Adaptation under Fire

How Militaries Change in Wartime



David Barno and Nora Bensahel,
Oxford University Press, New York, 2020, 440 pages

Col. James Kennedy, U.S. Army, Retired

David Barno, a retired U.S. Army lieutenant general, and Dr. Nora Bensahel brilliantly explain one of the most difficult aspects of the military for people to understand—the complexity and importance of change in the military, especially while in conflict. The authors open *Adaptation under Fire: How Militaries Change in Wartime* with definitions of their terms of reference, and they explain what they will and will not cover in the book. The book centers mainly on Army change because the authors argue that wars are won by armies on the ground. The ideas presented in this book apply to all services and partner countries, allies, and U.S. adversaries. While militaries change in many areas, the authors concentrate on doctrine, technology, and leadership changes across three time periods: part I, World War II through Grenada; part II, recent wars in Iraq and Afghanistan; and part III, the future.

Part I examines adaptation from previous operations. The authors identify and explain ten key requirements of doctrine, technology, and leadership for militaries to be successful in conflicts. They provide examples of strategic and tactical successes and failures to support their focused key requirements such as the role of both rigid and adaptable doctrine in the 1973 Yom Kippur War, successful leadership adaption by Capt. John Abizaid in Grenada, and failed U.S. Army tank development in World War II.

Part II studies the recent conflicts in Iraq and Afghanistan in the same format as part I, using examples of successful and failed doctrine, technology, and leadership adaptation. The authors analyze how the provincial reconstruction teams developed; counterinsurgency doctrine from the initial interim version in 2003 to the famous Petraeus counterinsurgency

doctrine of 2006; institutional failure of Distributed Common Ground System-A; tactical leadership adaptation successes in Iraq and Afghanistan; and the failure of strategic leadership adaptation by Gen. George Casey and Gen. William McKiernan. The history of each example is extremely well written and thorough but not detailed enough to be technical or confusing.

Part III is forward-looking. The authors begin with three challenges to the future: strategic uncertainty of who, when, where the next war will occur; the new domains of space and cyber; and the rapid growth of technology. They examine the current state of adaptability in U.S. Army processes and draw attention to systematic issues at the strategic level that hinder adaptability in updating doctrine, acquisition, and leadership.

The authors' description of the issues hampering adaptability in doctrine and acquisition do not provide a complete picture of the processes. The authors discuss the holistic review-and-update process for doctrine and argue that operational-level command training is not structured to train for a complex adaptive environment. However, they omit the purpose for the extended deliberate doctrine system, which is to gain better integrated and coordinated doctrine in a peacetime environment when there is no conflict. They also omit legal reviews and formats for the publication process.

With respect to acquisition, the authors argue in favor of the Defense Acquisition System's improvement, but their arguments are incomplete. They leave out three key factors in determining materiel capability timelines: senior leader decisions when the requirement is needed, manufacturing physics, and technology maturation. These are critical areas that should be included as critical reasons for either real or perceived delays to make their discussions more complete for the reader. The description of acquisition system issues highlights how the Goldwater-Nichols Department of Defense Reorganization Act of 1986 created "structural tension" between the services and the combatant commander's needs and how requirements changes impact the delivery schedule. However, this description omits noting that America's large, deliberate acquisition programs are generally military-use-only products—for example, missiles, tanks, tactical communications. Generally, industry manufacturing is not established to mass-produce a new item, say a hypersonic missile, until there is a contract in place.

During World War II, civilian industry required time to ramp up production of ships, aircraft, tanks, and weapons that had nowhere near the sophistication of today's equipment. In the United States' capitalist economy, companies do not have several hundred large, complex, military-only systems in a storage lot hoping the Department of Defense (DOD) will purchase them. It takes time to establish production lines to manufacture the quantity needed. Some of the research referenced by the authors regarding the acquisition process is four to nine years old, yet many changes have occurred since then.

The authors' use of strong adjectives such as "broken," "byzantine," or "sclerotic" may unintentionally manipulate any uninformed reader. As proof of "the broken acquisition process," the authors utilize decisions by senior leaders to repeatedly not support requests by commanders in Iraq and Afghanistan for mine-resistant vehicles and improved intelligence collection and processing software during recent conflicts. While the decisions described are accurate, the decisions are not part of the Defense Acquisition System process but a part of the Army requirements determination process. This is not mere semantics but two different processes that do work together. In addition, the authors omitted the 2016 National Defense Authorization Act Section 804, "Mid-Tier Acquisition," policy to accelerate low-cost, rapid acquisition authorities, as well as the development of four additional Defense Acquisition System models and two hybrid models.

Because of its recent publication, and through no fault of the authors, this book does not discuss the newly approved DOD Instruction 5000.02, *Adaptive*

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Military Review

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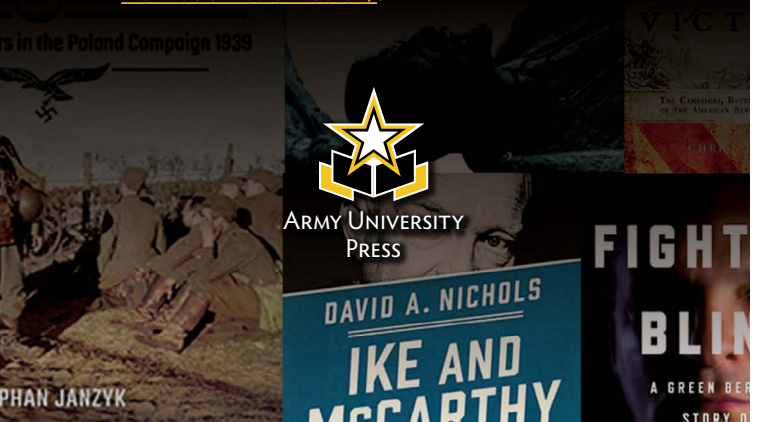


Acquisition Framework, released in January 2020, that provided six pathways that may address the concerns the authors raise. Lastly, the authors stated leadership challenges of risk aversion and mission command, insufficient professional military education, the challenge of homogeneity of common experiences creating groupthink, and the generational legacy of recent conflicts could potentially resemble the Army after Vietnam and create "blind spots" in planning.

In the final chapter, the authors offer twenty innovative recommendations to improve military adaptability for the future. These recommendations include increased "free play" in wargaming and training, an annual technology adaptation competition for industry, adding adaptability as a new principle of war, and creating a DOD adaptive leadership award, to name a few. These recommendations are well reasoned and should be part of the conversation on improving adaption for the next conflict.

Readers should consider that the authors have the benefit of hindsight in determining what was a success or failure from the past. When the decisions highlighted in the book were made, there were no guarantees these actions would be successful or not, but often, the book leaves the impression that the outcomes were predestined for success or failure. It is unlikely any of the adaptions or lack thereof discussed in the book were planned for failure.

Barno and Bensahel do an amazing job of simplifying these complex topics without getting into the weeds of the "how" to change or make these ideas work. The organization of the book was excellent and set the stage for their recommendations of change for future success. The book is a very quick read with some common and lesser-known examples utilized throughout to support their points.

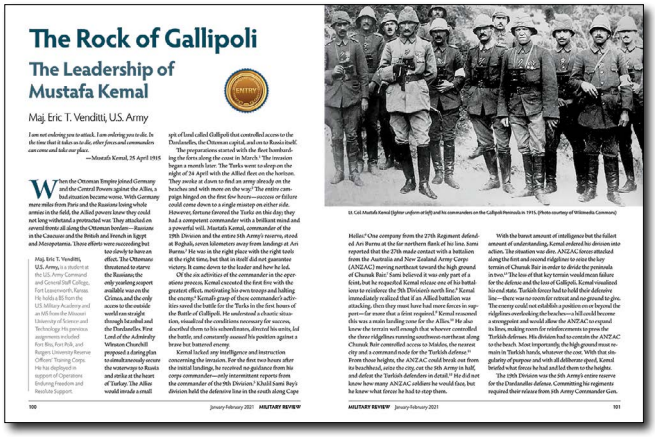
Despite the less than complete review of our acquisition processes, I highly recommend this book for anyone who specialized in leadership, training, strategy, doctrine, or materiel development. This book should be mandatory reading for Army FA59 strategists, FA50 force management officers, Senior Service College, and Sergeants Majors Academy students, as well as leadership and force management instructors at the U.S. Army Command and General Staff College, the Army Management Staff College, the School of Advanced Military Studies, and others. ■

LETTER TO THE EDITOR

Response to Maj. Eric T. Venditti, "The Rock of Gallipoli: The Leadership of Mustafa Kemal"

Military Review, January-February 2021

Col. Özgür Körpe, PhD, Turkish Army


The Rock of Gallipoli
The Leadership of Mustafa Kemal
Maj. Eric T. Venditti, U.S. Army

To view this article, visit https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/January-February-2021/Venditti-Rock-of-Gallipoli/.

Maj. Eric T. Venditti's leadership in his 2021 article "The Rock of Gallipoli: The Leadership of Mustafa Kemal." Atatürk, the indisputable founding father of the Republic of Turkey, owes his successful field experience to his talent. In this context, Venditti's article focuses on Atatürk's experience in the Gallipoli campaign.

After a short introduction about the Ottoman Empire's entrance to World War I, the reasons for the opening of the Dardanelles front, and the preparations for the Gallipoli Campaign, in the first section, Venditti describes the Ari Burnu landings. The description focuses on the first hours of the first day's engagements. As the author emphasized, within the chains of mistakes that existed on both sides, success would be for those who made fewer mistakes or who could make up for their mistakes. So, it happened. Mustafa Kemal, a young staff lieutenant colonel (SLTC), took the right position at the right time in the right place, first changing the course of the battle and then the war.

Although the author stated that Mustafa Kemal was at the right time and in the right place with the right tools, Mustafa Kemal's role in the battle was not accidental. He established his game-changing situation himself.

Liman Von Sanders' defense plan, based on the offensive movements of mobile reserves while keeping the coastline weak, is consistent in itself though it goes against the tactical rules of coastal defense. Therefore, the reserve 19th Division commanded by Mustafa Kemal was in the best position to intervene in both the northern and

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southern sectors of Gallipoli. The main problem, as Venditti emphasized, was understanding the situation. SLTC Mustafa Kemal achieved this with a high level of empathy. His empathy was twofold. He first understood the purpose and intention of his echelon commander by putting himself in the position of Esat Pasha as a reserve unit commander should do. He then put himself in the enemy's shoes and evaluated the enemy's purpose with high accuracy. Moreover, as Venditti found, Mustafa Kemal had almost no information. The genius SLTC would overcome this shortcoming with two clever practices. He analyzed the terrain very well and applied tactical principles without hesitation. Venditti caught both points with great accuracy.

In this context, the author's assessment of the commander's six activities is important, which brings us to the second part of the article. The exaggerated praises for Atatürk's ability to take initiative threaten to diminish his genius of command. Holders of this view argue that Atatürk acted independently in Gallipoli and made up for the lack of competent commanders. Actually, the real situation was different. Atatürk's ability to use initiative depended on the correct understanding of the purpose and intent of his echelon commanders, and contrary to common belief, acting within the chain of command. As a matter of fact, we can understand his initiative from his work called *Discourses with the Officer and Commander*, which was published three months before World War I:

> Every officer, non-commissioned officer, or even privateer in every unit, big or small, may face a situation where he cannot get any orders or ideas about his course of action. For this reason, it is imprudent and disastrous to recognize a military unit as the trusted and respected force of an army, without being convinced that both commanders and soldiers are capable of accomplishing their mission by thinking independently.

On the other hand, according to Atatürk, there is a limit to this kind of independence. He expresses this limit as follows:

> An army's independently fulfillment of every mission creates serious concern if it goes to the extreme. This is because the more admirable when independent duties are positive, the more open to criticism when they are contrary to purpose. However, the suitability of every action for the purpose depends on being able to understand the purpose clearly in all situations and conditions.

Therefore, as Venditti has determined, the talented SLTC Mustafa Kemal correctly understood the complex situation or the "wicked problem," correctly identified the necessary measures for success, correctly explained these precautions to his subordinates, led the battle on the first line and engaged the battle wherever or whenever he wanted, and finally updated his plans in accordance with continuous situation evaluations.

Venditti pauses his detailed account in the evening of 25 April 1915 and makes a long jump to January 1916, when Allied troops withdrew from Gallipoli. He then focuses on the lessons learned. In this context, it is possible to see this part of the article as the third and last section. In agreeing with the author, it can be said that SLTC Mustafa Kemal's ability to understand the commander's role in battle sets an example for today's commanders. Moreover, Mustafa Kemal did this with an almost insufficient intelligence preparation of the battlefield (IPB). More precisely, the weight of his IPB was compulsorily limited to the land rather than the enemy. However, he studied the land very well. Atatürk emphasized this in his book titled *Advice Regarding the Solution of the Tactical Problem and Writing the Orders*, in which he wrote about his experiences from the Gallipoli battles:

> As for the land; it is always necessary to give the land its true value. Rather than acknowledging that the land limits the enemy's goals, it must be admitted that it will help the enemy take advantage of the land's possibilities and achieve his goal by overcoming his difficulties. Remembering the blood shed on the steep rocky slopes of the Kodja Chemen range overlooking the sea is enough to accept this fact.

According to Venditti, three lessons can be learned from the 25 April battles. According to the first lesson, if there is no information about the enemy, it is necessary to attack terrain. This is actually a familiar maneuver that exists in Turkish strategic culture and was implemented by SLTC Mustafa Kemal with a pragmatic fine-tuning. The Ottoman Gen. Hacı İlbey implemented a similar maneuver against the Crusader Army

in 1364, in Sırpsındığı Battle in the context of a reconnaissance in force. "The spirit of attack," which Atatürk devotes to the fourth part of his work, *Discourses with the Officer and the Commander*, has once again come true in the cliffs of Koja Chemen Tepe.

The second lesson is to motivate soldiers. It is possible to support Venditti's accurate determination with quotations from Atatürk. In *Discourses with the Officer and the Commander*, Atatürk expresses this point of view: "I guess it is our duty to win the souls of our soldiers, and to create a soul, an ambition and a character in them first turns to us after Allah and the Prophet who is in the city of Medina." On the other hand, SLTC Mustafa Kemal's order to die cannot be reduced to sacrifice alone. There is no doubt that the attack ordered on 25 April was a suicide mission. But this mission is also a pragmatic act that serves a higher purpose of battle. It is possible to see this in the second part of the mentioned order of SLTC Mustafa Kemal. He expresses the purpose and intention of his operation concisely: "In the time that it takes us to die, other forces and commanders can come and take our place." As a matter of fact, Atatürk also said the following words in a later period of his life: "Death must be directed only towards the intention and purpose of killing. But what good is dying if no purpose can be achieved after death?"

Venditti did not mention the May 1915 attacks or the second landing operation in the Ari Burnu and Anafartalar regions in August 1915. Although it is possible to see the omissions as limitations of research, they can be noted as a little gap in terms of the analysis of Atatürk's leadership characteristics too. It was the "Anafartalar Battles" that brought Atatürk his known reputation. The ingenious command and management of SLTC Mustafa Kemal during these battles pushed the Allied attacks to the culmination point in mid-August 1915. After his success in these battles, he started to be known as the "Hero of Anafartalar." In terms of six commander activities, if Atatürk's prominent effort in the 25 April battles can be called an "understanding," his role in the 10 August battles can be defined as "leading."

There are many studies and monographs on Atatürk's talent of leadership, especially in Turkish literature. Yet Venditti's article has privilege in several points. First, thanks to the article, Atatürk's decision-making and command practice becomes more perceptible for contemporary strategists. Second, Venditti makes clear that Atatürk is the most prominent operational figure in Gallipoli whose daring measures frustrated the offensive efforts of Allied forces. Finally, the article emphasizes Atatürk's talent of understanding that correctly uncovers both the enemy's and his echelon commanders' intents without any information. ■

Excerpts from President George Washington's Farewell Address, 1796

Friends and Fellow Citizens:

The unity of government which constitutes you one people is … a main pillar in the edifice of your real independence, the support of your tranquility at home, your peace abroad; of your safety; of your prosperity; of that very liberty which you so highly prize. But as it is easy to foresee that, from different causes and from different quarters, much pains will be taken, many artifices employed to weaken in your minds the conviction of this truth; as this is the point in your political fortress against which the batteries of internal and external enemies will be most constantly and actively (though often covertly and insidiously) directed, it is of infinite moment that you should properly estimate the immense value of your national union to your collective and individual happiness; that you should cherish a cordial, habitual, and immovable attachment to it; accustoming yourselves to think and speak of it as of the palladium of your political safety and prosperity; watching for its preservation with jealous anxiety; discountenancing whatever may suggest even a suspicion that it can in any event be abandoned; and indignantly frowning upon the first dawning of every attempt to alienate any portion of our country from the rest, or to enfeeble the sacred ties which now link together the various parts. …

… The name of American, which belongs to you in your national capacity, must always exalt the just pride of patriotism more than any appellation derived from local discriminations. …

… While, then, every part of our country thus feels an immediate and particular interest in union, all the parts combined cannot fail to find in the united mass of means and efforts greater strength, greater resource, proportionably greater security from external danger, a less frequent interruption of their peace by foreign nations; and, what is of inestimable value, they must derive from union an exemption from those broils and wars between themselves, which so frequently afflict neighboring countries not tied together by the same governments, which their own rival ships alone would be sufficient to produce, but which opposite foreign alliances, attachments, and intrigues would stimulate and embitter. …

… To the efficacy and permanency of your Union, a government for the whole is indispensable. No alliance, however strict, between the parts can be an adequate substitute; they must inevitably experience the infractions and interruptions which all alliances in all times have experienced. Sensible of this momentous truth, you have improved upon your first essay, by the adoption of a constitution of government better calculated than your former for an intimate union, and for the efficacious management of your common concerns. This government, the offspring of our own choice, uninfluenced and unawed, adopted upon full investigation and mature deliberation, completely free in its principles, in the distribution of its powers, uniting security with energy, and containing within itself a provision for its own amendment, has a just claim to your confidence and your support. Respect for its authority, compliance with its laws, acquiescence in its measures, are duties enjoined by the fundamental maxims of true liberty. The basis of our political systems is the right of the people to make and to alter their constitutions of government. But the Constitution which at any time exists, till changed by an explicit and authentic act of the whole people, is sacredly obligatory upon all. The very idea of the power and the right of the people to establish government presupposes the duty of every individual to obey the established government. …

… However combinations or associations of the above description may now and then answer popular ends, they are likely, in the course of time and things, to become potent engines, by which cunning, ambitious, and unprincipled men will be enabled to subvert the power of the people and to usurp for themselves the reins of government, destroying afterwards the very engines which have lifted them to unjust dominion.

Towards the preservation of your government, and the permanency of your present happy state, it is requisite, not

only that you steadily discountenance irregular oppositions to its acknowledged authority, but also that you resist with care the spirit of innovation upon its principles, however specious the pretexts. One method of assault may be to effect, in the forms of the Constitution, alterations which will impair the energy of the system, and thus to undermine what cannot be directly overthrown. In all the changes to which you may be invited, remember that time and habit are at least as necessary to fix the true character of governments as of other human institutions. …

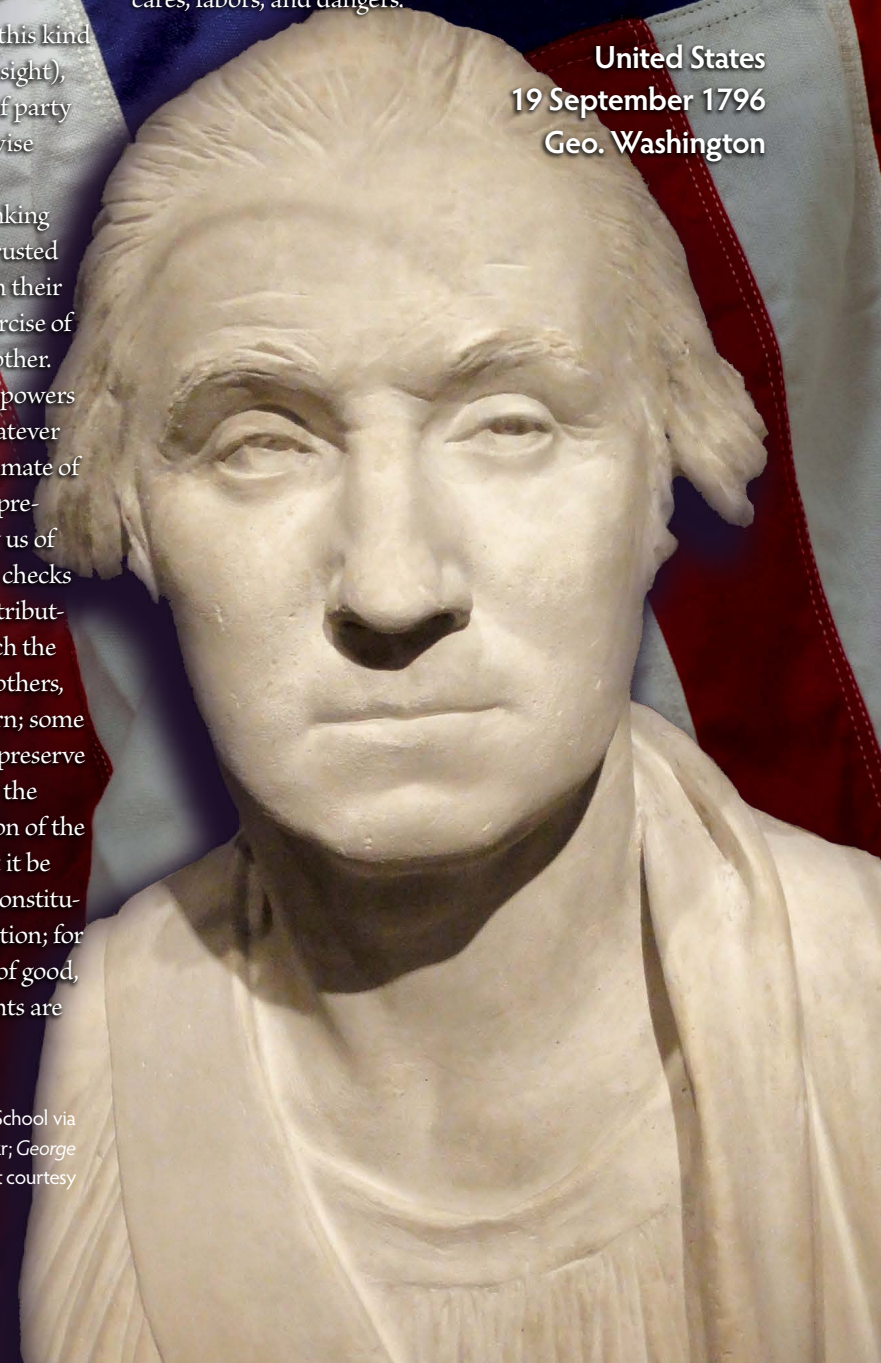
… I have already intimated to you the danger of parties in the State, with particular reference to the founding of them on geographical discriminations. …

… Without looking forward to an extremity of this kind (which nevertheless ought not to be entirely out of sight), the common and continual mischiefs of the spirit of party are sufficient to make it the interest and duty of a wise people to discourage and restrain it. …

… It is important, likewise, that the habits of thinking in a free country should inspire caution in those entrusted with its administration, to confine themselves within their respective constitutional spheres, avoiding in the exercise of the powers of one department to encroach upon another. The spirit of encroachment tends to consolidate the powers of all the departments in one, and thus to create, whatever the form of government, a real despotism. A just estimate of that love of power, and proneness to abuse it, which predominates in the human heart, is sufficient to satisfy us of the truth of this position. The necessity of reciprocal checks in the exercise of political power, by dividing and distributing it into different depositaries, and constituting each the guardian of the public weal against invasions by the others, has been evinced by experiments ancient and modern; some of them in our country and under our own eyes. To preserve them must be as necessary as to institute them. If, in the opinion of the people, the distribution or modification of the constitutional powers be in any particular wrong, let it be corrected by an amendment in the way which the Constitution designates. But let there be no change by usurpation; for though this, in one instance, may be the instrument of good, it is the customary weapon by which free governments are destroyed. The precedent must always greatly overbalance in permanent evil any partial or transient benefit, which the use can at any time yield. …

… Relying on its kindness in this as in other things, and actuated by that fervent love towards it, which is so natural to a man who views in it the native soil of himself and his progenitors for several generations, I anticipate with pleasing expectation that retreat in which I promise myself to realize, without alloy, the sweet enjoyment of partaking, in the midst of my fellow-citizens, the benign influence of good laws under a free government, the ever-favorite object of my heart, and the happy reward, as I trust, of our mutual cares, labors, and dangers.

United States
19 September 1796
Geo. Washington



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