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By Order of the Secretary of the Army:

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2522606

2nd Cavalry Regiment showcases the future of warfare with a lineup of drones on 7 August 2025 at Balli Army Airfield, Germany. (Photo by Staff Sgt. Dylan Bailey, U.S. Army)

ARMY UNIVERSITY PRESS

Letter from the Editor

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

In September 2023, Army Chief of Staff Gen. Randy George asserted that to strengthen the profession, "Our Army must reinvest in venues that produce vital professional discourse."[1] And in his subsequent "Message to the Army Team," he emphasized, "We must share ideas, engage in debate, and learn together."[2]

As I step in as the director of Army University Press (AUP), I find myself asking, What exactly is professional discourse? Where and when does it happen? Who is responsible for it, and how do we know if we are strengthening the profession?

And specifically for my new role, What is AUP's part in making Gen. George's vision a reality?

As I learn more about AUP and get to know the dedicated team here, it is clear that the organization plays a pivotal role for the profession, serving as the Army's premier multimedia engine to inspire professional conversations.

Here at AUP, we deliver a diverse array of rigorously researched works that elevate professional discourse not just in the Army but across the joint force and out to global audiences.

Military Review is in its 103rd year. Army Films boasts 115,000 YouTube subscribers. The *NCO Journal* is a one-of-a-kind platform dedicated to NCO development. Full-length books document the rich military experience. Staff rides resurrect seminal learning moments of the past. The chief of staff's Harding Project and Line of Departure website foster high-quality branch journals. And a vibrant social media conversation highlights it all.

This work is fruitless, though, without you. Strengthening the profession only happens when you (the professional) distill lessons from your hard-earned experience, reflect on their importance, and share them with leaders who are on similar journeys.

You can do this by submitting articles for a journal like *Military Review*, or for a contest like the General William E. DePuy Writing Competition. You can share your perspective on social media or in emails to fellow soldiers. Or you can simply highlight a resource or lesson and invite reflections.

Don't underestimate the value of your contribution. People need to hear what you have to say.

These daily engagements, small as they may be, are the backbone of professional discourse. They are minute-by-minute investments in shaping the future force. And it is not hyperbole to say that the profession will only survive if we commit to investing in it.

I am proud to be a part of Army University Press and look forward to continuing to make Gen. George's vision a reality, one keystroke and one conversation at a time. ■

Notes

1. Randy George, Gary Brito, and Michael Weimer, "Strengthening the Profession: A Call to All Army Leaders to Revitalize Our Professional Discourse," Modern War Institute, 11 September 2023, https://mwi.westpoint.edu/strengthening-the-profession-a-call-to-all-army-leaders-to-revitalize-our-professional-discourse/.

2. Michael Weimer, Randy George, and Christine Wormuth, "Message to the Army Team," U.S. Army, 27 October 2023, https://api.army.mil/e2/c/downloads/2023/10/27/48ce3005/message-to-the-army-team-tri-sign.pdf.

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

- Compare Russia's revanchist justifications for seizure of terrain in Ukraine and Central Europe to Nazi Germany's justifications used to seize territory in Eastern Europe in the lead up to World War II. Assess current and historical (i.e., Chamberlain in Munich) case studies of the international community's attempts to prevent war.
- Compare and contrast Imperial Japanese justifications and actions used for seizure of terrain leading up to World War II to current claims asserted by Communist China for justifying seizure of terrain also claimed by its neighbors. These nations include Russia, Japan, India, Vietnam, and the Philippines. How are the Chinese planning for multidimensional global campaigns to support territorial expansion and territorial influence?
- From a U.S. military perspective, what are the greatest security threats to the United States? How specifically is the United States preparing to mitigate those threats by employing the elements of national power?
- Using case studies, discuss evidence of employment of irregular warfare (IW) using instruments short of large-scale military violence to achieve strategic objectives. Is there evidence that states as well as nonstate actors are conducting IW against the United States? Discuss evidence of cooperation among state or nonstate actors in such efforts.
- The United States and the Americas—assess the emerging actors, roles, and relationships in North, South, and Central America. Is Mexico our friend or foe, or disinterested neighbor? Is Mexico a staging ground for malevolent actors conducting IW against the United States?
- Do China, Russia, Iran, North Korea, and Venezuela have "Achilles' heels"? What are their centers of gravity? If each has one, how can it best be attacked/exploited?
- What do China, Russia, Iran, North Korea, and Venezuela view as the United States' "Achilles' heel", or center of gravity? How specifically are they attacking it?
- What is the current role of the U.S. Armed Forces in Africa? Far East? Middle East? What should it be?

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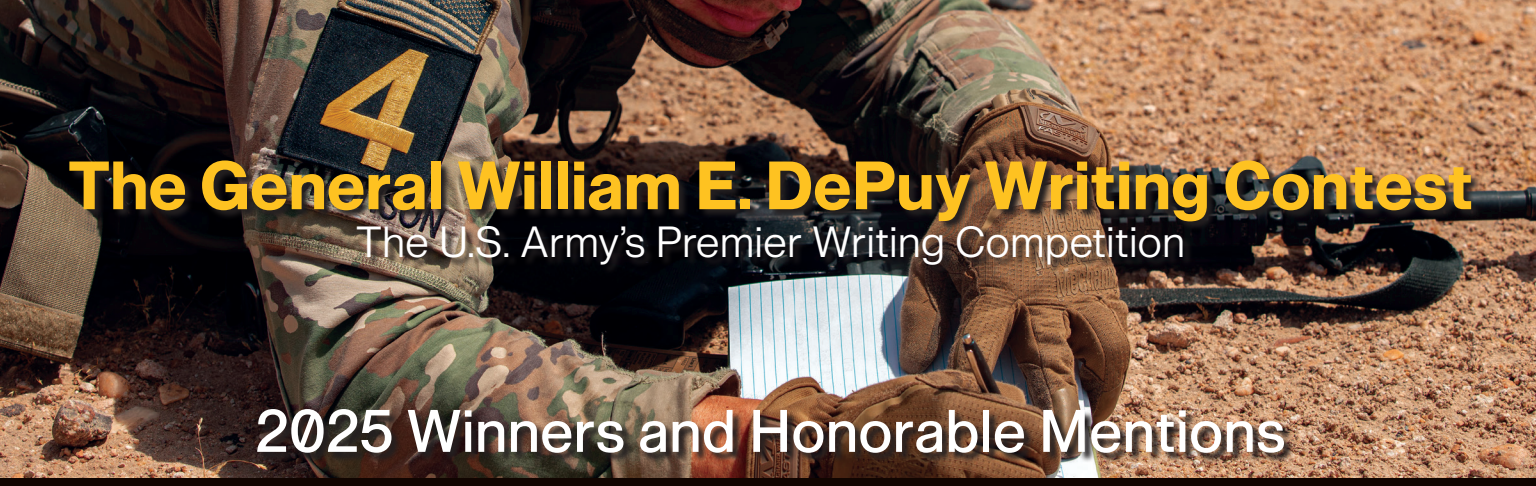

The General William E. DePuy Writing Contest

The U.S. Army's Premier Writing Competition

2025 Winners and Honorable Mentions

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

First Place

"Fighting for the Day After: Preserving Chinese Maritime Infrastructure in a Conventional War"
Capt. Micah Neidorfler, Wisconsin Army National Guard

Second Place

"The Escalating Stakes of Proxy Wars"
Maj. Juan J. Quiroz Jr., U.S. Army

Third Place

"Steppes of Resistance: Mongolian Nationalism as a Strategic Resistance to Chinese Revanchism in the Indo-Pacific"
Sgt. 1st Class Travis Lee Mann, U.S. Army

Honorable Mentions

"Causing Dysfunction: Dilemma Engineering as a Strategic Deterrence Framework for China"
Maj. Thomas Haydock, Washington Army National Guard

"The U.S. Army in an Increasingly Borderless World: Challenge of Planning for Security in a Competition with China in Africa"
Lt. Col. Felipe Galvão Franco Honorato, Brazilian Army

"Feeding the Pacific Fight: Class I Logistics, Thai Neutrality, and U.S. Vulnerability Amid China's Rise in a Borderless Indo-Pacific"
Spc. Watcharin Joemsittiprasert, U.S. Army Reserve

Military Review thanks our esteemed panel of judges for their careful, insightful, and timely evaluation of the manuscript submissions.

For information on the General William E. DePuy Writing Contest, including the 2026 topic and how to submit an entry, scan the QR code or visit the website below.

https://www.armyupress.army.mil/DePuy-Writing-Competition/

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Operated by COSCO Shipping Lines, the CSCL *Indian Ocean* was built in Korea by Hyundai in 2014. When it was built, it was the largest container ship in the world with a capacity of 19,100 twenty-foot containers. COSCO Shipping Lines is a subsidiary of COSCO Shipping, a Chinese state-owned corporation headquartered in Shanghai. (Photo by John Fielding, courtsey of Wikimedia Commons)

Fighting for the Day After

Preserving Chinese Maritime Infrastructure in a Conventional War

Capt. Micah Neidorfler, U.S. Army National Guard

During the Second World War, the United States suffered 418,500 military and civilian deaths, second only to the American Civil War, while Japan and Germany suffered upward of 3,100,000 and, 8,800,000, respectively.[1] Add to that the inhumanity of the Holocaust, the firebombing of German and Japanese cities, and the use of the two atomic bombs, and it is difficult to imagine how these nations could have reconciled their grievances postwar. Yet, by 1955, the United States was the world's fourth largest importer of West German goods, rising to third by 1960.[2] Similarly, by 1956, the United States imported $6 billion of Japanese goods annually (adjusted for inflation), nearly 3 percent of all U.S. imports at that time.[3] That same year, Japan became the United States' second most important export market.[4] Barely ten years after the most cataclysmic event in human history, former enemies were closely linked by mutually beneficial international trade.

The United States' 2017 and 2022 *National Security Strategies* firmly establish the critical importance of economic prosperity for U.S. strategic interests.[5] They also acknowledge that U.S. prosperity relies in part on open trade and the international economy.[6] Consequently, U.S. prosperity and national interests are directly linked to China. This framing is not intuitive. However, as will be demonstrated, the U.S. and Chinese economies are deeply and irrevocably linked through international trade. Simultaneously, foreign policy experts grow increasingly concerned about a potential war between the two.[7] The U.S. Army, in planning for a possible U.S.-China war, needs to address winning on the battlefield, but also securing a viable postwar settlement, something the Army has struggled with since the Second World War.[8] As B. H. Liddell Hart identified, "The object in war is a better state of peace … it is essential to conduct war with constant regard to the peace you desire."[9] As part of this calculus, the Army should preserve Chinese maritime shipping infrastructure during conflict so that it is usable postwar. This would best serve U.S. long-term economic interests and help set conditions for a sustainable peace between the United States and China. There are two primary ways the Army can accomplish this: through long-range precision firepower in the Indo-Pacific and by seizing Chinese trade assets globally.

China's Importance to the U.S. Economy

China is the world's largest trading nation, the largest goods exporter, and the second largest goods importer.[10] Despite economic slowdowns caused by the global coronavirus epidemic and Russia's 2022 invasion of Ukraine, most of China's global exports have increased.[11] Apart from direct contributions, however, China plays a more critical role in the global economy—it facilitates it. More than 80 percent of global trade volume is moved by maritime shipping, which is expected to expand throughout the decade.[12] China plays a crucial role here, owning more merchant ships than any other nation, with just over 15 percent of the world's total.[13] China is also the third largest country by ship registration, meaning that roughly 12 percent of the world's ships are regulated by Chinese law.[14] Two of the world's eight top ship management companies are headquartered in China, and the world's fourth largest shipping line is Chinese.[15] China alone accounted for 58.1 percent of the global market share of ship production in 2023 (up 7.5 percent from 2022), and it hosts the world's first, third, fourth, and sixth largest shipbuilding groups by new orders.[16]

Equally crucial to maritime trade are ports, which transfer goods from land to sea and back, maintain ships, and forward goods from long-distance vessels to local shipping.[17] China leads here too, owning sixteen of the world's top fifty ports by throughput, including the number one port, Yangshan.[18] These sixteen are also among the world's top one hundred ports by efficiency.[19] China is expanding its maritime infrastructure globally by investing in foreign ports as a key part of its Belt and Road Initiative.[20] China currently invests in 129 foreign port projects spanning every continent, whereas the United States has zero ports abroad and lags far behind China in foreign port investment.[21] Many of these investments are in nations with high levels of global shipping connectivity.[22] While often presented as nefarious strategic maneuvering by the U.S. foreign-policy community, these investments are just as, if not more, motivated by simple market-oriented profit.[23] Overall, China's integration into global shipping networks leads the world by a wide margin, approximately twice as connected as the runner-up Republic of Korea, and well over twice as connected as the United States.[24] This leadership in maritime trade,

> Conventional war between the United States and China would cripple the global economy. Short of violent conflict, a Chinese blockade of Taiwan would cause the world economy twice as much harm as the 2008 economic crisis.

along with its massive share of global imports and exports, allows China to dominate global supply chains and occupy an integral place in the global economy.[25]

The United States does not exist separately from this. International trade made up one-quarter of U.S. gross domestic product in 2023.[26] The United States is the world's largest importer and second largest exporter of goods; it relies on maritime shipping for roughly 45 percent of total trade by value and 80 percent by weight, being the fourth most globally connected nation in maritime shipping.[27] Specifically, China is the United States' third-largest trading partner, and despite years of worsening relations, trade value between the two rose to its highest in history in 2022.[28] Moreover, the shipping lanes linking China and the United States are the most valuable worldwide.[29] These links have led to increasing calls for the United States to realign its trade dependencies away from China to more friendly countries under terms such as "decoupling," "de-risking," and "friend-shoring."[30] But while there has been a decrease in trade between the United States and China, the reality is that de-risking is not meaningfully happening.[31] Major U.S. companies still rely heavily on China and continue to invest there, new shipping operators continue entering routes between the Far East and the United States, and China is still very capable of attracting foreign investment.[32] Furthermore, China already leads many emerging technologies and is implementing policies to retain this edge, indicating its exports will continue to be in demand globally.[33]

Some argue that de-risking will escalate, but even if the most severe predictions transpire, the United States and its new primary trading partners will remain strongly linked to China directly and indirectly.[34] For example, when the United States does appear to replace Chinese imports with a different source, the upstream origin is still often China.[35] Even businesses in alternative countries are usually Chinese, as China leads foreign direct investment in developing economies, further preventing a proper break from Chinese trade.[36] But again, data show that the United States is *not* significantly decoupling from China, that even after reducing some dependencies, there will still be substantial trade between the two, and that large-scale decoupling is unlikely in the long term.[37] Ultimately, globalized trade in general has not decreased alongside growing great-power tensions and seems to be increasing.[38] While it might weaken, there is little evidence that China's central role in the global economy will disappear in the near, medium, or long term.[39] Indeed, the Asian Development Bank's chief economist remarked that claims of China being delinked from the global economy are "generally very overdone or very partial," and economists at the U.S. Federal Reserve agree that "a delinking of global production processes and consumption from China is not in sight."[40] Even current volatility in U.S.-Chinese trade is unlikely to alter China's importance to the United States in the long-term.[41]

Consequently, a conventional war between the United States and China would cripple the global economy.[42] Short of violent conflict, a Chinese blockade of Taiwan would cause the world economy twice as much harm as the 2008 economic crisis.[43] Furthermore, a U.S. military victory would not result in Chinese capitulation. The size and capabilities of China's military make it improbable that the U.S. military will occupy mainland China.[44] That, combined with China's ample stockpile of nuclear weapons and ability to harm U.S. forces in theater make it likely that a Chinese defeat would result in a negotiated settlement.[45] While free from the restrictive concessions of an unconditional surrender, it is questionable whether the Chinese government in power could domestically survive a defeat in war.[46] Some even propose the Communist Party itself might collapse following a defeat, although this is unlikely given the buy-in that many Chinese have

toward the party.[47] Nonetheless, succession within the Communist Party tends to see new governments avoid the unsuccessful policies of their predecessors.[48] While this doesn't mean the United States should expect a friendly Chinese government postwar, it does suggest a path toward better relations. Regardless, considering the economic devastation likely in such a war and the importance of international trade to the U.S. economy, it is in U.S. strategic interests for China to return to its role in these areas quickly postconflict. With increasing capabilities in long-range fires as well as its global presence and deployability, the U.S. Army has a vital role in achieving this end.

How the Army Plans to Fight

How does the Army currently envision operating in a theater seemingly dominated by the sea and air domains? It needs to find roles where its ground-centric capabilities complement the joint force. Over the last decade, the Army has focused on five main themes: providing command and control to the joint force, sustaining the joint force, providing ground-based long-range fires, protecting the joint force via air defense, and providing traditional maneuver forces if required.[49]

Owing to its experience running joint and multinational headquarters during the Global War on Terrorism and a doctrinally structured organization that creates such headquarters at the division level and higher, the Army believes it is uniquely suited to command and control the joint force in the Indo-Pacific during conflict.[50] Counterintuitively to some, the Army views itself as central to sustaining the joint force in this maritime theater, arguing that ships and aircraft must rearm, refuel, and make repairs on land, and the Army's massive logistical tail can facilitate that.[51] In a more traditional role, the Army highlights its growing ability to apply long-range precision fires across the theater and the ability of those fires assets to remain hidden and displace, arguably making them more survivable than ships.[52] Protecting the joint force, mainly through air defense platforms but also by defending the land-based sustainment nodes for aircraft and ships, is another key theme in Army messaging.[53] Finally, the Army insists that its traditional maneuver landpower is a key asset that, while not constantly applicable in a U.S.-China war, is ready when and where required, emphasizing airfield seizures, amphibious landings, and fighting a spin-off conflict on the Korean Peninsula.[54]

Of course, all these lines of effort hinge upon access to terra firma.[55] The U.S. Army and Navy already have physical locations in Japan, Korea, and Guam.[56] And the Army recently deployed long-range missiles to the Philippines' northernmost island of Luzon.[57] But to employ the full range and scale of Army fires capabilities in the Indo-Pacific, still greater access is needed in Luzon and the Japanese southwest islands.[58] Also key are the Army's next-generation long-range precision fires platforms, of which there are three. The first is the Precision Strike Missile (PrSM). The shortest-range program and destined to replace the current Army Tactical Missile System, the PrSM has a reported range of up to 1,000 km.[59] As the name suggests, the Typhon Strategic Mid-Range Fires System is the medium-range program. The Typhon is a new launch platform that fires the preexisting SM-6 and Tomahawk missiles.[60] This covers ranges up to approximately 500 km for the SM-6 and 1,600 km for the Tomahawk.[61] Lastly, the Dark Eagle Long-Range Hypersonic Weapon is the longest-range program, with a stated range of 2,776 km.[62] With these three new systems based in the Indo-Pacific, the Army plans to contribute to the joint force's fires effort in a war with China.

Preserving Maritime Infrastructure: The Indo-Pacific

What would a U.S.-China war look like, and how can the Army prosecute it while preserving U.S. interests in global trade for the postwar world? Given

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This article was selected as the winner of the 2025 General William E. DePuy Writing Contest.

where Chinese and American interests converge, it would likely occur along the chain of islands formed by Japan, Taiwan, the Philippines, and Indonesia, known as the first island chain.[63] It would be fought heavily in the littoral (on islands and coastlines), the deep ocean, and the airspace above these.[64] Accordingly, it is unlikely to involve a large ground war.[65] Several analyses of a possible U.S.-China war by leading defense think tanks completely ignore Army contributions or only mention niche Army capabilities.[66] They also highlight the vulnerability of Army maneuver units moving into the conflict area and that most will not be successfully pre-positioned in sufficient numbers for such a conflict.[67] Consequently, it is likely that the Army will contribute most to the kinetic fight with weapons that have extreme standoff such as its long-range precision firepower platforms.

The majority of the world's maritime trade infrastructure lies within the littoral, and significantly so along the Chinese coastline and Taiwan Strait.[68] Historically, nations engaged in large-scale wars target their enemy's strategically essential civilian infrastructure.[69] Furthermore, U.S. joint doctrine specifically identifies ports as targets, and predictions for a U.S.-China war perceive Chinese ports as likely targets for U.S. strikes.[70] Therefore, in any U.S.-China conflict, Chinese maritime infrastructure will be exposed to the devastation of twenty-first-century warfare. Considering the Army's contribution to the kinetic fight through long-range fires, it should make preserving this infrastructure a key consideration during planning and executing combat operations.

Why should the Army pursue this? The first reason is the already established criticality of China and maritime trade to the global economy. China's ability to conduct international trade will benefit the United States in a postconflict world where China still exists as a powerful independent actor. The second is the ability of the United States to hold this infrastructure at risk throughout a conflict, contributing significantly to U.S. negotiating leverage.[71] Finally, preserving Chinese port infrastructure is a way of controlling war escalation. Striking the Chinese mainland would be highly escalatory; striking port infrastructure would be doubly so given the importance of maritime trade and exports to the Chinese economy and its ports' criticality in facilitating that.[72] Nonetheless, considering the heavily naval nature of a U.S.-China war and the limited ability of U.S. forces to strike targets of importance inland of China's coastline, ports are still tempting targets. There is a way to target them while still achieving the three aims of preserving the ability to trade postconflict, holding ports at risk, and managing escalation. This involves neutralizing ports instead of destroying them by carefully targeting ports as systems vulnerable to disruption.

Targeting enemies as systems is not a new concept and is well represented by John Warden, whose systems-warfare theories focus on defeating enemies by targeting specific elements of their national power, leading to widespread collapse.[73] While many rightly criticize the strategic applicability of Warden's theories, attacking tactical-level targets as systems has more validity.[74] Ports fit this bill perfectly as they are composed of dozens of separate on-site constituents that must cooperate for ports to function.[75] A comparable tactic is neutralizing airfields. Airfields, like ports, can be viewed as targetable systems.[76] Destroy or degrade one or two subcomponents and the entire airfield ceases to function at levels required to sustain primary operations, but it is not catastrophically damaged and can be returned to complete functionality later.[77] Applying this tactic to Chinese ports would fulfill a strategic aim of preventing or degrading their utility during wartime while remaining relatively easy to repair postconflict, allowing China to return to maritime trade quickly. It would also allow these ports to be further targeted as the conflict continues. There are numerous subcomponents of ports that can be targeted, allowing the United States to continue holding them at risk. Lastly, as destroying subcomponents does not threaten ports' long-term functionality, this dramatically reduces the escalatory nature of targeting them.

This strategy can be pursued in several ways given the complex nature of maritime shipping. To begin generating options, it is helpful to understand the different types of ports. There are three broad categories: general cargo ports, bulk cargo ports, and passenger ports. General cargo ports handle unitized cargo such as containerized or palletized goods, Bulk cargo ports handle liquid bulk (e.g., petroleum and chemicals) or dry bulk (e.g., iron ore or coal), and passenger ports cater to people and personal vehicles.[78] While general and bulk ports are more strategic-level economic targets, passenger ports may present a more military target, reflecting

Soldiers from B Battery (Dark Eagle), 5th Battalion, 3rd Field Artillery Regiment (LRFB), give a capabilities brief on the Long-Range Hypersonic Weapon System (also known as Dark Eagle) in Northern Territory, Australia, on 9 July 2025. Exercise Talisman Sabre 25, the principal Australian-U.S. bilateral military exercise focused on high-end warfighting and enhancing allied interoperability, is the first operational employment of the Dark Eagle system outside the continental United States. (Photo by Sgt. Perla Alfaro, U.S. Army)

their ability to facilitate troop transport, although simultaneously carrying more law of armed conflict concerns considering their primarily civilian purpose. Based on the strategic and operational situation, the joint force commander will determine (along with political guidance) the geopolitical and legal feasibility of targeting Chinese ports. Although legally debatable, the long history of great-power warfare indicates it is likely to happen.[79]

Planning for this would fall within the joint force's targeting cycle during the fourth step, in which the joint force commander allocates specific targets to the subservices.[80] With the plethora of long-range weapons throughout the joint force, why would the Army be a good choice to target ports? Despite recent training events demonstrating the Army's ability to target warships, it is nonetheless a land-oriented service.[81] It makes the most sense for the Navy and Air Force to concentrate on the maritime fight, leaving land-based targets to the Army where its expertise lies. After being tasked to engage Chinese ports, relevant Army units would execute the Army's targeting process (decide, detect, deliver, assess).

In the decide phase, units determine what capabilities to deploy, when to attack, and where and what to target.[82] The range of the PrSM and Typhon systems allow them to strike most major ports along the Chinese coast if based in the northern Philippines, various Japanese islands along the first island chain, or South Korea.[83] The Dark Eagle is not optimal for this role as it is fewer in number and more capable of striking high-value military targets further inland, where China's antimissile defenses are substantial.[84] Deciding when and where to target would be relatively easy, given port infrastructure's immobility and prewar identification of these targets. The main effort here would be determining what specific facilities to target, keeping in mind that the long-term functionality of the ports is desired. This requires a more

detailed understanding of how they operate internally. Ports execute three general tasks: maritime services, shore-side services, and hinterland services. Maritime services encompass receiving ships into the port, providing anchorage space for them to linger, and moving ships back out into the open sea.[85] Shore-side services involve berthing ships to transfer points (such as wharves, jetties, quays, and piers), transferring cargo from ship to land or land to ship, temporarily storing cargo, and restocking ships with supplies and fuel.[86] Hinterland services comprise the flow of cargo overland both out of and into the port via road, rail, pipeline, and sometimes inland waterways.[87] Each of these three services contains elements that, if targeted, would degrade the ability of a port to function, although some are more economical than others.

Maritime services contain four targetable elements. Blocking port entrances would prevent ships entering or leaving ports. This can often be done by sinking a single ship, and in ideal peacetime situations, it takes weeks to remove wrecks and complete the cleanup of fuel leaks and cargo spillage required for safe operation.[88] Fairways, the navigable routes inside of ports, can be similarly blocked.[89] Anchorage space is key for port functionality, allowing ships to wait for their turn at shore-side services, and can also be blocked by sinking ships. This would prevent ports from accommodating enough ships to reach capacity, forcing ships to bypass such ports.[90] Finally, controlling ship movement between port entrances, fairways, and anchorages is managed by systems of lighthouses, beacons, buoys, and radars.[91] Crippling this navigation architecture is another way to freeze ports' ability to function. However, the number of targets required to sufficiently affect this makes it the least efficient maritime service to target.

Shore-side services are also targetable in four primary ways. The first of these is onsite management and regulatory infrastructure. Ports are complex systems that require careful administration of day-to-day activities. Destroying control towers or administrative hubs would cripple a port's ability to function.[92] Likewise, careful legal regulation of port activities is essential, including cargo inspections and customs procedures. Without the ability to regulate, governments cannot allow trade to occur, making port authority infrastructure possible targets.[93] The second targetable shore-side service is the transfer of cargo to and from ships. This happens along wharves, jetties, quays, and piers, requiring massive cranes.[94] The two primary crane types are quay cranes (which move cargo on and off ships) and yard cranes (which move cargo between the quayside, yard storage, and within storage sites).[95] Of the two, quay cranes are less mobile so easier to target, and they are essential to port operations and efficiency; the destruction of even one would severely hamper any port's operations.[96] The next shore-side service is the temporary storage and processing of cargo. This requires yard cranes and adjoining asphalt yards to safely stack cargo.[97] Since yard cranes move constantly, targeting them is less reliable than quay cranes, although most travel along train-track-like rail systems, which are permanent fixtures that can also be targeted. Storage yards themselves are easily targetable. However, with the relatively large amount of storage space and yard cranes in ports, it would require significant ordinance expenditure compared to other targets. The final shore-side service is the tending of ships. Targets in this category include jetties for ship resupply, fuel tanks for ship refueling, docks for ship repair, and waste-treatment plants for ship waste.[98] In general, shore-side services encompass the most prominent physical infrastructure in ports and are "expensive, rigid and meant to last for decades."[99] Consequently, ports do not have deep reserves of replacements.[100]

Targeting hinterland services would stop ports' abilities to forward and receive goods from land, a crucial element of their operations.[101] There are three primary targetable components, the first being road connectivity. Roads are necessary for cargo truck access as well as port employees who commute via car.[102] Identified choke points for port efficiency are vehicle entry points into cargo terminals, making them good targets.[103] Railways are the next consideration. These are especially vital in bulk ports for the transport of cargo but can also be important commuting methods for port workers.[104] Lastly, there are pipelines, which fill fuel tanks and transport liquid bulk.[105] The importance of these three modes varies from port to port, so planners need to understand the port in question.[106]

Decide-phase planning would benefit from joint, interagency, intergovernmental, and multinational (JIIM) expertise, as maritime port functions are not within the purview of Army personnel. Justifying these civilian targets in terms of the law of armed conflict is another essential aspect, but this could prove less difficult as

An Orient Overseas Container Line vessel passes by Container Terminal 9 on Tsing Yi Island, Hong Kong Special Administrative Region, on 4 August 2009. (Photo courtesy of Wikimedia Commons)

China has long been militarizing its civilian maritime sector.[107] A final key aspect to these decisions would be achieving cumulative and cascading effects from specific targeting within individual ports.[108] This is surprisingly easy to accomplish while limiting damage to port facilities. Since all ports within a region work together as a network, degrading one port will cause ships to bypass it, creating bottlenecks at other ports.[109] This allows the Army to prosecute fewer targets at each port if planners can identify key targets within all regional ports that would break the natural operation of the network. This is especially relevant as China has recently put significant effort into coordinating operations and reducing redundancies, overcapacity, and duplication of facilities within regional Chinese port networks.[110]

The detect phase is less critical in this scenario. As these port facilities are generally immobile, it is not necessary to constantly observe the targets, which eases the difficulty of achieving constant, layered observation during conventional conflict (the only exception being ships, if targeted).[111] This also eases the deliver phase, where the requirement for primary and alternative observers may not be feasible given the situation.[112] Finally, the various damage assessments required in the assess phase might take longer to complete in this contested surveillance environment. With the strategic nature of these targets, it will be important for planners to communicate this to joint force commanders, and through them political leadership, so that leaders can manage expectations. Forming these assessments should also include JIIM experts.

Preserving Maritime Infrastructure: The Global South

Chinese trade assets also exist outside of mainland China. As mentioned, China invests in port projects globally—sometimes as a developer, sometimes as an owner, sometimes as an operator, often as multiple.[113] Many of these projects and other Belt and Road Initiative investments are based in the Global South, which is increasingly becoming a major region for commercial transactions and trade.[114] A key indicator of this is that containership port calls in Africa have increased by 20 percent since 2018.[115]

A major U.S.-China war would not be contained within the Pacific.[116] Burgeoning conflict inside the first

island chain will almost certainly escalate horizontally to other regions as the belligerents seek to force each other to concede.[117] Moreover, such a war will not be short and decisive.[118] A common characteristic of escalating great-power wars is the targeting of opponents' global maritime assets.[119] This is particularly likely in this scenario as the UN Security Council would be deadlocked and unable to dissuade these attacks.

Should the United States forgo this approach to preserve Chinese maritime shipping ability? Perhaps, but there is an alternative that the Army is structured to perform: the physical seizure of Chinese global maritime infrastructure. This fulfills three aims. Primarily, it denies China's use of these assets during a conflict. While overseas ports warrant seizure owing to their economic benefits, the small but growing number of military ports would aid China in projecting conventional naval power during a war.[120] Concurrently, civilian ports, as hubs of some of world's most advanced information technology, also present military threats.[121] The information systems and software located within ports and their interconnectedness with ships could aid Chinese maritime intelligence gathering, and ports' plethora of powerful signal-emitting devices pose significant risk of cyberattacks against ships, especially with the number of Chinese port projects located at major maritime chokepoints.[122] This strategy also allows the United States to leverage these seized assets during negotiations.[123] And lastly, it protects this infrastructure for postwar use, as ports are particularly vulnerable to damage in the chaotic landscape of great-power conflicts.[124]

As a U.S.-China war would not require large numbers of maneuver units in the Pacific theater, most of the Army's force structure would be available for this strategy. Of course, this proposal raises sovereignty issues for the nations housing Chinese ports, and the United States could not pursue this unilaterally. Fortunately, the Army has several methods to address this issue. The Army contains multiple entities capable of conducting military diplomacy, namely its foreign area officers, the National Guard's bilateral affairs officers and State Partnership Program, U.S. Army Special Operations Command, and security force assistance brigades. These entities span the gamut of military diplomacy and cooperation from the strategic to the tactical levels, and if used in conjunction, would be able to negotiate bilateral agreements with willing third-party nations. They are especially important given the current shrinking of the State Department, which would otherwise be key to facilitating these negotiations.[125] Of course, these negotiations would hinge on the willingness of third-party states to aid the United States this way, meaning that these seizures could follow two approaches.

The first is seizing Chinese port assets in diplomatically permissive third-party states. In these instances, the United States has good bilateral relations with the nation in question, making it more likely that the state would tolerate U.S. troop deployments to seize Chinese assets. Once negotiations conclude, U.S. troops would be deployed. Planners would have to decide what type of formation best suits a port seizure and occupation. This would be driven by two factors: the size of the port in question and whether Chinese resistance would be expected. Port size varies substantially in each circumstance, as most Chinese port projects or holdings only take up a portion of the entire port in question (i.e., one or two terminals within a larger port).[126] As for Chinese resistance on the ground, it is unlikely to be significant. China does not rely on its military to protect most of its overseas assets, instead utilizing state-owned security firms and local contract security.[127] Resulting from China's desire to appear as an attractive partner, Chinese security firms are beholden to the local laws and governments of the nations they operate within.[128] Were a nation to approve a U.S. seizure of Chinese assets, that nation would likely simultaneously restrict the right of any Chinese security firms to retaliate. Even if they did resist, they would not pose a substantial threat to U.S. maneuver formations.[129] Alternatively, third-party states' militaries could seize Chinese port assets themselves, possibly with assistance and coordination from security force assistance brigades. This would allow states to retain more sovereignty and require fewer U.S. troops. However, many nations would probably not agree to U.S. troops performing occupation tasks within their borders, especially considering the diplomatic inroads China has made in the Global South.[130] In these cases, third-party states' own militaries seizing assets would be more realistic.

This strategy poses several challenges for planners. First, the negotiations necessary to initiate these operations would be high-level and need to be conducted quickly in case China attempted to sell off its foreign

assets.[131] Furthermore, current U.S. relations with many states in the Global South are at a low point, and the United States frequently overestimates its influence with them.[132] Ensuring third-party states' sovereignty would be vital in securing their cooperation. The second most significant challenge would be determining what to occupy physically. Most terminals within ports are owned or leased by a variety of separate private entities, and even some subservices operating within individual terminals can be handled by separate companies.[133] Identifying the specific Chinese-owned and/or operated assets within individual ports will require legal scrutiny, likely requiring further JIIM assistance.

Conclusion

This is not an intuitive strategy. Culturally, the Army is an organization focused on achieving decisive victory in the shortest time possible. This is especially true as the Army now focuses on fighting large-scale combat operations as opposed to counterinsurgency and stability operations. Suggesting that the Army should preserve enemy strategic infrastructure might make many balk, but the reasoning is sound. U.S. domestic prosperity significantly depends upon international trade and the global economy, which in turn are deeply intertwined with China. While the specific "how" of that relationship might change somewhat, the underlying connection will not. During conventional great-power wars, economic and trade nodes usually are targets. As the United States will not achieve unconditional victory over China, it is crucial for the United States that China be able to return to global trade in a postwar world. Therefore, Chinese maritime trade assets should be exploited but also preserved. The Army can contribute to this end by carefully applying long-range fires in the Pacific and seizing Chinese trade assets globally.

The introduction highlighted U.S. trade with Germany and Japan after the Second World War. However, a more apt comparison is U.S.-Vietnamese trade after the Vietnam War, as Vietnam was not molded by U.S. occupation postwar. During the war, the United States suffered 211,523 casualties, of which 58,220 died, while combined Vietnamese deaths totaled approximately 882,000.[134] The war also had immense impacts that linger today on American and Vietnamese societies.[135] Despite this, over the ensuing decades, the two countries have reconciled, are major trading partners, and regularly cooperate diplomatically and even on security policy.[136] U.S.-Vietnamese trade has grown exponentially to the benefit of American consumers and producers.[137] Vietnam has consistently been the sixth or seventh top exporter to the United States since 2019, and imported approximately $13 billion of U.S. goods in 2024.[138] If the U.S. could build a strong, mutually beneficial trade relationship with a nation that withstood it in a major war, it certainly can with a future China that agrees to a negotiated settlement. If the U.S. Army is truly preparing for a conventional war, it must recognize that any settlement must be mutually acceptable for it to last.[139] By pursuing this strategy, the Army has a unique opportunity to pursue victory, preserve long-term U.S. prosperity, and secure lasting peace in a postwar world. ■

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Romolo Tritonj, the Italian consul general, presents a medal on behalf of the Italian government to Col. William Wallace, commander of the 332nd Infantry Regiment, on 21 April 1919 in Central Park, New York City. (Photo courtesy Western Newspaper Union via the National Archives)

Political Troops

The U.S. Army in the Adriatic, 1918–1919

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Though Great War hostilities ended in November 1918, and most U.S. service members were returning home by September 1919, the U.S. military still found itself gainfully employed on the continent, specifically in the littorals of the Adriatic Sea where it had previously seen little-to-no action. What was the purpose of American military presence in this corner of Europe in the waning days of the war? Taking shifting ideological tendencies, massive geopolitical restructuring, and the desires and machinations of various Adriatic peoples into consideration, was the U.S. military successful in executing its mission in this region? This little-known subchapter of the Great War presents a unique case study in international diplomacy and the utilization of American force projection during cultural and political epoch shifts.

Although the United States has had a long road from staunch isolationism to the seemingly forever role of world police, frequently swaying back and forth with comfortability in this part, our present military footprint on a global scale undeniably illustrates our postwar commitment to extensive international affiliation.[1] However, prewar case studies highlight the age-old complications of foreign entanglement and the precarious nature of committing troops overseas. Though few would argue against the justification of doing so in the Great War, particularly on moral grounds, our extended stay in the Adriatic offers a more controversial glimpse into this type of foreign policy that serves as an eerie prelude to various quagmires of currently American-involved conflicts in the Middle East and elsewhere throughout the globe.

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Before analysis of the U.S. Army's Adriatic role can be undertaken, the above-mentioned isolation/intervention dichotomy needs to be situated within the context of exactly what type of war was being waged. World War I was indisputably a total war like no other. The advent of submarine warfare, aerial combat, tanks, rapid-firing artillery, and machine guns brought a level of destruction on battlefields and in civilian centers unseen in centuries. In addition to technological innovations, Western governments had long been trending toward more total forms of war as rule steadily transitioned from dynastic forms of state toward nationalistic governance.[2] However, just as American military involvement in European affairs prompted a resurgence in domestic isolationist desires, so too did it cause a brief reversion away from total war back toward more limited forms of conflict. In *Limited War: The Challenge to American Strategy*, Robert Osgood defines limited war:

> A limited war is one in which the belligerents restrict the purpose for which they fight to concrete, well-defined objectives that do not demand the utmost military effort of which the belligerents are capable and that can be accommodated in a negotiated settlement … The battle is confined to a local geographical area and directed against selected targets - primarily those of direct military importance … It permits their economic, social, and political patterns of existence to continue without serious disruption.[3]

Most of the Great War's primary belligerents were heavily involved in additional postconflict hostilities; the Russian Civil War, endless British colonial police actions, or any other flavor of fighting in the wake of monarchical dissolution all continued across the European continent and elsewhere. As mentioned above, ideological shifts taking place during this period acted as an accelerant to postconflict hostilities and geopolitical tension. The rise of fascism is the easy example most frequently referenced, particularly through the lens of postwar historiography. In his seminal work *The Appeal of Fascism: A Study of Intellectuals and Fascism, 1919–1945*, Alastair Hamilton states, "The Fascism of the intellectuals above all, had its origins in sheer rebelliousness, in an anarchistic revolt directed against the established order."[4] What's interesting to consider, through this point of view, is that as the old regimes of Europe before the Great War dissolved, its victor's imposition

of a newly established order chafed with what individual people groups saw as their destiny. As we will see, Wilsonianism—watered down with the complications of overlapping international diplomacy—was just one version of this contested new order and put U.S. troops in a precarious postconflict situation.

While the ideological shifts were occurring, few mainstream histories account for neoisolationist America following similar traits of staying embroiled in limited conflicts throughout the interwar period. Some of these were on Washington's initiative, many of which stemmed from America's earliest foray into overseas affairs with the Spanish-American War. U.S. Marines were fighting in Haiti through 1920, there was a military occupation of the Dominican Republic until 1922, and U.S. forces occupied parts of Nicaragua in 1927—all under the umbrella of what is now referred to as the Banana Wars. Though these conflicts had the fingerprints of American corporations on them, later publicized by men like Smedley Butler in *War Is a Racket*, they lacked foreign government motives. In addition, there was the Polar Bear Expedition, a five thousand-soldier-strong American Expeditionary Force sent to Northern Russia in an interallied force to aid the White Russians in their civil war against Bolshevik revolutionaries.

It is this last example that leads to the impact of international diplomacy dictating American military involvement abroad. This is precisely what brought the U.S. Army and Navy to the Dalmatian Coast and the Adriatic Sea, where it was tasked with keeping Italian aggression at bay and protecting the newly emerged state of the Kingdom of Serbs, Croats, and Slovenes.[5]

Well before U.S. involvement in the Great War was thinkable to the average American, European powers were bitterly embroiled in a conflict that quickly outpaced their expectations. As early as Christmas 1914, hoped-for quick victories mutated into brutal lines of trench warfare stagnation. Policymakers hatched new ideas as stalemate loomed and military leaders continued to throw men and material at the problem. The Entente began looking to open new fronts to take pressure off their main lines against the Central Powers. It culminated in, among much else, the Treaty of London in 1915, a secret pact among the Entente to entice Italy into the war against the Austro-Hungarian Empire.

Just as the British, French, and Russians had bitten off more than they could chew, so too did the Italians. Article 2 of the Treaty of London essentially committed Italy to a total war: "On her part, Italy undertakes to use her *entire resources* [author's emphasis] for the purpose of waging war jointly with France, Great Britain and Russia against all their enemies."[6] Additional articles of the treaty stipulated long-coveted irredentist lands and imperial ambitions, many then in the hands of Austria-Hungary or the Ottoman Empire, to Italy.[7]

The Italian government had something to gain for siding with the Entente over the Central Powers and obviously pursued their ambitions with haste. Anglocentric history on the subject, including President Woodrow Wilson's own views on Italian war aims by the time Washington threw its hat in the ring, hints at an attitude of superiority at what was considered naked Italian territorial ambition.[8] However, what is lost in these somewhat dated and biased histories is the basic fact that Italy—a late-in-the-game nation-state with imperial ambitions—was merely attempting a go at the colonial overlord playbook so ardently practiced by the British, French, and to a lesser extent, Russians and Americans in the preceding centuries; newly attained Eastern Adriatic seaports were to be their Gibraltar, Dalmatian islands their Philippine archipelago, and Anatolian territories their Asian steppe lands. What is most vexing is that none of the lands mentioned in Articles 4, 5, 6, and 8 were the British, French, or Russians to give in the first place; moreover, they were again carving a map of different peoples of faraway lands, creating the pretexts for future inevitable conflict.

As the war dragged on and the price of total war became increasingly untenable, both in the loss of life and monetarily, Entente Powers reopened avenues of courtship for external help. This came in several forms, including American monetary assistance to Italy. By 1917, Washington/Wall Street had become one of the primary sponsors of the Italian government's war bill.[9] This financial backing mirrored Wilson's transformation from apparently steadfast isolationism (supported by vast swaths of the common American populace) to intervention (substantially less supported by the layman American/advocated by moneyed progressives, Atlanticists, ethnic interest groups, and those in the Preparedness Movement).[10] On 6 April 1917, America,

Soldiers of 2nd Battalion, 332nd Infantry Regiment, pose in a front-line trench on 28 September 1918 in the Piave Sector near Varage, Italy. (Photo by Sgt. A. Marcioni, S.C., via the National Archives)

too, was committed to its version of total war, declaring war and vowing to do so with no less than one million men massed on European soil, with almost all of its physical military might eventually concentrated on the western front.[11]

Though American money had been flowing into Italy's war campaign for some time, since the Italian military's disastrous defeat at the Battle of Caporetto, Rome had requested more than just U.S. dollars. Fresh troops and materials were needed to reroute the Austro-Hungarians. U.S. brass and policymakers were reluctant to do so, but the 332nd Infantry Regiment was eventually committed to the Italian front. It's worth noting that this is one of the first times an American fighting force was sent to a theater of war (a) outside the scope of primary U.S. military engagement (in this case, the Western Front), (b) fought under foreign leadership (the 332nd took orders from Italian generals), and (c) were committed by diplomatic means between two separate governments as opposed to being a purely Washington-made decision.[12] In Gen. John J. Pershing's diary, he describes a lunch with the ambassador to Italy, Nelson Page, highlighting the political vice military nature of committing American troops to Italy: "The Ambassador seemed disappointed to find me strongly opposed to the use of our troops anywhere except on the Western Front and as components of our own army."[13]

Northern Italy already had its fair share of Americans aiding the conflict. Red Cross volunteers and ambulance drivers, so well-known from Ernest Hemingway's dramatization in *A Farewell to Arms*, had been there for years. The arrival of combat troops, however, was another affair. After departing their home station of Camp Sherman in Chillicothe, Ohio, in late 1917, the 332nd crossed the Atlantic aboard the RMS *Aquitania*, landed in England, and eventually trained across western Europe until it finally reached Italian soil in 1918. Upon arriving in Milan, the troops were greeted by throngs: "The crowd, now uncontrollable, almost bore the men from their feet in a mad frenzy to honor these first combatant American troops in Italy. The exultant cries continued, 'Viva l'America! Viva l'America!'"[14] A somewhat humorous note on ethnic

and cultural differences is added to this passage in the unit's enlisted personnel's *Company Log*: "The stiff wall of reserve of the Anglo-Saxon could no longer resist the mighty flood of human emotion that surged against it and in that sublime moment, seizing the inspiration of the hour, the men in khaki spoke for America, and cried back, 'Viva l'Italia! Viva l'Italia!'"[15]

It's important to emphasize that the 332nd was largely detailed to this corner of the war as a publicity stunt, something both Washington and Rome sought to publicize. In lieu of fighting, the American soldiers spent a substantial amount of time in rear billeting, marching around areas of the Italian peninsula not in a combat zone, performing quasi-humanitarian duties, and training. The enlisted man's log states, throughout the summer of 1918, "The regiment continued intensive training through the late summer; each man, already overtrained, began hoping that the impending day would soon arrive when the big drive in Italy would begin. At the close of the day's heavy, and by this time, monotonous drill, the men spent their evenings on the streets and in the small shops of Valeggio or bathed in the clear, swift waters of the Mincio. The camp life, too, was diversified by Sunday trips to Lago di Garda and Verona."[16]

However, as the Central Powers began to crumble and the Italian army again gained the initiative, the 332nd found itself on the move, seeing action at the Battle of Vittorio Veneto and the Tagliamento River. Even as Austria-Hungary was penning the armistice, Italian forces with their American helpers took the initiative and attacked wherever they could, mostly against surrendering Austro-Hungarian army units, to take what they saw as rightfully theirs and had been attempting to do so since 1915. As the war ended, word often reached the front lines piecemeal, and depending on what side a soldier was on may determine what level of fighting would occur. At the Tagliamento River, the 332nd found itself in a precarious situation, a prelude to the geopolitical debacle it would later find itself in:

> The American forces were now in a perilous position. They lay deployed on the barren river within easy range of the enemy who held a wholly unobstructed view of the entire manoeuver, and who might easily have killed or captured every man in the three platoons by a concentrated fire from the well-fortified

A lieutenant's uniform from the 332nd Infantry Regiment displays the regiment's famous Lion of Saint Mark patch and the Third Army (army of occupation) shoulder patch. (Photo courtesy of the U.S. Army Center of Military History)

parapet now only a few hundred yards away. Events took a strange turn.

Waving a white flag, an Austrian major leaped from the enemy dike and quickly advanced toward the American lines. He was followed by more officers. Coming forward under a flag of truce, they offered to converse with the Americans and Capt. Maroni.

In the parley that followed the Austrians told that on the preceding night they had received orders declaring that an armistice would take effect at midnight—the 2nd—that they should maintain their present position at all hazards and hold the right bank of the Tagliamento while the Allied soldiers would not advance beyond the left—the west. They presented a telegram as evidence that these orders were actually issued, adding at the same time that they—the Austrians—would use force if the Americans advanced further. To strengthen their claims they asserted they would not have destroyed the bridge if the telegram concerning the armistice had come one hour earlier.[17]

By 1918, the armistice was signed, and the Paris Peace Conference was underway. With American entrance so late in the war, Wilson brought with him an entirely separate agenda that had essentially no bearing on Entente goals at the outbreak of war in 1914 nor individual ambitions, such as those of the Italian government, when they signed the Treaty of London in 1915. In a letter between the American ambassador to Italy and the acting secretary of state, an American scholar living in Rome at the time is quoted, referring to documents pertaining to 1915 Italian claims: "No one who is intimately acquainted with the course of events in 1914 and 1915, and who understands the character of the men who are governing Italy would question the sincerity or the accuracy of the general statements which it contains."[18] Furthermore, four years of brutal conflict acted as a sort of gas on the fire for long-percolating ideological shifts in European sociocultural life: Bolshevism, ultranationalism, and antimonarchical sentiments were all kicked into overdrive by the war's end. Unfortunately for the hopeful statesman, Wilsonian democratic ideals would be just that, another ideal; this, juxtaposed against the direction for Italy advocated by popular domestic figures such as Filippo Tommaso Marinetti, founder of the Italian Futurist movement, highlighted the incompatibility of what was to follow. In his manifesto, Marinetti stated, "We must carry our war to total victory, that is, to the partitioning of the Austro-Hungarian empire and the security of our natural borders on land and sea, without which we cannot have our hands free to clear, clean, renovate, and enlarge Italy."[19]

In volume 1 of *Papers Relating to the Foreign Relations of the United States, The Paris Peace Conference*, "Policies and Proposals of the United States and the Allies" documents 353–372 detail American foreign relations with Italy, and "Territorial Questions and Relations with New States" documents 202–404 deal with the new state of Yugoslavia, known at the time as the Kingdom of Serbs, Croats, and Slovenes.[20] The above-mentioned trove of international diplomacy effectively divided former Austro-Hungarian territories among Austria, Hungary, Italy, and the new South Slavic Kingdom.

However, enforcement of these new boundaries and the web of overlapping military jurisdiction was another matter entirely. The Supreme Naval Council meeting in Paris on 5 November and subsequent Committee of Admirals meeting in Rome on 23 November split the Adriatic Sea into four zones, based on Articles 3 and 4 of the armistice with Austria-Hungary.[21] The northernmost zone, centered on Rijeka (Fiume), was to be administered by Great Britain; the next zone south, centered around Sibenik, was controlled by Italy; continuing down the coast was the Americans around Split; and the southernmost sector, based off Kotor, was run by the French.[22] Though these plans were primarily naval in design, the 332nd Infantry Regiment was still attached to Italian command and being utilized off the peninsula, now along the eastern shores of the Adriatic.

Unsurprisingly, there were immediate problems. First and foremost was that much of Italy's territorial ambitions were being administered by other countries' militaries, and that the Kingdom of Serbs, Croats, and Slovenes—of which many citizens had only very recently removed their Austro-Hungarian army uniforms—was in control of coveted areas and had the backing of the United States; the fact that the neophyte kingdom owed its newfound independence in large part to four years of Italian bloodshed against the dual

monarchy was an extra matter of ire for many Italian veterans and statesmen alike.[23]

Though a thorough examination of Wilsonian ideals is too cumbersome to initiate for the purposes of assessing American military effectiveness in the region, they undoubtedly had an impact on the American mission of policing their sector of the Adriatic. Wilson's idea of national self-determination for individual people groups spelled disaster for the region of Southeastern Europe in the wake of the collapse of the Hapsburg monarchy. Yes, many additional peoples (Serbs, Slovenes, Croats, Albanians, Montenegrins, Bosnians, etc.) were under the rule of Austrians and Hungarians, but lumping them into another polyglot kingdom didn't necessarily address the problem of self-determination; moreover, it was merely a way to throw off the Austro-Hungarian yolk.[24] The proof is in succeeding history—only another series of dictatorial strongmen held various pan-South Slavic unity together until they could finally achieve what they always wanted, a series of independent ethnostates.

In addition, self-determination was not applied evenly. The citizens of the city of Fiume overwhelmingly favored annexation by Italy but were denied this by international diplomacy.[25] Rather than being allowed a plebiscite, as other city-states and regions were eventually granted, the city was declared an autonomous region, only to eventually be annexed by Italy in 1924 with the rise of Benito Mussolini.[26] Wilson had been drafting plans for such a divide of southeastern Europe as early as 1917; in New York City, he assembled a team of experts, known as "the Inquiry," to begin balkanizing Austro-Hungarian lands. Here, 4,200 miles away, is where the future of a city's populace was decided.[27] Part of the uneven treatment stemmed from geopolitical maneuvering with other war allies and came down to who could contest American ambitions and who couldn't. On this issue, Dominique Reill states, "In short, Wilson ignored most of his Fourteen Points values in negotiations with the United Kingdom and France, but with Italy he reclaimed his moral ground … Wilson let the Fiume question become an 'issue to wreck world peace' because he did not believe in the Italian government's capacity to oppose American will."[28]

The U.S. military attempted to insert itself into this powder keg as delicately as possible. Though a strong naval presence has been essential to international diplomacy and power projection ever since ships have set sail, boots on the ground are almost always the determining factor; the presence of the 332nd was the first issue to address. In the *American Battlefield Monuments Commission,* there exists a very brief postconflict history of the 332nd's role abroad:

> After this Armistice the American troops formed part of the Allied forces stationed in Austria and along the Dalmatian coast. The 1st and 3d Battalions were at Carmons near Gorizia, Austria. Later in November the lst Battalion was ordered to go to Treviso and the 3d Battalion to Fiume, Austria. The 2d Battalion was stationed at Cattaro, Dalmatia, and a detachment from it was sent to Cetinje, Montenegro. In March 1919 the regiment was assembled in Genoa and on April 3 its last elements embarked from that seaport for the United States.[29]

This official history is fascinating, for it provides no detail as to why a single American regiment was dispersed along a coastline stretching from Venice to Montenegro or why they were operating in several sectors outside of the American occupation zone delineated by the armistice and the Committee of Admirals. The unit's enlisted personnel's *Company Log* does no better of the unit's entire foray into the Eastern Adriatic; only two sentences are provided: "The second battalion, which had gone to Cattaro, Dalmatia, on November 12, entered the harbor after a trip around Southern Italy. The battalion is justly credited with having endured more hardships than any other in the 332nd."[30] As early as 25 November 1918, the U.S. Army's Gen. Tasker H. Bliss was concerned about American soldiers operating outside the scope of American interests, stating, "Because this was not provided in the Armistice, the Army does not have proper instructions and serves Italians."[31]

Ironically, the U.S. Army was unwittingly serving the interest of Italian political and territorial machinations but was loved by Italy's newfound foe, the Yugoslavians. Balkan and Eastern Adriatic natives somewhat correctly identified the presence of American Army troops with the arrival of a new order, the national self-determination so ardently advocated by President Wilson. However, the 332nd's exclusive command by Italian military leaders, obviously in

Edward, Prince of Wales (*left*); Countess Lavinia BoccaTrezza; Col. William Wallace; and other officers socialize on 11 August 1918 at the headquarters of the 332nd Infantry Regiment in the village of Somma Campagna, Italy. (Photo by Sgt. A. Marcioni, S.C., via the National Archives)

direct conflict with South Slavic ambitions, made this a precarious situation for every party involved.

A field report of the 332nd's operations under Italian command perfectly illustrates the above-mentioned issue. In a memo titled "The Chargé in Serbia" between American diplomat H. Percival Dodge and the acting secretary of state, Dodge highlights the following overlapping web of American, Italian, and Yugoslavian interests:

> At the time Italy was making efforts to occupy Cettigne as she had already occupied the Montenegrin ports of Antivari and Dulcigno but through the efforts of the Allies was dissuaded from this step. Our officers told me however that two companies of Italian troops actually had started for Cettigne, with two companies of American troops (332nd. Infantry) when before reaching the frontier the American commander, Major Scanlon, thought it best to return. The Italians continued and were received at the frontier with gun-shots from the Montenegrins at which they also returned to Cattaro. The Montenegrins are stated to have declared that they would willingly have allowed the Americans to go to Cettigne but absolutely refused to allow the Italians to pass. Serbian troops were occupying Cettigne at the time as well as the principal points of Montenegro.[32]

On this incident, a second memo states, "The facts are exceedingly obscure, and it is doubtful if they are known to any living persons."[33] It is even more vexing to consider that these were American troops, under Italian command, operating in the French sector of the Eastern Adriatic.

The Italian army would again employ American troops in another nation's zone, Great Britain, when

Col. William Arthur Wallace, commander of the 332nd U.S. Infantry Regiment, is interviewed on 14 April 1919 in New York City after returning from the Italian front, where his unit served during World War I. (Photo courtesy of the George Grantham Bain Collection via the Library of Congress Prints and Photographs Division)

they marched them into Fiume on 19 November. It's worth noting that, within a few weeks of this, the British would abandon their sector of Fiume, leaving it open for Italian army occupation. In *The American Naval Mission in the Adriatic, 1918-1921*, Dr. A. C. Davidonis states, "Italy employed American troops at Fiume to advance her own political interests," and that the presence of them gave their objective the veneer of "a legitimate interallied occupation."[34] In Joseph Lettau's *In Italy with the 332nd Infantry*, he states, "It is said that when the Italians attempted to enter Fiume after the armistice was signed, they saw so many Jugo-Slav guns pointed their way that the expedition was called off until Americans could be found to land first. All felt sure that the Slavs would not fire upon Americans," alluding to Davidonis's point of using Americans as dressing for an interallied occupation force.[35]

As already mentioned, though Yugoslav troops generally loved the presence of Americans and detested Italian occupation, South Slav unity was by no means monolithic, and divergent factions equally chafed with one another. In "'Viva L' America!': The 332nd Infantry on the Italian Front," U.S. Army historian Matthew J. Seelinger describes the 332nd precarious role in inserting itself into this geopolitical situation:

> [D]ifferent native armed factions vied for control. On January 1919, fighting broke out between revolutionary forces, who wanted Montenegro to become an independent republic, and government forces, who wanted Montengro to join the newly formed Yugoslav union. As their Army counterparts would do nearly eighty years later in the Balkans, the 2nd Battalion was deployed in an effort to maintain peace between the rival factions. Placing themselves in harm's way, the battalion was able to keep bloodshed to a minimum with no casualties suffered by their own men, despite several incidents in which American forces were inadvertently fired upon. In addition to their peacekeeping efforts, the 2nd Battalion distributed food and other relief supplies to the starving Montenegrins.[36]

Lettau referred to the Montenegrin incident as "the Americans had a delicate task to perform in attempting to stop a revolution without hurting anyone's feelings."[37]

As early as 28 November, misuse of the American troops had reached negotiations in Paris, and Secretary of War Newton Baker ordered Pershing to recall the 332nd.[38] However, American diplomat Col. Edward M. House (an honorary title), a longtime sympathizer of the Italian nation and postconflict cause, intervened; he convinced Wilson to keep the American troops in the Adriatic to avoid creating an "unfortunate impression."[39]

Though U.S. soldiers narrowly avoided indirect gunfire during the Italian march to Cettigne, life for the soldiers billeted in Fiume was much more easy-going. American officers were barracked in luxurious quarters aboard a commandeered Austrian steamer, and the troops were scattered throughout the city.[40] This was done intentionally to keep American supervision of their own troops to a minimum and to maximize their use for Italian motives. Furthermore, Italian officers were always placed in charge; Lettau describes the practice in the following terms: "This detestable practice of placing a higher Italian officer over the highest ranking American officer present was a favorite play of the Italians."[41]

By March 1919, however, the writing was on the wall, and the political misuse of U.S. soldiers was too obvious to Wilson and American policymakers. Bliss stated, "It is my unanimous opinion of the American Peace Mission that … the American troops are being

used to further a policy of occupation and penetration" and that "the regiment is being employed not for legitimate military purposes but to further political aims."[42] The 332nd was finally consolidated, assembled in Genoa, Italy, and returned to the United States in April 1919.

From this point on, except for U.S. Navy shore party excursions in the Adriatic littorals, the mission shifted to an entirely at-sea task. Though removing ground troops greatly reduced the potential for fratricide, the U.S. Navy found itself holding the bag of an interallied agreement that was not being lived up to by all parties equally.

When we again look to the British—who enticed Italy to join the Entente, nudged the United States into war, encouraged the sending of U.S. troops to the Italian front, established the zone system in the Adriatic only to renege on their role, and ultimately left Fiume open to annexation to counterbalance Franco-American goals in the region—it's almost bizarre to consider American interallied cooperation in the first place and a lack of any historiographical interpretations of British malfeasance in the ensuing regional geopolitical collapse.[43] For example, Davidonis refers to Italian writer and war hero Gabriele D'Annunzio as an "irresponsible chauvinist" but nowhere describes any Machiavellian British scheming in such terms, only describing their potentially planned abandonment of Fiume as "a strangely docile lien indeed."[44]

With Wilson firmly siding with the ambitions of Yugoslavia over that of Italy, the U.S. Navy's de facto role in the region became the containment of their pseudo-ally's territorial expansion. Though they initially stuck to their designated zone of Dalmatia, pulling into ports when applicable, showing the flag, sending shore parties to the beach, and patrolling the littorals, this mission became increasingly more difficult to execute.

The failure of the interallied mission in the region became apparent on 12 September 1919, when D'Annunzio led a filibuster force of two thousand plus irregular Italian soldiers into the city of Fiume, where the 332nd had only recently departed, with the intention of annexing it for the Kingdom of Italy. Though Rome did not support D'Annunzio's cause, they also didn't do much to stop it; until a diplomatic solution could be reached, D'Annunzio declared himself Duce and the city was now the Italian Regency of Carnaro.

The template to capture Fiume was replicated in Trau, a town situated in the American sector of Dalmatia. American warships sent landing parties ashore to dissuade the Italian filibusters from annexing the town from the Yugoslav government. Here, U.S. military might prevailed; the American officer-in-charge of the shore party "presented the Italians with a two-hour ultimatum, and they withdrew. So great was the moral influence of the Americans that a show of force sufficed to end the illegal occupation."[45]

Though the above example illustrates the potential for American military success in the Adriatic, the capture of Fiume by irregular forces, its subsequent formation as a free city in accordance with the Treaty of Rapallo, and its ultimate annexation by Mussolini in 1924 illustrate the failure of late-in-the-war American diplomatic ambitions of peacekeeping in the region and the implementation of Wilsonian ideas of national self-determination via military presence.[46] Furthermore, the political misuse of the 332nd Infantry Regiment demonstrates a textbook example of lost-from-the-start goals intended for American military presence in the region.

A summarization of the overlapping motives of the Americans, Italians, British, and Yugoslavians shows the almost absurd level of complexity that the 332nd Infantry Regiment found itself in. The unit was sent by its government (at the request of the Italian and British governments) to aid its wartime ally, Italy, fighting against their mutual enemy, Austria-Hungary. After the armistice, the 332nd stayed under Italian military command and served as a quasi-political force for post-conflict Italian political and territorial aims (promised by the British, French, and Russians), all the while an interallied military force (composed largely of British, French, and American naval assets) began the process of quelling Italian ambitions. The British quickly abandoned this role while the French and Americans openly advocated for Yugoslavian autonomy and independence in accordance with Wilsonian ideas of self-determination.

Sadly, a plethora of postwar and post-9/11 comparisons can be made to the commitment of American troops abroad without a clearly defined role and who exactly they are supporting, and the U.S. Army's brief

foray into the Adriatic presents an eerie prelude to this issue. A combination of ideological shifts (trends toward nationalism/fascism), competing third-party incentives (British territorial promises, Russian Bolshevism, American national self-determination, etc.), and disparate regional goals (Italian irredentism/expansionism, pan-South Slav movements, Fiume citizen annexation goals, etc.) put the U.S. military in a no-win situation to achieve their objectives of effectively policing the Adriatic to achieve long-term peace. ■

Notes

1. "Pre/postwar" is used here in its broadest, twentieth-century meaning, referring to World War II. Since this article focuses on the Great War, any reference to before or after the war will be pre/postconflict/hostilities/etc.

2. Peter Paret, ed., *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Oxford University Press, 1986), 91.

3. Robert Osgood, *Limited War: The Challenge to American Strategy* (University of Chicago Press, 1957), 1.

4. Alastair Hamilton, *The Appeal of Fascism: A Study of Intellectuals and Fascism, 1919–1945* (Macmillan, 1971), xx.

5. A. C. Davidonis, *The American Naval Mission in the Adriatic, 1918–1921* (Office of Records Administration, Navy Department, September 1943), 1.

6. WWI Document Archive, "Treaty of London (1915)," last modified 30 June 2009, https://wwi.lib.byu.edu/index.php/The_Treaty_of_London_(1915).

7. Richard F. Hamilton and Holger H. Herwig, *Decisions for War: 1914–1917* (Cambridge University Press, 2004), 187–88.

8. Wilson would later declare Italian control of the Eastern Adriatic as a "threat to world peace." A. L. Marescotti, *Guerra Diplomatica. Ricordi e Framenti di Diario, 1914–1919* (Mandadori, 1938), 221.

9. Dragoljub Živojinović, *America, Italy, and the Birth of Yugoslavia, 1917–1919* (Columbia University Press, 1972), 100, 102–3.

10. Joseph A. McCartin, *Labor's Great War: The Struggle for Industrial Democracy and the Origins of Modern American Labor Relations, 1912–1921* (University of Carolina Press, 1998), 34; William L. Genders, "'Woodrow Wilson and the 'Preparedness Tour' of the Midwest, January–February, 1916," *Australasian Journal of American Studies* 9, no. 1 (1990): 75–81, https://www.jstor.org/stable/41054170.

11. Erick Trickey, "'I Hope It Is Not Too Late': How the U.S. Decided to Send Millions of Troops Into World War I," *Smithsonian Magazine*, 12 June 2017, https://www.smithsonianmag.com/history/i-hope-it-not-too-late-180963640/.

12. Davidonis, *The American Naval Mission in the Adriatic*, 35; Živojinović, *America, Italy, and the Birth of Yugoslavia*, 101.

13. "Selection of the 332nd Infantry Regiment for Duty on the Italian Front (In the Words of General John J. Pershing & Colonel William Wallace)," United States World War One Centennial Commission, accessed 4 March 2025, https://www.worldwar1centennial.org/index.php/332nd-in-ww1-articles/332nd-infantry-in-wwi/4164-the-332nd-infantry-regiment-article-1.html.

14. Walter Hart, *The Company Log from September 7th, 1917 to May 2nd, 1919* (Britton Printing, 1920), 21.

15. Hart, *The Company Log*, 21.

16. Hart, *The Company Log*, 25.

17. Hart, *The Company Log*, 37–39.

18. "The Ambassador in Italy (Page) to the Secretary of State, Rome, November 12, 1918," in *Papers Relating to the Foreign Relations of the United States, The Paris Peace Conference, 1919*, ed. Tyler Dennett and Joseph V. Fuller, vol. 1 (U.S. Government Printing Office, 1942), 417–18, https://history.state.gov/historicaldocuments/frus1919Parisv01/d354.

19. F. T. Marinetti, *Democrazia Futurista, Dinamiso Politico* (Facchi, 1919), 18.

20. "Policies and Proposals of the United States and the Allies," in Dennett and Fuller, *The Paris Peace Conference*, vol. 1, https://history.state.gov/historicaldocuments/frus1919Parisv01/ch24; "Territorial Questions and Relations with New States," in Dennett and Fuller, *The Paris Peace Conference*, vol. 1, https://history.state.gov/historicaldocuments/frus1919Parisv02/ch8.

21. *Armistice Convention with Austria-Hungary. Protocol of the Conditions of Armistice Between the Allied and Associated Powers and Austria-Hungary (Signed at Villa Giusti, November 3, 1918)* (Hungarian Institute, 1918), http://www.forost.ungarisches-institut.de/pdf/19181103-1.pdf.

22. Živojinović, *America, Italy, and the Birth of Yugoslavia*, 203.

23. Dominique Reill, *The Fiume Crisis: Life in the Wake of the Habsburg Empire* (Belknap Press, 2020), 69.

24. "Jugoslavia was but a name; none of the great powers seriously entertained repeated requests for early recognition." Davidonis, *The American Naval Mission in the Adriatic*, 35.

25. Reill, *The Fiume Crisis*, 18.

26. Reill, *The Fiume Crisis*, 9.

27. Reill, *The Fiume Crisis*, 25.

28. Reill, *The Fiume Crisis*, 40.

29. American Battle Monuments Commission, *American Armies and Battlefields in Europe: A History, Guide and Reference Book* (U.S. Army Center of Military History, 1938), 430–31, https://history.army.mil/Publications/Publications-Catalog-Sub/Publications-By-Title/American-Armies-And-Battlefields-In-Europe/.

30. Hart, *The Company Log*, 53.

31. Tasker H. Bliss to William S. Benson, Paris, 25 November 1918, General Tasker H. Bliss Papers, Manuscript Division, Library of Congress.

32. "The Chargé in Serbia (Dodge) to the Acting Secretary of State," in *Papers Relating to the Foreign Relations of the United States, The Paris Peace Conference, 1919*, ed. Tyler Dennett and Joseph V. Fuller, vol. 2 (U.S. Government Printing Office, 1942), https://history.state.gov/historicaldocuments/frus1919Parisv02/d280.

33. Tyler Dennett and Joseph V. Fuller, eds., *Papers Relating to the Foreign Relations of the United States, The Paris Peace Conference, 1919*, vol. 4 (U.S. Government Printing Office, 1942).

34. Davidonis, *The American Naval Mission in the Adriatic*, 43–44.

35. Joseph Lettau, *In Italy with the 332nd Infantry* (Evangelical Press, 1921), 62.

36. Matthew Seelinger, "'Viva L' America!': The 332nd Infantry on the Italian Front," Army Historical Foundation, accessed 4 March 2025, https://armyhistory.org/viva-lamerica-the-332d-infantry-on-the-italian-front/.

37. Lettau, *In Italy with the 332nd Infantry*, 65.

38. Davidonis, *The American Naval Mission in the Adriatic*, 47.

39. Davidonis, *The American Naval Mission in the Adriatic*, 48.

40. Davidonis, *The American Naval Mission in the Adriatic*, 54.

41. Lettau, *In Italy with the 332nd Infantry*, 58.

42. "General Tasker H. Bliss to the President Wilson, Paris, December 23, 1918," in Dennett and Fuller, *The Paris Peace Conference*, 2:337–38, https://history.state.gov/historicaldocuments/frus1919Parisv02/d256.

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Army Reserve soldiers from the 385th Field Hospital provide emergency care to simulated casualties during Mojave Falcon on 1 June 2025 at the National Training Center, Fort Irwin, California. (Photo by Staff Sgt. Heath Doppke, 79th Theater Sustainment Command)

Back to the Future … Toward a Ready Army Reserve Medical Force

Col. Matthew D'Angelo, DNP, CRNA, AN, U.S. Army Reserve

The success of military medicine over the past twenty years of war is unparalleled. It has produced the lowest mortality rate among combat casualties in modern history.[1] Despite advanced and innovative lethal weaponry used by our adversaries, U.S. combatants had a high probability of

survival despite life-threatening wounds. To maintain this strategic advantage and mitigate "the Walker Dip," service medical departments and Congress have prioritized military-civilian partnerships (MCP), an initiative to maintain critical wartime experiences.[2] While this practice has had some successes for the Active Component (AC), there has been little change in strategy for readiness training in the U.S. Army Reserve (USAR). Clinical currency is a relative assumption in the USAR. It is commonly believed that healthcare providers maintain clinical readiness within their civilian roles. This assumption, however, is flawed and a critical threat to the readiness of the USAR medical force. Therefore, USAR healthcare leaders must look beyond the constraints of the USAR "battle assembly" (monthly training) structure and reimagine how USAR healthcare teams prepare for war. The successes on the battlefield were not a result of the Active or the Reserve Component but the intracollaboration of these two components. Therefore, any thoughtful strategy should look for opportunities to increase the opportunity to provide USAR healthcare teams with critical experiences in a way where there is the capacity to incorporate AC healthcare teams. The only way to achieve such lofty goals is for the USAR to develop its own MCP networks. USAR has a rich history of very successful MCPs. As the United States transitions from active combat operations in Iraq and Afghanistan to regional stability operations, the USAR must look back to its history to prepare for the growing threat of large-scale combat operations of the future.[3]

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The Current State of Military-Civilian Partnerships

MCPs are currently the focus of the AC. Centralized through the Defense Health Agency, the AC and individual service medical departments have spearheaded the current MCP initiative. Over the decades, there have been several examples of successful MCPs.[4] The MCP programs target select AC personnel or teams and provide skill sustainment or just-in-time training before deployment.[5] A small contingent of AC service members often staff these MCPs, integrating within the civilian healthcare team and guiding rotators in the clinical care settings for a period, usually two to four weeks in length. Although successful, these programs are limited by the capacity of the civilian partner to provide adequate experiences for the military rotators and equally by the capacity of military treatment facility (MTF) leaders to release personnel for training. Any large-scale movement of AC healthcare providers from an MTF to an MCP for training has the potential to limit services at the local MTF and the possibility to further promote leakage of care in the military healthcare system (MHS). The readiness of the AC healthcare team and beneficiary care require a delicate balancing act.

Unfortunately, the current MCP strategy does not include the USAR and primarily focuses on professional medical training for active-duty providers, with few training opportunities for enlisted medical skills. This is a critical point because the chain of survival begins with the medic. If medics are underprepared, we should expect increased combat mortality. The current MCP strategy provides a patchwork of skill sustainment opportunities but falls well short of meeting the requirements of the entire force. Capacity limitations and the potential geographic distances that service members must travel to participate make these less than ideal. Without a strategic policy change, there is little reason to believe that future MCPs will achieve their full potential—integrated military-civilian healthcare training platforms. To achieve greater capacity, military leadership must look to the USAR.

Military-Civilian Partnerships and the U.S. Army Reserve

MCPs are not a new phenomenon in the USAR. The USAR was founded in the early twentieth century based on the recommendations of the Dodge Commission that explored military failures during the Spanish-American War.[6] The USAR began with the formation of the Reserve Medical Corps and expanded with the establishment of the Enlisted Reserve Corps. It is interesting to note the similarities between today's world and those experienced more than a century ago. Then, the Army surgeon general quietly tried to prepare for war with a fixed force structure. Through a coordinated effort, the U.S. Army engaged the Red Cross and academic medical leaders to develop the Army medical reserve hospital system that could be mobilized for the Great War. History demonstrates that the medical reserve hospital system effectively provided quality care to the American expeditionary forces during World War I. The integration of Reserve-civilian medicine profoundly influenced American medicine, increasing knowledge sharing and increasing the innovation of civilian care for decades to come. Reserve general hospitals remained aligned with civilian academic medical centers through the Vietnam War, but they faded away due to the end of mandatory conscription and the changing perception of military service in the 1970s.

The challenges facing the military health system today are not so different from those faced by the leaders before World War I. Cost, staffing, and critical experiences are all in short supply today as they were over a century ago. Although the classic World War I-style Reserve hospital disappeared as the military grew during the Cold War, the cultural nature of MCPs remained until the early 1970s. The continuous flow of physicians from civilian to military and back to civilian practice allowed for the ongoing transfer of knowledge between these communities while maintaining a shared cultural experience.[7] The fundamental ease with which MCPs existed in the early twentieth century no longer exists today and will require cultivation.

The challenges facing the "modern" MCPs can primarily be described from two perspectives. The first is legal and economic, and the second perspective is cultural. On the surface, MCPs appear as a logical means to integrate the expertise of two healthcare systems. However, as the American College of Surgeons has noted, the union of the military-civilian healthcare communities will not be without barriers. *The Blue Book: Military-Civilian Partnerships for Trauma Training, Sustainment, and Readiness*, published by the American College of Surgeons, identifies four significant challenges to MCPs.[8] These challenges include the credentialing of military members in civilian centers, legal complexities of malpractice and the Feres doctrine, billing for services provided by military members, and privileging of military healthcare team members, with the most significant complexity for healthcare roles in the military that do not have equivalents in the civilian sector.

The *Blue Book*, however, only defines medical-legal barriers and may ignore some practical barriers to successful sustainability. Anecdotal experiences from existing MCPs suggest other obstacles to successful implementation, most notably diverging cultures. While a medical center's chief executive officer may endorse an MCP, how is this communicated to the larger organization? Long after the VIP pictures are taken and the formal ceremony of the signing of the memorandum of understanding is complete, the members of each organization will be left to tackle a range of challenges that may span issues from how competition between military and civilian trainees affects culture to how call schedules will be managed between military and civilian practitioners. The cultures of the military and civilian communities are different.[9] The cultural divide is only complicated by the nomadic nature of military assignments. As military partners move to new assignments, relationships and cultural connections can experience strain.

In addition to cultural challenges, what incentives are offered to the civilian staff to support their military colleagues? Although there is little data in the MCP domain, it has been this author's experience that MCPs create burdens. While it is convenient to think that civilian clinicians' support of MCPs will be done out of patriotism, this is not a realistic assumption. Overwork and professional burnout are the norms in today's healthcare setting.[10] Without proper execution, MCPs will become just another duty.[11] Therefore, future MCPs must be designed to sustain the military and its civilian partners. This will require stability to nurture

An Army Reserve soldier role-playing as a casualty waits to be seen by the 452nd Field Hospital medical team on 3 June 2025 during Exercise Global Medic at Fort Hunter Liggett, California. (Photo by Staff Sgt. Mikayla Fritz, 807th Theater Medical Command)

the dueling roles of the MCP relationship. If MCPs become a critical component of the MHS's ability to field competent and ready military healthcare teams, these challenges must be overcome.

The U.S. Army Reserve Medical Force

The USAR represents nearly one-third of the Army's total medical force, maintaining 70 percent of the Army's deployable medical force structure.[12] The USAR is a critical element to the Army's successful execution of the national defense strategy.[13] Unlike the AC, USAR medical assets are not aligned within the MHS. They do not directly affect military patient care during peacetime and do not draw bandwidth from the MHS to maintain partnerships. If developed correctly, USAR medical units would align to support the MHS and continue to provide ready medical assets to combatant commanders.

USAR medical assets are organized along three major medical commands. With over eight thousand soldiers and 119 units, the Army Reserve Medical Command provides a broad spectrum of care specialties nationwide.[14] The 3rd Theater Medical Command commands and controls more than seven thousand soldiers from the East Coast of the United States to the Mississippi River. The 807th Theater Medical Command is the largest USAR medical command, with command and control of over ten thousand soldiers located west of the Mississippi River. The USAR can field ten hospital centers, including twenty-four field hospitals.[15] These operational platforms must be prepared as the geopolitical landscape evolves and tensions among near-peer adversaries intensify.

The Reserve Military-Civilian Partnership Strategy

A successful Reserve military-civilian strategy would provide the USAR with healthcare skill sustainment while providing the civilian partner reciprocal gains. Unfortunately, the current mechanism for readying healthcare teams falls short. In most cases, USAR medical units perform their training isolated at reserve centers far from their future mission on the battlefield. If strategy shifted, USAR medical

assets could align with the MHS. The Army Reserve Medical Command could maintain its geographic diversity and align units with current and future MTFs. This alignment would allow the AC to use USAR units to backfill during prolonged training and deployment while preparing reservists to function within the MTF. The 3rd and 807th Theater Medical Commands could remain expeditionary yet move their assets from reserve centers and establish several small partnerships in communities across the United States. While AC MCPs focus on large tertiary medical centers, Reserve MCPs (rMCPs) could prioritize hospitals not associated with the AC that can provide acuity and diversity for the Reserve medical assets, further integrating military-civilian medicine.

Through the USAR, rMCPs can be reimagined to provide a stable military partner that can integrate within the civilian organization and can provide capacity for the Reserve and Active Components to attend and participate in readiness training together. In the ideal setting, rMCPs would be integrated into the National Disaster Medical System (NDMS), furthering the National Academies of Sciences, Engineering, and Medicine's vision for an integrated military and civilian trauma system to achieve zero preventable deaths after injury.[16] There is little reason to believe that a sustainable rMCP program could not be achieved while simultaneously enhancing the readiness of the nation's healthcare system through the NDMS. To achieve this reality, however, the design must be deliberate and focus on readiness.

A Ready Military Healthcare Force

Readiness for operational medicine is a complex matter that is more than skill sustainment. In war, the context and practice of healthcare often change due to the unique realities in the area of operation. For this reason, "readiness" must be incorporated into Reserve training. For this discussion, the readiness of the military healthcare force is the "professional, cognitive, environmental, and operational development that an individual requires to work within military healthcare teams to sustain competent performance in both complex and unpredictable military operational settings."[17] Grounded in this definition, a ready medical force requires training in four domains: (1) individual professional skills (medicine, nursing, medic), (2) specific skills for operational healthcare practice (i.e., outside of the MTF, familiarization with specialized field equipment), (3) military-based competencies (survival skills) to function in an operational environment successfully, and (4) individual and team-based cognitive readiness skills to perform optimally in complex battlefield environments. Reserve medical forces' readiness will require an integrated approach like the AC. Hospital care should be balanced with medical field exercises (using expeditionary equipment) along with knowledge and skills assessments to ensure the healthcare team member can translate civilian healthcare into the operational environment.

The Army Reserve Field Hospital

This strategy proposes that the functional unit for a rMCP would be organized at the medical brigade level. A brigade houses a single Army hospital center (HC) composed of two field hospitals (FH) and a multifunctional medical battalion (MMB). At total capacity, the HC provides 240 beds, which includes 60 intensive care units (ICU) and 180 intermediate care beds. The size and scale of an HC is variable based on the modularization of the component units. The thirty-two-bed FH, however, represents the core element of a HC. Scalable assets are added or removed based on conditions around the operation. The HC, therefore, will be the nucleus. As a civilian partner's capabilities to support rMCPs grows, so will the FH.

Most soldiers within the brigade and HC work "part-time." They must serve fourteen days on active duty for annual training (extended combat training) and twenty-four days throughout the fiscal year at battle assemblies. Historically, USAR units perform duties over weekends and for two weeks in the summer. This schedule assumes that reservists practice their medical skills and maintain proficiency through their civilian clinical experience. This assumption, however, is a critical weakness in the current USAR strategy. For instance, a USAR critical care nurse who works in the civilian sector as a school nurse may not be clinically ready to function as a critical care nurse in the USAR. A general surgeon specializing in breast care may not be clinically prepared to function as a general surgeon in the USAR. Therefore, the USAR must have a method to assess healthcare providers' civilian practice. Following this strategy, USAR healthcare providers

Army Reserve soldiers assigned to the 628th Forward Resuscitative Surgical Detachment provide emergency care for notional casualties during Exercise Global Medic on 7 June 2025 at Fort Hunter Liggett, California. (Photo by Staff Sgt. Mikayla Fritz, 807th Theater Medical Command)

would track their civilian clinical practice through the Medical Currency and Readiness Tracker (MCART) application. The MCART application was developed by the U.S. Air Force to be used on smartphones. The MCART app is programmed with specialty-specific readiness requirements, current procedural terminology codes, and International Classification of Diseases tenth edition (ICD-10 codes).[18] Data entered by service members will be recorded and cross-matched with Army individual critical task lists (ICTL) or the knowledge-skills-attitudes (KSA) identified with the Defense Health Agency Clinical Readiness Program.[19] With this information, leaders can assess a soldier's readiness to perform in their military occupation and tailor battle-assembly training days to the individual needs of the soldier. This novel approach offers a degree of precision unique to the service member and the unit and not arbitrarily based on metrics.

Implementing the Army Reserve Field Hospital-Civilian Partnership

The ideal experience for a rMCP would be at an accredited Level 1 or Level 2 trauma center. This, however, may not be a realistic expectation due to competition with active-duty Medical Departments and civilian Graduate Medical Education Programs. Level 3-designated trauma centers, however, represent a reasonable setting for a reserve experience. These centers mirror the capabilities of a Role 2 and Role 3 deployed setting and are geographically dispersed in a pattern similar to current USAR medical assets.[20] Without a trauma center designation, the institution should have a larger beneficiary network with moderate-to-high-acuity patient care. rMCPs should use the same memoranda of understanding/agreement as others in the MHS to ensure consistency across the enterprise.

A presence within the organization will be critical for stability within an rMCP. A successful partnership requires joint ownership. Reservists cannot

Table. Typical Hospital Center Nurse Staffing

	Field Hospital 1	Med Detach H (intermediate care) 1	Med Detach (Surg)	Field Hospital 2	Med Detach (intermediate care) 2	Med Detach (MED)	Med Detach (FRSD)	Med Detach (MIN CARE)	Totals
OR Nurse	4		3	4					11
CRNA	4		6	4			2		16
ER	5			5			2		12
ICW	3	10		3	10	4		5	35
ICU	8		16	8		7	2		41
POP Health						1			1
Psych						1			1

(Table by author)

come and go. Success requires the regular engagement of Reserve healthcare team members working with civilian team members. A successful partnership must be grounded in a shared culture. Enculturation requires presence. Presence within the civilian institution with part-time service members will take creativity. The traditional "two days a month" will be inadequate to cultivate an rMCP. Therefore, using the definition of readiness previously discussed, annual training will remain for fourteen days and should be targeted to experiences in expeditionary healthcare in the operational setting. Military healthcare team members must be prepared to perform care in a contextually different environment from the brick-and-mortar facilities where they typically practice. Field training allows leaders to build team training and measure soldiers' ability to perform in complex contextual environments to ensure soldier skills and patient care preparedness.

The remaining twenty-four duty days (192 hours) should primarily be dictated by soldier readiness and what is needed for their individual preparation. The readiness of healthcare providers is not unlike preparing combat fighter pilots. Experience has shown that flight time alone does not prepare combat pilots for the complexities of aerial warfare.[21] In addition to flight time, pilots require weapon and targeting drills and other critical skills to retain lethality.[22] Like pilots, patient care alone will not fully prepare a healthcare provider for the uniqueness of casualty care. Individual and healthcare team readiness will be achieved by integrating the core tenets of readiness, extending beyond individual skills and toward the requirements of expeditionary healthcare that will prepare healthcare team members for damage control resuscitation and surgery, prolonged field management, and evacuation to higher echelons of care.[23]

Individualizing substantial portions of healthcare readiness allows for individualized training. Part-time clinicians below readiness metrics will likely require patient care time at the rMCPs. Soldiers whose civilian practice meets or exceeds ICTLs or KSAs should be given opportunities for additional training. For instance, a critical care physician meeting their readiness metrics could cross-train with anesthesiology. The critical element is that the training should be dictated by the soldiers' needs, not a generic training schedule.

Training schedules within the rMCP will be unique, and they must be tailored to the organization and negotiated individually. rMCPs will differ based on the culture of the organization. Therefore, civilian organizations and brigade leadership should be able to develop innovative strategies to find shared areas of interest if the partnership meets minimal standards. Once developed, soldiers should be self-scheduled with their section leadership to fill training slots within the civilian partner's organization. Self-scheduling allows soldiers the greatest flexibility to meet military requirements while balancing family and civilian employment requirements. This unique flexible scheduling will

require a new form of leadership and organizational structure for USAR medical leaders.

The overall command and control of the HC will remain with the brigade commander; however, the HC and the MMB commanders will have direct relationships with the civilian partner leaders. The rMCP leadership group (HC, MMB commanders, and hospital chief executive officer or senior representative) will annually develop shared goals to guide the relationship. Planning will be conducted in partnership with the chief medical and nursing officers and other civilian stakeholders to support soldiers' integration into the care teams. FH and medical detachment commanders will execute directives through a training schedule coordinated with departments throughout the civilian medical center. Soldiers will identify and self-schedule training days by specialty in appropriate discipline or sections. Oversight of the training schedule will be the responsibility of section leaders. Soldiers serving under flex scheduling may not be working with other service members. Therefore, select peer civilian leaders within the soldier's discipline will provide written formative feedback and periodic peer review. Similarly, soldiers will be expected to provide an annual assessment of the rMCP training and their assessment of the partnership to guide future growth.

Healthcare practice and legalities remain a significant concern with MCPs. In the event of poor outcomes, there remains the question of liability. This becomes increasingly challenging with the enlisted medical specialties. Unlike their AC counterparts, enlisted soldiers may not practice their military skills in civilian employment. Medic training remains one of the most significant challenges. The role of the medic does not easily translate to the civilian medical community. Barriers to allowing medics to practice must be overcome. Patient survival on the battlefield begins with buddy aid and the combat medic. Creative strategies include partnering with local emergency medical services or in-house hospital paramedic transport. Either way, this critical component of the military healthcare system must be addressed.

The following demonstrates how soldiers may be rotated through a rMCP. Each area of concentration or military occupational specialty will have varying challenges to integrating within the rMCP. Army nurses were used for this example because of the number of nurses within HC organization. The table represents typical nurse staffing for an HC. A typical HC has personnel requirements for forty-one critical care nurses who must perform twenty-four duty days (192 hours) in addition to their annual training. This is a combined total of 7,872 hours (about eleven months) of required training.

The average hospital in the United States is 150 beds.[24] Of these, a hospital needs approximately 13.5 percent to be ICU beds.[25] Assuming 80 percent occupancy, one ICU bed requires seven thousand hours of around-the-clock care per year. If the training schedule allows the USAR to cover two ICU beds (fourteen thousand hours) throughout the year, soldiers will potentially have 1,168 twelve-hour shifts. This training schedule in one ICU and two beds would provide the appropriate number of training hours to support eighty critical care nurses, far exceeding the needs of a single HC. This additional bandwidth may be used for training by AC critical care nurses near the rMCP. rMCPs could be an asset for local MTFs struggling to maintain competency.

Based on this example, it is critical to note that the civilian partner should not reduce its staffing model based on the rMCPs. Instead, the civilian partner should reduce nursing hours to allow staff to attend continuing education or other training. This is an example of reciprocal gain, where the military gains experience and the organization and its staff benefit from the rMCP. This modeling could be transferred to other specialties and healthcare disciplines.

Recommendations

Revitalizing medical components in the USAR to align with the greater MHS strategy will be a monumental challenge but necessary to ensure that forces are prepared for future wars. As we saw from nearly two decades of war, the USAR was a critical component in the medical successes on the battlefield. Although not an exhaustive list, the following are key recommendations for rMCP success.

First, creativity will be required to make these changes in doctrine. Military leaders must look beyond what has been done to what must be done to modernize the force. The Reserve hospitals of the early twentieth century were a product of ingenuity and passion by civilian and military leaders created to save American lives on the battlefield.

In addition to creative leadership, the USAR medical brigade training must evolve. The days of "one weekend a month and two weeks each summer" must be rethought to allow flexibility within the system; it must allow soldiers to train in their area of expertise while not overwhelming the civilian market yet remain a continuous presence in the rMCP. USAR leadership must evolve to this new reality. Command and control of soldiers and Active-Guard-Reserve positions may need redeveloping to ensure congruence with this new training platform.

The long-term success of any partnership requires participation and mutual gain. Soldiers must be present and become part of the culture, and the rMCP community must mutually benefit. Reciprocal gains are critical for success. The USAR must be prepared to offer more than just personnel. Current successful partnerships are often grounded in shared simulation facilities and equipment. These and other solutions to common desires will help solidify the relationship.

Lastly, many regulatory changes must occur for success. Potential civilian partners often raise concerns about licensure of enlisted specialties, malpractice, and billing for services delivered by military providers in civilian centers. None of these issues are insurmountable, yet they require champions who can help drive deliberate changes to state and federal codes.

Conclusion

The USAR has a long history of successful rMCPs that were critical to the successful military healthcare system of World Wars I and II. As the historian and political scientist Walter Lippmann noted, "The lesson of history is that the lesson of history is never learned."[26] The U.S. healthcare system offers opportunities to improve the readiness of Army Reserve healthcare assets. A rMCP offers the promise of improved training, while integrating the U.S. Army Reserve into the NDMS. To achieve these ends, we must separate ourselves from the dogmatic practices of current USAR training schedules and ways to demonstrate readiness. Through a new lens, the U.S. Army Reserve can again serve as the critical link between military and civilian medicine. To do so, however, leaders must look back to history to reimagine the future of military healthcare readiness. ■

The opinions and assertions expressed herein are those of the author and do not reflect the official policy or position of the Department of the Army, the U.S. Army Reserve, or the Department of Defense.

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A Class for Cash

Planning to Pay the Way

Maj. Johannes Geist, U.S. Army

Money is the sinews of war, and without a military chest, it is next to impossible to employ an Army to effect.

—Maj. Gen. Nathanael Greene, Quartermaster General of the Continental Army

The U.S. military recognizes the paradigm that "cash is king" by doctrinally utilizing the Lykke Model to determine the level of risk associated with achieving ends (objectives) based on the available ways (concepts or options) and means (resources) to shape outcomes.[1] Often, the resources that shape outcomes originate from cash. Several recent articles, including one published by a former commandant of the Army Finance and Comptroller Corps, echo the critical importance of cash to executing military operations, including large-scale combat operations.[2] These relevant discourses underscore unified action in a contested sustainment operating environment where an electronic funds transfer (EFT) is not assured and recommend incorporating the commodity of cash as a class of supply. While relatively specific, the proposal requires further development to generate an in-depth framework for sustainment planning for payments at the point of need. The following examination refines the establishment of cash as a class of supply in part one by reflecting on the enduring nature of resourcing conflicts, discussing funding accountability, contemplating the goal of data advantage, and overviewing financial management within the sustainment warfighting function (WfF). Then, in part two, the analysis finds intersections among the classes of supply, aspects of U.S. money supply, and U.S. military funding execution to delineate a framework that aims to mitigate resource shortfalls by establishing cash as the eleventh (XI) class of supply.

Part One: Background, Goals, and Functions

Resourcing conflicts. Every war, from the American Revolution to the Global War on Terrorism, consumed resources. It is not a leap to conclude that resources enable not only war but also military operations in general. Means come in a few primary forms: time, political will, funding, personnel, supplies, and equipment.[3] Of these forms, the overall examination focuses on how funding sustains military operations and accentuates the importance of military financial management. This inquiry involves converging the elements of sustainment before offering a way to transform sustainment planning. In that sense, investigating the cost of past wars is more about recognizing the enduring nature of resourcing conflicts, the scale of wartime funding in a short period, and the direct utility of cash.

The reflection starts with gaining a perspective on the previous monetary costs of U.S. wars. Expenses of the two most recent wars are more straightforward to compare based on purchasing power and equipping. Inflationary conversions to 2011 dollars for most conflicts offer background and produce the figures in table 1.[4]

Digging into the fiscal specifics of each conflict could yield a bounty of insights; however, the more important takeaways are (1) monetary resources play a role in every conflict, (2) war can create significant costs in a short time, and (3) cash circulates on the battlefield of every contingency. These factors lead to an outlook that financial management should garner emphasis during the operations process—planning, preparing, executing, and assessing.[5]

A vital part of financial management operations is providing payments, and significant amounts of the totals spent in the indicated conflicts were cash

(Photo courtesy of the U.S. Treasury Department)

Table 1. The Cost of U.S. Wars

War	Years	Cost (2011 dollars)
American Revolution	1775–1783	$2,407 million
War of 1812	1812–1815	$1,553 million
Mexican War	1846–1849	$2,376 million
Civil War: Union	1861–1865	$59,631 million
Civil War: Confederacy	1861–1865	$20,111 million
Spanish-American War	1898–1899	$9,034 million
World War I	1917–1921	$334 billion
World War II	1941–1945	$4,104 billion
Korea	1950–1953	$341 billion
Vietnam	1965–1975	$738 billion
Persian Gulf War (Deserts Shield & Storm)* *Ally contributions estimated up to $97.3 billion in 2011 dollars	1990–1991	$102 billion
Post-9/11: Iraq, Afghanistan & Other Related Operations** **Estimate of additional $3,742 billion in associated costs (State Department, Homeland Security, veteran's care, national debt interest, and increases to defense base funding)	2001–2011 through 2023	$1,147 billion $5,843 billion

(Table by author; modified from Stephen Daggett, *Cost of Major U.S. Wars)*

payments. Two of the more recent contingency operations offer context. Between Iraq and Afghanistan, U.S. military cash transports were $400 million a month in 2003, $192 million a month in 2009, and $42 million a month in 2010.[6] From 2004 to 2015, the U.S. military disbursed $7.8 billion in Iraq and Afghanistan through the Commander's Emergency Response Program alone.[7] The nature of small-scale Commander's Emergency Response Program projects and vendor skepticism of banks often resulted in cash payments. There is also the anomaly of up to $12 billion in cash transported to Iraq by the U.S. military between May 2003 and June 2004 from the United Nations' oil-for-food program.[8]

The volume of cash payments in Iraq and Afghanistan demonstrates the contemporary relevance of cash in immature or degraded environments. Cash is indispensable when banking infrastructure is insufficient or only cash payments are accepted. The Persian Gulf War (Operations Desert Shield and Desert Storm) further validates the role of cash in an operation, particularly when setting a theater. During this example of a large-scale combat operation, the XVIII Airborne Corps Finance Group disbursed $560 million of cash in the first 190 days (12 August 1990–18 February 1991).[9] Afterward, the commander of Army Central Support Command cited the XVIII Airborne Corps Finance Group as instrumental to operational success.[10]

Funding accountability. The sticking point to the free flow of funding is maintaining accountability. Reviews of substantial, sometimes exorbitant, financing for U.S. wars are abundant. This coverage offers a stockpile of findings, recommendations, and lessons learned. The unfavorable assessment of U.S. military financial management during wars overwhelmingly

indicates a need for improvement, a track record of woeful unpreparedness, exclusions from the operational planning phase, and a pattern of the same issues repeating in each conflict.[11] These past deficiencies led to a shift in the American mindset, and one writer concluded that "spending during World War II was characterized as an open checkbook. However, today Congress and the American public demand full accounting of taxpayer dollars—even during war."[12] These expectations stem from justified concerns about past performance, and an approach to meet the expectations is to connect cash directly to supply purchases. The U.S. Government Accountability Office publicly declared that it could not determine the cost of Operation Desert Storm due to unreliable military systems for managing inventories, procurements, and expenditures.[13] The Department of Defense (DOD) also found itself unable to respond to Congress about Gulf War costs and resorted to a nondisclosure policy.[14] Post-9/11 costs prompted scrutiny based on questionable expenses and insufficient accountability, as reported by the Government Accountability Office and special inspector generals.[15] Learning from historical funding accountability issues presents an opportunity to get better. Recent results highlight DOD's overall challenge after failing financial audits for the past thirty-three years; however, the conclusion of fiscal year 2024 shows signs of financial transparency improvement that some claim will help win wars.[16] The prospect of achieving a clean audit, with potential benefits to warfighting, supports any effort to learn from history and take the necessary steps during the operational planning phase of the next conflict to maintain funding accountability. Tracking cash use from start to finish is a key component of that endeavor.

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Creating data advantage. Information age tools should make achieving funding accountability more attainable than ever. Tools such as cloud computing, artificial intelligence, and machine learning should offer the ability to advance to data and even decision advantage. The DOD, including the Army, aims to transform itself into a data-centric organization that generates data and decision advantages.[17] The backbone of informing data-centric organization decisions is timely user inputs of quality data and standardized data architecture. In this vein, Army logisticians are leveraging information systems to develop predictive logistics.[18] Financial managers can enhance decision advantage by seamlessly exchanging data with interrelated sustainment information systems and with the general ledger using the standard line of accounting.[19] The push for the Enterprise Business System-Convergence leans toward that outcome.[20] Similar to the ideas of smart power and smart logistics, unifying the operating picture of the sustainment WfF through data makes smart sustainment a possibility.[21]

The sustainment warfighting function. The sustainment WfF, according to Army Doctrine Publication 4-0, *Sustainment*, "is the related tasks and systems that provide support and services to enable freedom of action, extend operational reach, and prolong endurance."[22] Logistics, personnel services, financial management, and health services support are the four elements responsible for planning, preparing, executing, and assessing the related tasks within the sustainment WfF.[23] Given that the tasks and systems are related, it only makes sense that the elements should not function in silos. The struggles of the past show what occurs when the elements are disconnected. Moreover, the means for all the sustainment elements emanate from the financial management competencies of resource management and finance operations to fund the force. A lack of means in the Lykke model is a source of risk to the mission or force. The Army cannot run without resourcing its responsibilities as directed under Title 10 of the U.S. Code.[24] Nor can the Army achieve its strategic roles to shape operational environments, prevent conflict, prevail in large-scale ground combat, and consolidate gains in support of the joint force.[25] Army Regulation (AR) 1-1, *Planning*,

Programming, Budgeting, and Execution, establishes the phases of the planning, programming, budgeting, and execution (PPBE) process for financial managers to, at the end of the process, perform funding execution to provide monetary resources.[26] Army Doctrine Publication 4-0 identifies resources as fundamental, which is the case since sustainment elements require fiscal resources to acquire goods and services.[27]

The logistics element tasks include conducting supply, resupply, transportation, and operational contract support at the operational and tactical levels of warfare.[28] Health service support at the operational and tactical levels performs the task of medical logistics.[29] Execution of these tasks requires planning, continuous assessments, and synchronization. Right now, a gap in executing these tasks is linking cash directly to logistics, personnel services, and health service support requirements during every stage. In contrast, the operations continuum incorporates personnel services by factoring in personnel tracking and reporting, which counts those under medical care, to create running estimates.[30] In that regard, Field Manual (FM) 4-0, *Sustainment Operations*, states,

> commanders rely on LOGSTAT [logistics status] and PERSTAT [personnel status] reports to identify support requirements and capabilities to enable large-scale combat operations. Sustainment staffs use data from sustainment estimation tools, higher headquarters orders, and documents such as country studies to develop running estimates. A running estimate is the continuous assessment of facts, assumptions, constraints, and limitations concerning the current situation and OE [operational environment] used to determine if the current operation is proceeding according to the commander's intent and if planned future operations are supportable. Using sustainment information systems, commodity managers include information in running estimates such as quantity on-hand, quantity consumed, expected quantity on-hand, and expected consumption to anticipate requirements and assist in synchronization. Each staff element and command post functional cell maintains a running estimate focused on how its specific areas of expertise are postured to support future operations.[31]

In this respect, the LOGSTAT and PERSTAT reports are cornerstones of sustainment support. The LOGSTAT and PERSTAT reports firmly fit into the science of planning and assessing by offering the ability to measure and analyze.[32] FM 4-0 provides examples with minimum requirements in appendix E of a LOGSTAT and a PERSTAT.[33] Notably, the minimum components of a LOGSTAT report are organized by classes of supply. FM 4-0 indicates the role of financial management when detailing sustainment considerations for imperatives and introduces the status of funds report as a requirement for assessments.[34] However, FM 4-0 does not include the idea of utilizing a financial status (FINSTAT) report alongside the PERSTAT and LOGSTAT as a part of planning and assessing.[35]

Not regularly assessing financial resources to stave off culmination is problematic when planning for a supply of physical cash at the point of need. An analysis of the days of supply for cash is necessary to support acquisition requirements. Cash cannot transport, protect, or disburse itself. Consider that a pound is 454 grams, a pallet/skid of currency can transport 640,000 bills, and each bill, regardless of denomination, weighs approximately one gram.[36] Therefore, a 640,000-bill skid of currency weighs 1,409.7 lb. and can transport a maximum of $64 million when entirely $100 bills. It is impractical to move coins because of their limited value and weight. A quarter weighs almost six grams, and a dollar coin weighs over eight grams.[37] Past techniques to reduce transporting cash and coins are the soon-to-be terminated EagleCash Card and Army & Air Force Exchange (AAFES) cardboard pog coins.[38] Overall, moving currency from a secure location is the easy part. The more challenging part is moving the currency and safeguarding cash in a contested area of operations. A bulk amount of currency is literally a high-value target.

A personal analogy can apply to this issue. Pick a day, any day you went to a store. You have your wallet and your phone. You decided enough money is in your bank account for your selected goods. When ready to make your purchase, the store can accept only cash. You do not carry cash in your wallet, and an automated teller machine is not readily accessible. Subsequently, you did not complete your purchase. Apply the same situation to units in an area of operations that do not

One $100 bill weighs approximately one gram (0.0022 lb.). A pallet of 640,000 bills ($64 million) weighs about 1,410 lb. (Photo courtesy of the U.S. Treasury Department)

have a supply of cash or are otherwise not readily capable of employing cash when needed. These units cannot sustain operations or continue their mission due to a lack of means.

Part Two: Formulating Application

Classes of supply. Despite the prospect of units being short of cash, there is no supply planning category for cash. Joint Publication 4-09, *Distribution Operations*, defines classes of supply as "the ten categories into which supplies are grouped to facilitate supply management and planning."[39] Table 2 (table 4-1 in Department of the Army Pamphlet 710-2-2, *Supply Support Activity Supply System: Secondary Item and Retail Level Procedures*) describes the ten classes of supply.[40]

Details on each subclass are in table 1-1 of Army Techniques Publication (ATP) 4-42.2, *Supply Support Activity Operations*, and figure G-4 of ATP 5-0.2-1, *Staff Reference Guide Volume I*.[41] The Army deeply embeds supply classes into the science of planning. Cash is absent in the ten groupings within the classes of supply, yet it is undeniably interrelated with logistics tasks as a medium of exchange for the materiel of every category. ATP 5-0.2.1 contends that "early estimation of critical classes of supply required to sustain operations is necessary for any planning effort. Maintenance of the running estimate for the sustainment section covers estimated consumption of all classes of supplies."[42] The availability of funding or cash is integral to the availability of supplies and sustainment at decisive points in an area of operations. Therefore, cash is worthy of designation as a commodity in the classes of supply to foster feasible plans that enable freedom of action, extend operational reach, prolong endurance, and reduce risks.

The commodity of cash. There is a long history of using coins and cash as a medium to exchange for goods and services that dates back to at least the first millennium.[43] Using coins and cash played a prominent role in almost every military conflict. At one point, the U.S. Army even heralded money as a weapons system.[44] However, from a firmer definitional perspective, money is "a commodity accepted by the general

Table 2. Classes of Supply

Classes	References
Class I – Perishable and semi-perishable items. Rations that are packaged as individual or group meals, and gratuitous health and welfare items.	AR 30–22; ATP 4–41, and ATP 4–42
Class II – Clothing, individual equipment, tentage, tool sets and tool kits, hand tools, administrative, and housekeeping supplies, and equipment. This includes items of equipment, other than major items, prescribed in authorization/allowance tables and items of supply (not including repair parts).	AR–700–84, CTA 50–900, CTA 50–970
Class III – Petroleum, oils, and lubricants, petroleum and solid fuels, including bulk and packaged fuels, lubricating oils and lubricants, petroleum specialty products; solid fuels, coal, and related products.	AR 703–2, ATP 4–43
Class IV – Construction and Barrier Material. The Class IV supply category includes fortification materiel, obstacle and barrier material, and construction material for base development and general engineering.	DoDD 5101.12E DoD Executive Agent for Class IV, Construction and Barrier Materiel
Class V – Ammunition, of all types (including chemical, radiological, and special weapons) bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items.	AR 190–11, AR 700–20, AR 700–8, AR 5–3, 4–1, AND ATP 4–42
Class VI – Personal demand items packaged as health and comfort packs.	AR 710–4, Army Techniques Publication (ATP) 4–41, and ATP 4–42
Class VII – Major items: A final combination of end products which is ready for its intended use (principal item) (for example, launchers, tanks, mobile machine shops, vehicles).	AR 710–1, supply bulletin (SB) 700–20 appropriate authorization documents
Class VIII – Medical materiel, including medical peculiar repair parts.	AR 10–61, CTA 8–100
Class IX – Repair parts and components, including kits, assemblies, and subassemblies, repairable and non-repairable, required for maintenance support of all equipment.	AR 710–1, DA Pam 708–2, DA Pam 710–2–2, appropriate TMs
Class X – Materiel to support nonmilitary programs, such as agricultural, and economic development, not included in Classes 1 through 9.	CTA 50–909

(Table from DA PAM 710-2-2, *Supply Support Activity Supply System: Secondary Item and Retail Level Procedures*)

consent as a medium of economic exchange. It is the medium in which prices and values are expressed. … It circulates from person to person and country to country, thus facilitating trade, and it is the principal measure of wealth."[45] Underlying considerations about the definition and addition of cash as a class of supply are academic characterizations of commodity, representative, fiat, managed, and token money.[46] The commodity, gold standard no longer applies to the full faith and credit of U.S. currency.[47] The U.S. currently uses a floating currency value influenced by three levels in the monetary system: "(1) the holders of money (the 'public'), (2) commercial banks, and (3) central banks."[48] The three levels do not directly apply to the U.S. military services; therefore, to use the same conceptual underpinnings, an attempt to relate those levels to military operations is necessary. The holders of the money within these levels are military headquarters, operating agencies, units, and end users. Military financial managers facilitate the functions of commercial banks and leverage commercial banks for various purposes. Congress, the U.S. Treasury, and the Federal Reserve System split the role of the central bank.

The central bank component pulls the evolution of monetary aggregates, monetary base, and money supply into the conversation. The U.S. Federal Reserve Bank views the money supply in simplest terms as "the total amount of money—cash, coins, and balances in bank accounts—in circulation."[49] Even within the basic description, the money supply is categorized into parts that comprise the aggregate amount of money in

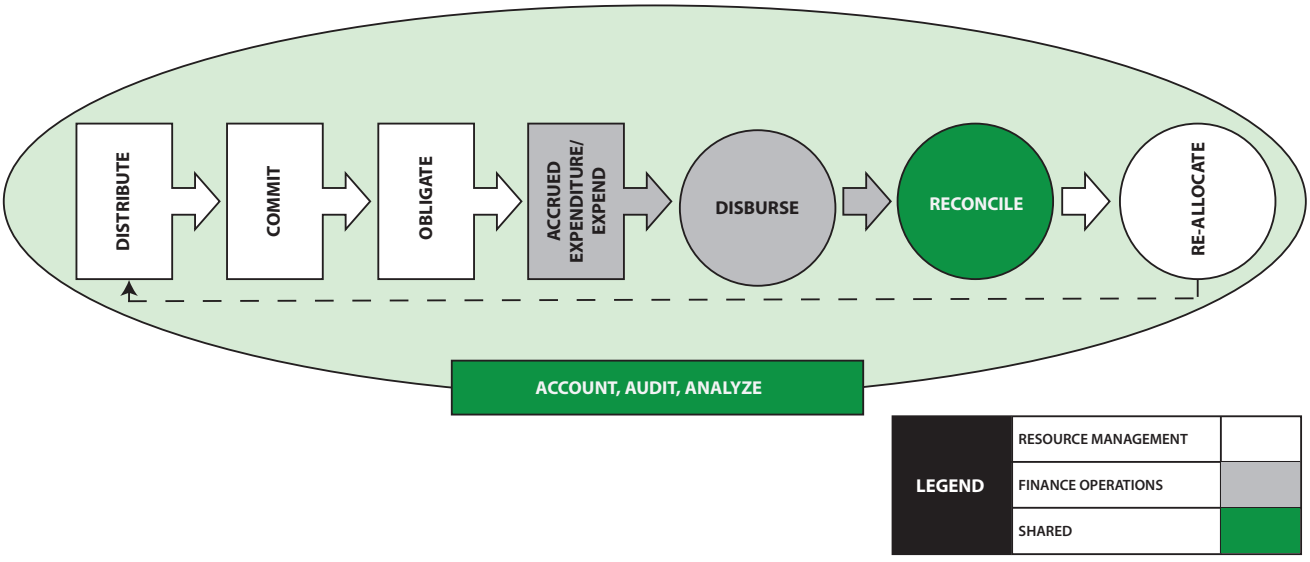
circulation. The International Monetary Fund reasons that when "constructing broad-money aggregates, it is necessary to evaluate the degree of *moneyness* of a wide array of financial assets, focusing on the extent to which each type of financial asset provides *liquidity* and a store of value. Liquidity refers to the extent to which financial assets can be sold at, or close to, full market value on short notice."[50] To allow that assessment and to inform monetary policy, the Federal Reserve Bank uses "several standard measures of the money supply, including the monetary base, M1, and M2."[51] The U.S. approach to money supply carries the most weight given its long-held status as the world's reserve currency, with ~60 percent of reserves composed of U.S. dollars.[52] The status elevates these standard measures used as a distinct gauge of the availability of money supply. To elaborate further, the Federal Reserve views the standard measures in the following ways:

> **The monetary base:** The sum of currency in circulation and reserve balances, or deposits held by banks and other depository institutions in their accounts at the Federal Reserve.
> **M1:** The sum of currency held by the public and transaction deposits (inclusive of currency held by the public and transaction deposits—a category that includes balances held in checking accounts and other very liquid deposits) at depository institutions (which are financial institutions that obtain their funds mainly through deposits from the public, such as commercial banks, savings and loan associations, savings banks, and credit unions) and branches of foreign banks operating in the United States.
> **M2:** M1 plus small-denomination time deposits (those issued in amounts of less than $100,000) and retail money market mutual fund shares.[53]

The descriptions of the measures make it clear that the United States uses a well-established approach to money supply data, analysis, and planning. The driving aspect of options determined through these money supply activities revolves around the measure of liquidity or the immediacy of available resources to spend. The measures demonstrate a methodology that starts with a narrow portion of the monetary aggregate that is easy to access and progressively becomes broader with decreased or diminished accessibility. The monetary base consists of readily available cash, while M1 and M2 funds require more time to access. The measures described do not represent the entire monetary aggregate; additional broader categories could increase the inclusiveness of all financial assets. The United States currently uses the stated measures; however, in the past, the United States had monetary aggregate measures from M0 (monetary base) to M7.[54] The U.S. government used these categories in the past to determine the amount of U.S. assets abroad in the operational environments of the two world wars, the Cold War, Persian Gulf War, and Global War on Terrorism. The evolution to the current three measures is a model that informs multiple levers to either ease or restrict the availability of money for end users.

The supply chain of cash (PPBE). A review of the aspects of the Army sustainment WfF, classes of supply, and the commodity of cash provides nearly enough background to develop a framework for cash as the eleventh (XI) class of supply. The remaining area to expand on is the PPBE process. The process is the military supply chain for cash. The planning, programming, and budgeting phases must occur before the congressional enactment of a funding bill that resources the Army. After the enactment, financial managers perform the execution phase—the "E" in PPBE.[55] While most of the time, budget execution uses an EFT, there are times when cash payments are required and provide flexibility. AR 1-1 and FM 4-80, *Financial Management Operations*, explain the mechanics of executing funding. AR 1-1 specifically states that the funding execution process involves the following:

a. Apportioning, allocating, and allotting funds.
b. Obligating and disbursing the funds.
c. Reporting and reviewing the effectiveness of executing them
d. Performing in-progress evaluations and making course corrections to reallocate resources to meet changing requirements that develop during execution.
e. Reprogramming funds to finance unbudgeted requirements that result from changed conditions unforeseen when submitting the budget and having higher priority than the requirements from which funds are diverted.[56]



(Figure by author; based on figure 4.3, "Stages of Transaction," FM 4-80, *Financial Management Operations*)

Figure. Proposed Funding Execution Life Cycle

The excerpt above outlines the activities to perform funding execution. Another basic description of funding execution is the stages of a transaction found in FM 4-80, which views the stages as authorization, commitment, obligation, accrued expenditure/expense, and disbursement.[57] To provide shared understanding, a commitment is an "administrative reservation of funds where the funds certifying official certifies that funds are available for an approved requirement."[58] Obligations are the next stage in the process and are a legal reservation of funds that binds the government to make a payment.[59] "Several actions may lead to the incurrence of a legal obligation (for example, the acceptance of a DD Form 448 [Military Interdepartmental Purchase Request] or the issuance of a travel order)."[60] A financial manager must know the accurate status of funds available after obligations are disbursed by EFT or in cash to determine how much funding is available for additional requirements.

An alternate way of referring to funding execution stages not found elsewhere is the funding execution life cycle (see the figure). The choice of terminology stems from AR 1-1 viewing appropriations as a life cycle.[61] The funding execution life cycle melds the two similar accounts of funding execution into one model by laying out the stages as distribute, commit, obligate, expend, disburse, reconcile, and reallocate. Financial managers execute these life cycle stages when they account for, audit, and analyze funding by decoding the line of accounting. The graphical depiction of the funding execution life cycle shows that reconciling partial and final disbursed payments to the obligation amount allows financial managers to attempt to reallocate funding to pay for more goods and services. Distribution starts the funding execution life cycle, which involves the funds control process to ensure the four ceiling amounts for (1) appropriations, (2) apportionments, (3) allocations, and (4) allotments. These ceilings set the amounts available to commit and obligate at any given time based on the fund balance with the U.S. Treasury.[62] Financial managers later determine if commitments or obligations resulted in a disbursed payment and if any remaining funding is available to reallocate after relieving an obligation.[63]

The reconciliation stage directly connects to reviewing effectiveness and performing in-progress evaluations of budget execution to maximize the utilization of available funding. The frequency of reconciliation is continuous; however, it certainly is required in certain instances. In general, "when remaining or excess fund balances exist that cannot be explained, reconciliation may be required to compare all source documents with the entitlement and accounting systems."[64] Other conditions necessitating reconciliation are (1) incomplete contract, payment, or accounting information; (2)

Table 3. Proposed Additional Class of Supply

Class XI - Cash Supply: Forms of cash that resource all other classes of supply using the process to apply appropriated funds to the authorized program or purpose.	**References:** DoD Financial Management Regulation; AR 1-1
Class XI Subclasses	
Subclass A (M0) - Cash	
A1- U.S. Currency	**A5-** Currency with Sub-Agents
A2- Military Payment Certificates (Operational Currency)	**A6-** Digital Currency
A3- Foreign Currency 1	**A7-*AN*-** Additional Foreign Currencies
A4- In-Transit Currency	
Subclass B (M1) - Cash Instruments	
B1- Limited Depositary Accounts	**B6-** Government Purchase Cards
B2- U.S. Treasury Checks	**B7-** Government Travel Credit Cards
B3- U.S. Negotiable Instruments	**B8-** Pending Collections (Receipts, Reimbursements, & Refunds)
B4- Foreign Negotiable Instruments	**B9-** Non-Appropriated Fund Instrumentalities
B5- U.S. Debit Cards	
Subclass C (M2) - Budgetary Allotments	
C1- Undistributed	**C5-** Expenditure
C2- Distributed	**C6-** Undisbursed Obligation
C3- Commitment	**C7-** Disbursed
C4- Obligation	
Subclass D (M3) - Funded Program Allocations*	
D1- Undistributed	**D4-** Expired
D2- Distributed	**D5-** Canceled (Closed)
D3- Pending Reprogramming	**D6-** Pending Rescission
**Time period available for a funded program varies by appropriation type.*	

(Table by author)

insufficient funds; (3) un-recouped progress payment balances at or near contract completion; (4) possible overpayments; (5) unmatched disbursements; and (6) negative unliquidated obligations.[65] There are numerous examples of both financial management competencies reconciling regularly. Reconciliation prepares for the end of a funding period of availability, such as the end of a fiscal year, and ensures the fund balance with the U.S. Treasury remains accurate.

Establishing cash as a class of supply. Background on the sustainment WfF, an overview of classes of supply, defining aspects of money supply, and descriptions of the mechanics of budget execution provide a basis to detail a framework for cash as an eleventh (XI) class of supply. Table 3 shows the proposed addition to the classes of supply.

This proposal aims to stimulate discussion, initiate refinement, and present a concept for integrating cash as a class of supply. Establishing a compatible framework enhances sustainment synchronization and improves the common operating picture by explicitly linking funding as a precursor to supply procurement reflected in the LOGSTAT. The cash planning framework features the foundational pillars of easing and restricting access to cash, debits (decreases), credits (increases), and a supply chain model. The addition starts by defining Class XI-Cash Supply as the forms of cash that resource all other classes of supply using the process to apply appropriated funds to the authorized program or purpose. References identified are the *DOD Financial Management Regulation* (DoD 7000.14-R) and AR 1-1. Adding Class XI-Cash Supply prompts a need to update Army regulations and doctrine that include sustainment planning, materiel management, resource management, and finance operations. The updates need to nest with higher-level references by adding to, but not taking away from, established parameters. The subclasses start with the most liquid form of cash supply as a part of the monetary aggregate that is immediately available.

Subclass A (M0)-Cash includes **A1**-U.S. Currency, **A2**-Military Payment Certificates (Operational Currency), **A3**-Foreign Currency 1, **A4**-In-Transit Currency, **A5**-Currency with Sub-Agents, **A6**-Digital Currency, and **A7 to AN**-Additional Foreign Currencies.[66] Disbursing accountability forms mostly guide the selection of these cash categories. The pertinent disbursing forms are the Department of Defense (DD) Form 1081 (Statement of Agent Officer's Account), DD Form 2665 (Daily Agent Accountability Summary), DD Form 2657 (Daily Statement of Accountability), and Standard Form (SF) 1219 (Statement of Accountability).[67] It is worth noting that the SF 1219 transitioned to the Financial Management Service (FMS) Form 1219/1220 Process and Report, and the U.S. Treasury anticipates eliminating the reporting requirement.[68] Subclass A also includes a placeholder for digital currency to posture for potential future use. The U.S. government started evaluating a Central Bank digital currency at the beginning of 2022.[69]

Subclass B (M1)-Cash Instruments start to account for less liquid forms of the cash supply. The subclass categories are **B1**-Limited Depositary Accounts, **B2**-U.S. Treasury Checks, **B3**-U.S. Negotiable Instruments, **B4**-Foreign Negotiable Instruments, **B5**-U.S. Debit Cards, **B6**-Government Purchase Cards, **B7**-Government Travel Credit Cards, **B8**-Pending Collections (Receipts, Reimbursements & Refunds), and **B9**-Non-Appropriated Fund Instrumentalities. The cash instruments again contain components that appear on disbursing forms for the initial four components. The subclass also recognizes units and end users accessing funding with U.S. debit cards, government purchase cards, and government travel credit cards. Pending collections involve increases to cash in **Subclass A** from receipts, reimbursements, and refunds.[70] The last component of the subclass accounts for the funding from nonappropriated fund instrumentalities.[71]

Subclass C (M2)-Budgetary Allotments and **Subclass D (M3)**-Funded Program Allocations work in conjunction with each other based on appropriations and apportionments to ensure the distribution stage of the funding execution life cycle does not allow spending above and beyond available resources. Available budgetary allotments "authorize users to place orders and award contracts for products and services to carry out approved programs."[72] Placing orders and awarding contracts are vehicles that obligate funding. An expenditure occurs next upon documentation of the delivery of goods or services. As mentioned, financial managers determine the amounts undisbursed or disbursed from the obligations. An aspect of cash supply planning is whether orders or contracts need payment in U.S. or foreign currency. The requirements to make currency payments directly tie to **Subclass A**-Cash. The analysis of commitments and obligations leads to determining upcoming payments that need different types of currency and which locations require currency payments.

Subclass D (M3)-Funded Program Allocations return to the requirement to maintain ceilings during the distribution of funds limited by the appropriations and apportionments. Headquarters, Department of the Army distributes funded program allocations and determines the adjustments to budgeted top-line amounts based on congressional marks, reprogramming actions, or rescissions.[73] Funded programs are subject to time periods from the life cycle of appropriations that determine the deadline to create new obligations. The life cycle imposes restrictions on the Army from the funding when an appropriation is in a closed or canceled status.[74] **Subclass D**, in essence, is the starting point for the cash supply chain and governs the subsequent distribution.

A Class for Cash

In summary, examining a framework for cash as a class of supply identified the numerous facets influencing the amount of means (resources) to make cash payments at the point of need. Inadequate funding accountability in the past encourages establishing cash as a class of supply to achieve auditability. As proposed, the Class XI-Cash Supply prompts dialogue, advances refinement, and initiates an addition to the methodology for sustainment planning synchronization, coordination, and integration. Cash supply is a critical aspect of the sustainment WfF when an EFT is impossible in a denied, degraded, intermittent, or limited environment. Cash supply planning ultimately empowers the tasks and systems of the sustainment WfF to enable freedom of action, extend operational reach, and prolong endurance. The Lykke model identifies that an imbalance

between ends (objectives), ways (concepts or options), and means (resources) introduces a risk to mission or forces. The inclusion of cash as a class of supply mitigates risks from imbalances to support the mission and forces by better forecasting the decisive points that require means (resources). ■

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Discover the Eastern European roots of the First World War in *The Vials of Wrath: Eastern European Origins of the First World War.* Explore how Balkan tensions, nationalism, and regional conflicts contributed to the outbreak of World War I. Perfect for history enthusiasts and students alike, this documentary sheds light on lesser-known causes of one of the most significant conflicts in modern history. To view *The Vials of Wrath,* scan the QR code or visit https://www.youtube.com/@ArmyUniversityPress.

Soldiers from the 627th Movement Control Team, 16th Sustainment Brigade, 21th Theater Sustainment Command, guide combat equipment aboard railcars on 30 March 2022 in preparation for onward movement. The equipment, belonging the 3rd Battalion, 4th Infantry Division, arrived at the port in Vlissingen, Netherlands, and was subsequently moved to locations in Europe as the unit prepared for its nine-month deployment in support of Operation Atlantic Resolve. (Photo by Jeff Jurgensen, U.S. Army)

Sustaining the Fight

How the 21st TSC Supports Ukraine's Defense

Lt. Col. Ryan P. Hovatter, U.S. Army National Guard

"First in Support" has been the 21st Theater Sustainment Command's (TSC) motto since its inception at a time when the Soviet Union was not only the greatest threat to peace in Europe but also to American security. The 21st TSC's primary focus has been supporting U.S. forces in Europe and Africa with secondary support to U.S. operations in the Middle East. After Russia's 2022 invasion of Ukraine, supporting the Ukrainian military became the 21st TSC's top priority. As the war in Ukraine passes its third year, it is worth looking at the initial efforts of the 13,800 soldiers, civilians, local nationals, and contractors that make up the 21st TSC. What follows is an assessment of the successes and lessons learned during the first two years in which the 21st TSC played a vital role in efforts to counter Russia's challenge to international order.[1]

Before Russia launched its attack in February 2022, the 21st TSC had been busy with the reception, staging, onward movement, and integration (RSOI) of rotational deploying units, including armor brigade combat teams, a combat aviation brigade, the two Army National Guard brigade combat team headquarters that performed the Kosovo Forces and Joint Multinational Training Group-Ukraine missions, and the many other companies and detachments that made up Atlantic Resolve's Sustainment Task Force. The command also supported the summer influx of short-term deployments of units in the Defender-Europe exercises. While these were no easy tasks, all these deployments were planned well in advance, giving the 21st TSC time to coordinate the use of ports, obtain cross-country clearances, and establish life support areas, among other essential tasks.

The 21st TSC also found itself at the center of U.S. Army Europe and Africa support to the two major crises of 2020 and 2021: the COVID-19 pandemic and the fall of the Islamic Republic of Afghanistan. As the Department of Defense and the rest of the world dealt with life under COVID-19, the 21st TSC had a significant role in providing guidance and quarantining service members upon arrival in Europe. The virus remained a concern for several years, with German mask mandates on public transportation and medical facilities only being lifted in early 2023.[2] Beginning in August 2021, the command was nearly stretched to its limit while supporting the sudden arrival of almost thirty-five thousand Afghan refugees to Ramstein Air Base and Rhine Ordnance Barracks.

While the 21st TSC continued the rotation of units for exercises and operations, dealt with COVID, and managed Army support to refugee operations, it also looked toward shaping the future operational environment. Maj. Gen. James M. Smith, the commanding general from June 2021 to June 2023, stated, "We make continued efforts to … set the theater, and ensure that we've got the right sustainment capability" where it needs to be.[3] Resetting the theater included major efforts like activating an Army Prepositioned Stock (APS) site to store an entire armored brigade combat team's (ABCT) worth of equipment and a munitions storage area at Powidz, Poland. After nearly three years of construction, the APS site known as the Long-Term Equipment Storage and Maintenance-Complex opened in April 2023.[4]

The 21st TSC considered the observable escalating Russian provocation in its plans to reset the theater and bring in rotational forces. It was in this environment that Russia shook the world with its full-scale invasion of Ukraine.

The Russian invasion of Ukraine was not a complete surprise to U.S. Army Europe and Africa and the 21st TSC. Instead, the United States and its allies watched as Russia slowly built up its equipment near the border and tested NATO and Ukrainian resolve with large-scale exercises. Western media began covering the Russian military buildup in Crimea and along the Russian and Belorussian borders of Ukraine as early as April 2021, eight months prior to the invasion.[5] Russian President Vladimir Putin brushed off invasion concerns, expressing that Russia was merely conducting troop exercises. Despite reassurances, Russia continued to leave military equipment in place while only returning troops to their bases away from the Ukrainian border.[6] By December 2021, Western and Ukrainian officials worried that the buildup was a prelude to invasion.[7] President Joseph R. Biden vowed on 2 January 2022 that the United States and its allies would act decisively if Russia invaded Ukraine.[8] The White House also accused Russia of sending saboteurs into Ukraine in the first week of January as they amassed more than one hundred thousand troops along the border.[9]

As most soldiers were about to enjoy their four-day pass for the Martin Luther King Jr. holiday weekend,

Soldiers from the 260th Movement Control Team, 16th Sustainment Brigade, receive a safety brief from the 838th Transportation Battalion Surface Deployment and Distribution Command on 10 January 2023 as they prepare to assist with the transport, offload, and processing of over 1,250 equipment items assigned to the 2nd Armored Brigade Combat Team, 1st Calvary Division, at the port of Vlissingen, Netherlands. (Photo by Staff Sgt. Daniel Yeadon, 16th Sustainment Brigade)

Smith directed a small element of the staff to prepare a space to conduct prudent planning. It was a premission analysis to determine what tasks the 21st TSC would need to accomplish if Russia invaded Ukraine. Space was already set up in the simulations training building at the 21st TSC headquarters on Panzer Kaserne, Kaiserslautern, Germany, as staff was already preparing to begin mission analysis right after the four-day weekend in preparation for a multinational command post exercise. Over the weekend, the small team prepared the room for a classified setting by running cables, setting up SIPR workstations and printers, and exchanging maps of the exercise area for those of Ukraine, Poland, and Romania.

The premission analysis began Tuesday, 18 January, with an intelligence brief to the staff. This was the first time the entire staff was brought together for the potential crisis. Mission assumptions came together quickly. Planners believed that before an attack, the 21st TSC would need to move units within theater—including squadrons of the 2nd Cavalry Regiment and battalions of the 173rd Airborne Brigade—to forward sites in Poland, Romania, and other countries bordering Ukraine, Russia, and Belarus. The command expected to move a rapid reaction force of infantry or armored forces from the United States to Europe to bolster NATO allies and further deter Russian aggression and anticipated the use of APS and supplying Ukraine with arms and ammunition.

The 21st TSC was also expected to support a massive evacuation of noncombatants. At this point, the command had just finished supporting Afghan refugees in the Ramstein/Kaiserslautern area two-and-a-half months prior on 30 October 2021. The thirty-five thousand Afghan refugees who entered Germany through Ramstein Air Base had placed an enormous strain on both the 21st TSC and the U.S. Air Force 86th Airlift Wing.[10] Estimates showed that as many as thirty thousand American citizens were in Ukraine, and although U.S. Secretary of State Antony Blinken later stated that the United States would not enter Ukraine to evacuate Americans if there was a war, the United States had to prepare to receive refugees in the countries bordering Ukraine.[11]

The staff developed a concept of sustainment that could enable several presidential options that mainly differed in the number and type of combat troops moving further east to deter Russian aggression against NATO countries. Smith believed that if Russia attacked, then noncombatant evacuation operations would occur quickly. He wanted U.S.-based rapid response forces to land directly in Poland, bypassing Ramstein Air Base and the Army's Deployment Processing Center in Kaiserslautern.

There was an understandable urgency about the situation. The day after developing the concept of sustainment, Smith briefed Gen. Edward M. Daly, the Army Materiel Command commander, on 24 January about the plan to reset the theater, move and issue APS, and support potential American evacuees. However, an hour before Daly arrived for the situation brief, it was found that some of the planning team tested positive for a variant of COVID-19. With little options to replace individuals, the officers and NCOs coped with sickness and delayed testing before eventually being relieved to quarantine. On the same day, Secretary of Defense Lloyd Austin placed 8,500 U.S. troops on alert for a rapid deployment to Europe to join the NATO Response Force.[12]

Eight days after placing troops on alert, Biden announced on 2 February that the response force was on their way to Europe to assure allies and deter further Russian aggression. In what became known as Operation European Assure, Deter, and Reinforce, the 3rd Brigade Combat Team (BCT), 82nd Airborne Division deployed to Poland. Another three hundred troops from the XVIII Airborne Corps, under the command of Lt. Gen. Michael E. Kurilla, deployed to Wiesbaden, Germany, to act as a joint task force headquarters. At the same time, V Corps ordered elements of the Germany-based 2nd Cavalry Regiment to reposition farther east. The 21st TSC supported the movement of a one thousand-soldier task force and its Stryker vehicles to Romania, Bulgaria, and Hungary.[13]

Within two days, 1,700 airborne reinforcements began arriving at the Rzeszów-Jasionka Airport on 4 February.[14] Another three thousand arrived about ten days later, completing the deployment of the entire 3rd BCT.[15] The 21st TSC received these troops and moved them to their forward operating sites where Area Support Group-Poland, the 191st Regional Support Group (Puerto Rico Army National Guard), and Logistics Civil Augmentation Program (LOGCAP) personnel from the 405th Army Field Support Brigade (AFSB) worked together to rapidly develop support areas. Capt. Dennis Kinney, the brigade support officer for the 3rd BCT, 82nd Airborne Division, reflected on LOGCAP support in establishing life support at a military airfield in Mielec, southeastern Poland:

> When it came to life support (billeting, laundry services, etc.), the logistics civil augmentation program, more commonly known as LOGCAP, was where we made our money. For the first three to four weeks paratroopers were on ground, it was difficult with unestablished life support, but after becoming fully operational, the life support assets vastly improved the overall quality of life for our paratroopers.[16]

While the 405th AFSB's LOGCAP team was engrossed in establishing life support areas in Poland and Romania, they also had to rapidly set up a headquarters site and living space for the XVIII Airborne Corps in Wiesbaden. The 405th AFSB's annual report stated that "within days of notification" government contractor KBR established a life support area for 250 soldiers and civilians by refurbishing an old post office building, erecting tents, and installing sixty-eight containerized housing units.[17]

As the Russian invasion seemed imminent, Austin ordered the evacuation of nearly all U.S. personnel within Ukraine. The major element there was a detachment of the 53rd Infantry Brigade Combat Team, a Florida Army National Guard unit performing the Joint Multinational Training Group-Ukraine mission. The 21st TSC contracted commercial trucks and buses to move the unit's 160 soldiers and equipment from Yavoriv military base in western Ukraine to Grafenwoehr, Germany.[18] They hastily evacuated along with Canadian troops just days before the Russian invasion. The urgency is illustrated by the fact that Russia struck the training base with some thirty cruise missiles, killing at least thirty-five Ukrainian military personnel on 13 March, just weeks after U.S. and Canadian trainers had left.[19]

As soon as Russia launched its attack on 24 February, Austin ordered another seven thousand U.S. troops to Europe.[20] A majority of those soldiers

included the entire 1st Armored Brigade Combat Team (ABCT), 3rd Infantry Division (ID), which deployed to Grafenwoehr.[21] The advanced party arrived on 28 February, and the trail party on 5 March. This unscheduled ABCT deployed to Europe within ten days.[22]

To expedite the unit's deployment, the 405th AFSB issued an entire ABCT's worth of equipment from APS out of the Coleman worksite at Mannheim and Dülmen, Germany. By June 2023, the Army Field Support Battalion-Mannheim would issue over five thousand pieces of equipment in support of Operation European Assure, Deter, and Reinforce.[23]

Forward sites like the Drawsko Pomorskie Training Area (DPTA) expanded temporary living quarters to house the incoming armor formations. DPTA went from about five hundred to six hundred soldiers to more than four thousand at a given time. Life support at DPTA was managed by a four-soldier team from the 191st Regional Support Group. Sgt. 1st Class Omar Cruz, the mayor of the U.S. support area, recalled, "The LSAs had to be ready for the soldiers with all of their equipment. We're talking about an armored brigade combat team coming out here and their equipment, they need tents for troops to sleep in, a dining facility, recreation areas, motor pools, and maintenance bays ready. We literally had [only] a month and a half to have everything ready."[24]

Biden again increased the U.S. troop deployment by another five hundred soldiers on 5 March, bringing the total of U.S. military in Europe to one hundred thousand.[25] By the end of March, the 21st TSC had facilitated the reception, staging, and onward movement of another armored brigade, the 3rd ABCT, 4th ID. Unlike the hastily alerted 1st ABCT, 3rd ID, this brigade was part of the preplanned nine-month rotational Atlantic Resolve mission and brought its equipment from the United States. Over two thousand equipment items were offloaded at ports in Greece, Denmark, and the Netherlands before consolidating at Grafenwoehr. This marked the first time that Europe had three U.S. armored brigades since 2007.[26] By this point, at the end of March 2022, U.S. Army combat brigades in Europe included the 1st ABCT, 1st ID; 1st ABCT, 3rd ID; 3rd ABCT, 4th ID; and 3rd BCT, 82nd Airborne Division; in addition to the permanently stationed 2nd Cavalry Regiment and 173rd Airborne Brigade.

In addition to increasing the U.S. troop presence in Europe, Biden issued a military assistance package for Ukraine immediately after the Russian invasion under the Presidential Drawdown Authority (PDA). Although Biden had issued two PDAs prior to the Russian invasion in August and December 2021, the pace of PDAs increased with such speed that there was an average of one PDA every two weeks over the next two years. By the end of 2023, Biden had issued fifty-four PDAs, totaling nearly $24 billion in aid.[27]

This presented a challenge for the 21st TSC, who had to receive, stage, and transport the PDA equipment and ammunition from stockpiles in the United States and Europe to its transfer points along the borders of Ukraine. PDA tracking remained a preeminent task for the 21st TSC throughout those two years. The equipment to be delivered in each PDA was urgently needed for Ukraine's defense, and early in the war, antitank missiles were among the most important. The United States committed to delivering more strategic assets as the war continued. The first HIMARS (High Mobility Artillery Rocket Systems) were transferred to Ukraine in June 2022, and later, combat vehicles like tanks, infantry fighting vehicles, and armored personnel carriers took precedence.

Just as the 21st TSC began to adjust to the new operational tempo, the command had to manage another major movement of troops and equipment. The division headquarters and two BCTs that were deployed for the Ukraine crisis in February and March were set to rotate back to the United States while an equal number of troops were deployed to take over responsibilities in the summer of 2022. This movement aligned with the ABCT and combat aviation brigade rotations supporting Atlantic Resolve. In just a few months, during the summer of 2023, the 21st

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Brig. Gen. Ronald Ragin, 21st Theater Sustainment Command commanding general, illustrates the unit's theater-wide support on a map of Europe to Gen. Randy George, then–vice chief of staff of the Army, on 25 August 2023 at the Coleman Army Prepositioned Stocks-2 worksite in Mannheim, Germany. (Photo by Cameron Porter, 405th Army Field Support Brigade–Europe and Africa)

TSC moved 21,400 soldiers between the United States and Europe and transferred more than a division's worth of equipment.[28]

The 21st TSC learned a great deal in the first months of Operation European Assure, Deter, and Reinforce. Lt. Col. Oliver Stolley, the 21st TSC Distribution Integration Branch (DIB) chief, and Capt. Daniel McCall noted the significant changes the rapid deployments spurred in the 21st TSC. Before the war, continental U.S.-based BCTs deployed on a predictable schedule with as much as a year to prepare. Stolley and the DIB realized they had to communicate real-time information to facilitate rapid deployment of units. His branch created an "RSOI suite of tools," using Microsoft Teams to share the 21st TSC concept of sustainment, an RSOI handbook, contact rosters, and other resources with alerted units. Among the tools were even a draft sustainment plan (titled "Annex F") for units to use for their deployment operation orders. The DIB began sharing the RSOI suite with incoming units in April 2022. One year later, the DIB reported they had shared the information via Teams pages with eleven brigades, and the resulting collaboration and better awareness proved its effectiveness.[29]

By the end of the summer of 2022, the 21st TSC had adapted to the new operational environment. The movement of PDAs, although remaining strategically important, had become a routine series of coordinated tasks. While supporting the PDA movements to Ukraine and the frequent BCT and combat aviation brigade rotations, the 21st TSC worked toward other means of using the sustainment warfighting function to assure allies and deter Russian aggression.

Throughout 2022 and 2023, the 21st TSC tested sustainment nodes and expanded its lines-of-communication network.[30] The command used ports all over Europe to disembark equipment for deploying units. Some examples show the diverse ports selected. The 21st TSC moved more than 2,400 armored vehicles and major pieces of equipment belonging to 2nd ABCT, 1st ID through the ports of Thessaloniki and Alexandroupoli, Greece, and Gdynia, Poland,

to forward operating sites in Poland in November 2022.[31] Throughout late March and early April 2023, nearly two thousand pieces of equipment from the 3rd Combat Aviation Brigade entered Europe through the ports at Esbjerg, Denmark; Riga, Latvia; and Thessaloniki, Greece.[32] Both of these operations exercised and validated the lines of communication stretching from Greece to Poland through the Carpathian Mountains and the tried-and-true ports in the North and Black Seas closer to Poland where the majority of U.S. forces were deployed.

Other movements through the ports of Bar, Montenegro, and Koper, Slovenia, were intended to open new options and encourage better port, rail, and road investment by the host countries.[33] In December 2023, the 21st TSC redeployed five hundred equipment items belonging to 1st Infantry Brigade Combat Team, 101st Airborne Division, from their forward operating site in Estonia to the port of Setubal, Portugal, which marked the U.S. military's first use of the port and tested the 21st TSC's ability to change rail gages upon entering the Iberian peninsula.[34]

Moving units into Europe is a massive effort for the 21st TSC. Smith described the synchronization it takes for "thousands and thousands" of soldiers, civilians, and contractors from the U.S. military and host nations "to receive equipment at a certain port, to load the equipment on a certain conveyance, and then to move the equipment to its final destination."[35] The typical RSOI involved the following:

- The 598th Transportation Brigade (Surface Deployment and Distribution Command) coordinated the movement of equipment by ship to European ports, where the 21st TSC was responsible for receiving vehicles, equipment, and containers from vessels and then staging and transporting these to forward operating sites across Europe.
- The 267th Theater Movement Control Element managed transportation via rail, line haul, or barge.
- Security teams from the 16th Sustainment Brigade and the 18th Military Police Brigade provided escorts for sensitive equipment.
- Personnel from incoming units flew into Ramstein or another airport where human resources, medical, and financial management elements from the 21st TSC accounted for and assisted arriving soldiers.
- The 409th Contracting Support Brigade provided crucial contracts with local vendors and support groups in the Balkans, Black Sea, and Poland, and the LOGCAP professionals provided life support to troops and units once they arrived at their forward operating sites.[36]

Nearly one and a half years into the operation, Smith turned the command of the 21st TSC over to Brig. Gen. Ronald Ragin on 7 June 2023. Ragin, who was soon after promoted to major general, had been closely involved in Ukraine support while serving as the deputy commanding general for support in the Security Assistance Group-Ukraine.[37]

The challenges met over these two years were not done without fault. Vehicle accidents spiked after the invasion as the increased equipment and ammunition movements demanded soldier escorts of sensitive equipment and ammunition. Coordinating convoy security proved more difficult than anticipated. Because there was not a dedicated element to provide security escort, a rotating roster of soldiers from different units created confusion and frustration. Adding to the confusion were the multiple layers of communication from the 21st TSC headquarters and the 267th Theater Movement Coordination Center through the brigades down to the escort teams. The communication problems were not just from the 21st TSC headquarters down to the team sergeant, there were many delays in getting the contracted transports moving and also frequent language and communication barriers between contracted truck drivers and the soldier escorts. To add to the complexity, many convoys started from Mannheim or Miesau with the soldier details frequently coming from Baumholder or Grafenwoehr. This meant the security teams had already driven two to five hours before even linking up with the convoy. To make matters more dangerous, the convoys had to drive at night. Delayed timetables or even an error in the reporting time could cause soldiers to stay awake for twenty-four hours.

In one tragic mishap from the first months of Ukraine war support, a soldier—having just finished escorting a convoy in Germany and likely awake for nearly twenty-four hours—crashed into another vehicle outside of Grafenwoehr, killing a local German driver.[38] In another instance, a soldier team escorted a convoy hauling M1 Abrams to Grafenwoehr to be delivered to the 1st ABCT, 3rd ID during the middle of the night. A

A Light Medium Tactical Vehicle is loaded onto the *Ocean Grand* general cargo ship by crane on 7 December 2023 at the Port of Setubal, Portugal. This mission, the first ever military operation conducted in Setubal, was a collaboration among the 21st Theater Sustainment Command, the 598th Transportation Brigade, the Portuguese military and port authority, and the U.S. Mission to Portugal. It served to validate the port for future operations, connecting the farthest point in eastern Estonia to the furthest west port in Portugal. (Photo by Sgt. Andrew Jo, 21st Theater Sustainment Command)

German police officer stopped the convoy near a bridge and told them they needed to cross one transport at a time.[39] The escort team consisted of only two soldiers who needed to secure both sides of the bridge but only had one vehicle. When the contracted truck drivers offered to take one of the soldiers across the bridge, the young male sergeant refused to place the female specialist with any of the truck drivers out of concern for her safety; it was dark, the convoy was long, and the sergeant did not know the foreign truck drivers. The 21st TSC battle major pleaded with the sergeant and the German police officer to solve the problem and get the convoy moving before daylight, but it failed to change the situation. The convoy was grounded until another security team arrived to assist the next evening.[40]

Some security details even became separated from their convoys because they lacked communication with the contracted truck drivers. While security escort procedures have improved, there is still work to do. After realizing how far the escort teams were traveling to and from their details, temporary barracks were set aside for teams to stay overnight; this ensured the teams were better rested before their missions. Furthermore, when Ragin assumed command, he made improving the operations center with revised processes and system upgrades to better track assets and movements as one of his top priorities.

Poor processes and procedures across the command were quickly brought to light after the Russian invasion. Another major issue was with the APS issue to the 1st ABCT, 3rd ID. The APS draw for an entire ABCT was unprecedented although imperfect. A Department of Defense inspector general report found several major areas of concern: less than 90 percent of equipment was fully mission capable and 20 percent of equipment was missing crucial basic issue items.[41]

While the 405th AFSB issued equipment at a rapid pace, nine days ahead of Army Materiel Command's forty-five-day requirement, the problems with equipment readiness exposed issues with long-term storage where everything from flat tires, fluid leaks, and

rodent infestations could deadline a vehicle. The report found that inspections, preventative maintenance, and exercising equipment had not been done according to regulations. The report also found that there were no clear equipment drawing procedures, and the 405th AFSB and the 1st ABCT had not coordinated procedures and timelines in advance. The inspector general recommended the 405th AFSB develop or update maintenance processes, including ways to exercise equipment, and provide guidance to receiving units.[42] The 405th AFSB used these lessons and recommendations to develop an "APS-2 Equipment Issue and Turn-In Standard Operating Procedure" by the end of 2023.[43] Despite these issues, leaders in the 1st ABCT told investigators that "the 405th AFSB workforce aggressively worked to fix vehicle faults during issuance."[44]

There is no doubt that the war shook the dust from where it had collected. As Smith stated, the war in Ukraine "allowed us to see ourselves and help capitalize on some of the lessons learned."[45] The 21st TSC used these lessons to fix processes, better share information, and collaborate with incoming and outgoing units, as evidenced by the DIB's and 405th AFSB's efforts.

The 21st TSC staff not only learned from their successes and failures in providing support to Ukraine and conducting RSOI of a substantial number of units but has also been able to observe lessons from the war in Ukraine. The 21st TSC expanded sustainment node options and partnerships with allies and continued to use the sustainment warfighting function as a deterrent. The command's ability to provide humanitarian assistance has drastically improved while the scale has drawn down. The 21st TSC continues executing mission command of operational sustainment across the European theater while increasing its abilities to project power in a contested environment. At the time of this writing, the 21st TSC continues to manage refugee operations and support Ukraine in its defense against Russia. ■

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Sgt. Rahjeem Dixon (*left*), a broadcast specialist assigned to 22nd Mobile Public Affairs Detachment, XVIII Airborne Corps at Fort Bragg, North Carolina, walks down a trail with Capt. Orlandon Howard, public affairs officer for 2nd Armored Brigade Combat Team, 1st Infantry Division, during an Allied Spirit VII training exercise at Grafenwoehr, Germany, on 18 November 2017. (Photo by Spc. Dustin D. Biven, U.S. Army)

Communication Strategery

Rethinking Strategic Communication for U.S. Military Public Affairs

Lt. Col. Orlandon Howard, U.S. Army

Military public affairs contribute to defense security by communicating information and fostering productive relationships with internal and external stakeholders to affect their knowledge, attitude, opinions, or behavior toward the organization's strategic goals. Its relevance spans the entire conflict continuum from peace to war because words and images wield more power than weapons, and relationships are significant force multipliers.

Nevertheless, history has shown that military public affairs, as the United States designed it, is too meager to be effective in hotly contested information environments. It's a knife in a machine-gun fight. The military should trade its public affairs doctrine for a new version of strategic communication to enable it to live up to its potential.

Public Affairs' Emergence

Military public affairs officially began in 1946.[1] It was born out of World War II lessons that highlighted the need for increased competency within the military ranks in conducting mass communication activities for internal and external audiences. Before the war, the military depended on civilians with different communication skills who served as reservists to conduct public information activities. The value of their activities during the war convinced the military it needed more full-time in-house capabilities.[2]

Over time, the military transitioned from using "public information" to "public affairs" to better reflect the field's expanding responsibilities.[3] The discipline's scope grew beyond activities like media relations and journalism. It started to include internal relations and community and civic relations, more closely resembling the civilian sector's version of public relations. However, public relations was off-limits to the military due to its association with publicity and propaganda in public perception.[4] The 1913 Gillett Amendment prohibited the government from using resources for these activities.[5] Public affairs offered a middle ground between public information and public relations in terms of its associated activities. Public affairs could do more than deliver basic facts. It could communicate for various objectives as long as it avoided self-promotional or propagandizing activities.

Public Affairs' Operational Potential

Soon, the military realized it could also use public affairs to achieve operational objectives. As the operational and information environments became more complex, so did expectations of public affairs.

In 2000, John F. Kirby, a U.S. Navy officer who later became the national security coordinator for strategic communications at the National Security Council, published an essay titled "Public Affairs as an Operational Function."[6] Against the backdrop of the Yugoslav wars and U.S. interventions in Somalia and Haiti, Kirby argued that public affairs was a critical force multiplier that needed to be operationalized for a military operation to thrive in a fiercely contested information environment. He quoted a senior officer who poignantly captured the sentiment: "We need to have PAO [public affairs officer] warfighters, folks, and a plan that are as nasty as the enemy."[7]

The sentiment spread during the Global War on Terrorism (GWOT). Military and civilian leaders realized they needed more than public affairs as it was conceived to achieve their strategic objectives. Hearts and minds became critical domains in the combat theater, on the international stage, and, most importantly, at home.[8]

Public Affairs' Weak Sauce

Despite the supposed Goldilocks position public affairs negotiated between public information and public relations, Donald Rumsfeld, the secretary of defense during the invasions of Afghanistan and Iraq, complained that public affairs was ineffective at communicating and managing the United States' reputation surrounding the wars.[9] He suggested public affairs was conditioned to be reactive and sterile. Rumsfeld wanted

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more proactive and sophisticated communication initiatives to navigate the complex information environment it faced.

Rumsfeld's concern became palpable when support for the Iraq war quickly atrophied after the initial euphoria. In the early weeks, a Pew Research survey reported 90 percent of respondents believed the war was going well.[10] However, only 60 percent felt the same way several months later. The insurgency and the prospect of a prolonged conflict led to widespread disillusionment. Soon after, the United States' perception-management problems surrounding the conflict worsened. One year after the invasion, a pair of events captured on video and photos gained widespread attention through television and the internet, further damaging perceptions of the war effort.

The initial incident happened in March 2004, when four American contractors were brutally murdered and their corpses desecrated in a savage display of anti-American hostility in Iraq.[11] The other event came to light two months later in May, when pictures emerged of U.S. forces abusing prisoners in the Iraqi prison, Abu Ghraib. A poll conducted later that month assessing public opinion on the war revealed a decline below 50 percent of Americans who believed the conflict was going "at least fairly well," according to Pew Research (see figure 1).[12]

Digital Mass Media Revolution—Seismic Changes to the Information Environment

A new digital media revolution had emerged during the Iraq War, significantly influencing the conflict and shaping war perceptions. This era marked the onset of hyperportability, shareability, and viewability of media content. Videos and images could be downloaded, shared, and viewed at will, countless times, by anyone with internet access. Internet users also increased from under five hundred million in 2001 to one billion in 2005, with Asia being the fastest-growing region.[13]

The steep decline of Iraq war sentiment was caused by the speed, range, and force of the media reporting enabled by ubiquitous television and internet access. A few low-level war crimes took center stage in a global theater because they happened in a new digital media era where portable media access was diffused across the globe.[14]

The new era was also marked by a global twenty-four-hour news cycle fueled by freshly minted media organizations in fierce competition for viewers and advertisers. They straddled traditional and digital media vehicles to propagate their news, multiplying their media consumers.

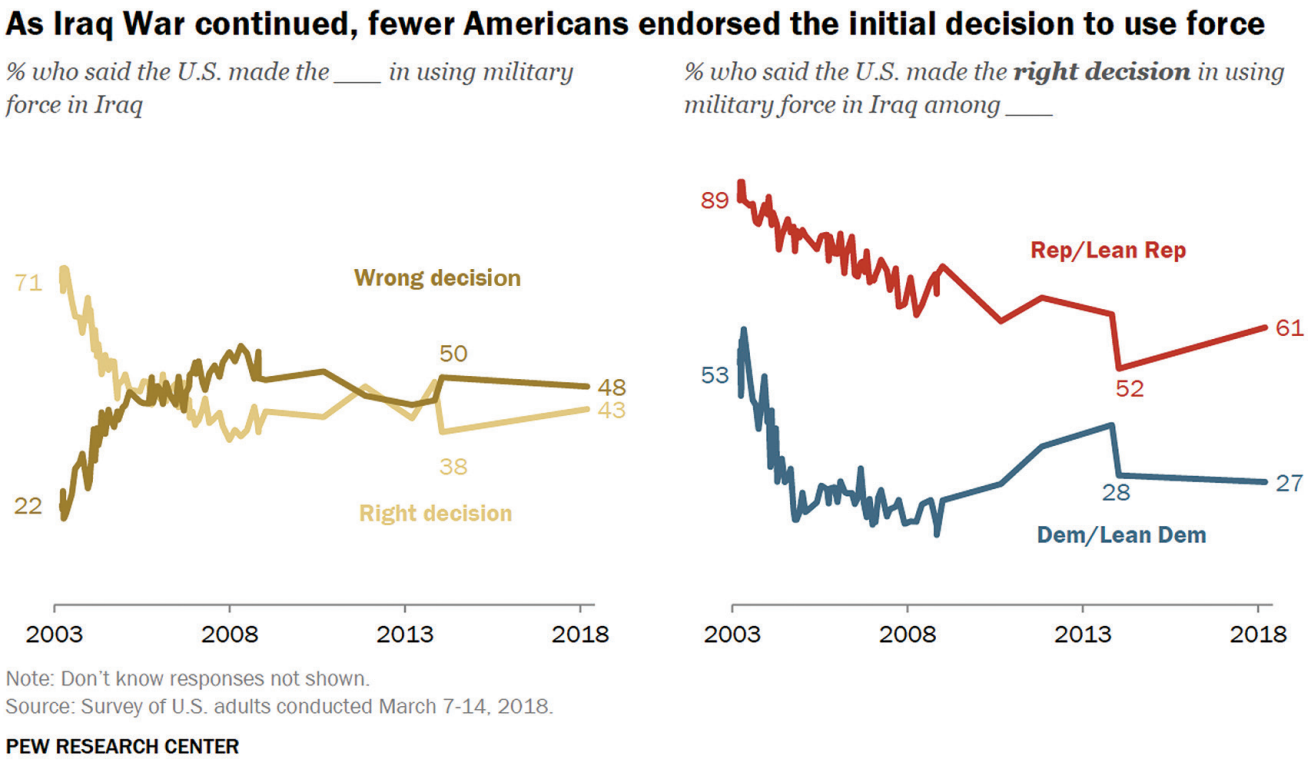
Cable news networks like Fox News, CNN, and MSNBC saw massive surges in viewership by more than 300 percent in 2003.[15] They overtook traditional networks as go-to news sources on the war.[16] CNN had ninety million U.S. viewers within two weeks after the start of the invasion of Iraq, Fox News had sixty-seven million, and MSNBC had fifty-seven million.[17] To put it in context, the numbers dwarfed the total viewers that watched television news after the 11 September attacks.[18]

The Qatar-based media organization Al Jazeera also became prominent covering the U.S. GWOT.[19] It was a major detractor of U.S. Middle East policy. By 2004, Al Jazeera had fifty million viewers worldwide, making it the Arab world's most-watched television network.[20] Outside the United States, it became a trusted source because it looked more objective and portrayed the war's realities more vividly and viscerally.

Social Media Revolution—Seismic Changes to the Information Environment Again

Before the United States could catch its footing, its runaway narrative problems were exacerbated by another media revolution in online communication brought about by social media. Social media dawned a new phase of the internet age characterized by the democratization of being seen and heard by large audiences. It brought a massive increase in networkability and reach by anyone with internet access via mobile or desktop devices. It also redistributed communication power, allowing people from around the globe to join the global conversation about current events.

The changes in the media environment made it nearly impossible for the U.S. government to control the narrative because it could no longer control the media as it was accustomed to. In *Manufacturing Consent*, Noam Chomsky and Edward S. Herman suggested the U.S. Defense and State Departments often force-fed their narratives, influenced, and even coerced media to circumscribe their reporting through patriotic



(Figure from Carroll Doherty and Jocelyn Kiley, "A Look Back at How Fear and False Beliefs Bolstered U.S. Public Support for War in Iraq," Pew Research Center)

Figure 1. Pew Research Survey Measuring U.S. Adults' Sentiment About the U.S. Decision to Invade Iraq

pressure.[21] However, a new multipolar and asymmetrical media environment overtook the government's golden era of hub-spoke media control. Adversaries, detractors, and skeptics gained rival power to influence the media. They used mass media and social media with significant competency to thwart the U.S. campaign aims in Iraq and Afghanistan.

STRATCOM Proposed as a Superweapon

To survive the media revolutions and recover from these crises and the ensuing support decline, the United States and its military needed reputational management operations that were much more potent than traditional public affairs, which seemed to be focused on informing and educating stakeholders on an as-needed basis. Rumsfeld, who was also the secretary of defense when the Vietnam War ended in 1975, wanted to stem the tide of deteriorating public opinion of the GWOT, which had ominous parallels with Vietnam. His solution was to adopt strategic communication, also known as STRATCOM, to replace the traditional public affairs model.[22]

It was a paradigm shift toward a more aggressive approach to managing perceptions of the United States' image, operations, and intents and countering adversaries' information operations. Rumsfeld wanted public relations tailored for war. Public affairs could still focus on informing and educating, but its purposes, targeting, and tactics needed to be recalibrated to accomplish his intent. He wanted shrewder tactics, focused on winning the hearts and minds of the right people and preempting and countering adverse narratives.

STRATCOM's Defining Woes

However, defense policymakers altered Rumsfeld's nimble construct probably because his idea seemed too basic. They added more bureaucratic heft to its definition and drastically broadened its scope. They formally conceived of STRATCOM as a grand strategic or

national strategic-level concept involving deliberate communication plans and activities that further national interests. It aimed to integrate the U.S. national instruments of power—diplomacy, information, military, and economic—use a whole-of-government approach, and leverage private-sector capabilities to execute the concept.[23]

Unfortunately, the new definition made the concept overly ambitious. It was doomed to collapse under the weight of the requirements it would take to achieve it or never uncoil from the perplexity of its proposed endeavor. Also, despite the robust definition, it was still unclear what it meant. How could all those disparate elements be integrated to execute STRATCOM coherently and consistently? Even if a viable methodology existed, it would have been severely challenged in governability, scalability, sustainability, and even the ability to scope the requirements.

Moreover, despite STRATCOM's cool name, the words were too ambiguous for it to survive in its intended form. STRATCOM did not evoke any of the meanings the concept proponents intended such as cross-integration or synchronized messaging, or even that it was a national strategic-level endeavor. Neither of the words carry those meanings. In everyday parlance, strategic communication typically refers to clever communication designed to achieve preconceived objectives that can happen at any level.

The term's ambiguity led to its usage quickly devolving and ensuing confusion in the force over what it meant. Despite the stuffy codified definition, the layman's connotation turned STRATCOM into something that could be sprinkled on anything. For example, if a military unit hosted a ball, they wanted STRATCOM to convince their reluctant troops to attend. Thus, a turf war ensued between the term's originators and how everyone else used it.[24]

STRATCOM's Declining Reputation

STRATCOM also quickly acquired negative connotations related to its public relations tactics.[25] Rumsfeld saw these efforts as innovations that public affairs needed to gain information and cognitive advantages. However, critics contended they were dubious efforts akin to information operations, psyops, or propaganda. They seemed to expect the U.S. military to take a laissez-faire approach to communicating about the war despite the antagonistic information environment at the time. They expected the U.S. military to stick to traditional public affairs. Their opposition was withering. Rumsfeld lamented that the criticisms hamstrung public affairs and had a chilling effect on their proactiveness and innovation.[26]

Some detractors also saw STRATCOM as word-washing, accusing the United States of disingenuous attempts to cover up problems. The criticism led to much discussion about the United States' say-do gaps in Iraq and Afghanistan. A say-do gap refers to the hypocrisy of saying or purporting one thing and doing the opposite. Actions with consequences that are counterproductive to purported aims also qualify.

In a 2009 *Joint Force Quarterly* essay, Adm. Michael Mullen, former chairman of the Joint Chiefs of Staff, expressed frustration with the futility of STRATCOM efforts amid say-do gaps.[27] He suggested that the U.S. military dispense with STRATCOM efforts intended to mitigate unproductive actions in theater and focus on actions productive to strategic objectives, which he believed mattered the most. His position was hard to refute and proved devastating to the perception of STRATCOM in the Department of Defense. The term was eventually purged from its official lexicon.[28]

STRATCOM's Abiding Utility

The U.S. military overreacted to criticism that was probably unjustified or where refinements could have been made to address the associated risks and challenges. STRATCOM is a salvageable concept that the United States still needs, and it is growing increasingly valuable. The political nature of war makes it a fundamental element of military power as demonstrated even in current headlines.

NATO countries have upheld their STRATCOM doctrine with greater coherence and rigor than the United States.[29] They face more acute risks, having been victims of Russian information warfare for decades. As a result, several European NATO nations established the NATO Strategic Communications Centre of Excellence in Riga, Latvia, in 2014. It is an intellectual hub providing allies with STRATCOM-related research and analysis as well as a simulation training platform powered by artificial intelligence called the Information Environment Simulation Range (InfoRange).[30]

Ukraine owes much of its miraculous survival to STRATCOM.[31] It has secured prolific and sustained

Members of the Jordanian media pool cover a chemical, biological radiological, and nuclear demonstration on 18 May 2016 during Exercise Eager Lion 16 at a training site just outside of Amman, Jordan. (Photo by Master Sgt. William Price, U.S. Marine Corps Forces Central Command)

tangible and intangible global support and boosted its own population's morale to maintain the will to fight through effective communication. In contrast, Israel invariably suffers severe reputational damage in its campaigns against Hamas and Hezbollah. Civilian casualties and infrastructure damage play a significant role. However, Israel has been reluctant to develop a comprehensive communication framework like STRATCOM to anticipate, inoculate, and mitigate the fallout from such incidents.[32] It has preferred traditional public affairs damage control methods and "creative improvisation."

The United States cannot afford to leave its reputation and communication objectives to chance or reactive responses. It can likely anticipate an information landscape that falls between the dynamics of the Ukraine conflict and Israel's current war. The narrative that is clear in the Russia-Ukraine war may not be as straightforward in the conflicts the United States engages in. It must be ready for more critical coverage on all fronts early on, questioning the justness of a conflict and its related actions, especially in the aftermath of the Iraq War. The United States' information advantage efforts will also have to navigate a multitude of online commentaries from both humans and bots, a comprehensive tracking of every visible action it takes and its ensuing consequences, and an unyielding stream of misinformation and disinformation.

STRATCOM's Soft Return

It's no surprise that STRATCOM is already making a soft comeback in the U.S. military under various guises. The demand for the fundamental concept seems inescapable, no matter what it is called.

In 2018, the Marine Corps changed its public affairs designation to "communication strategy and operations," now known as COMMSTRAT.[33] This change marked a subtle shift from traditional public affairs to operationalizing communication capabilities. However, the Marines warned that COMMSTRAT should not be confused with STRATCOM despite the similarities. Yet, they have not developed a detailed doctrine, leaving uncertainty about its meaning beyond operationalized public affairs.

However, a 2016 paper on communication strategy and synchronization signed by Marine Brig. Gen. William Jurney may provide clues about its conception. The paper, "Communication Strategy and Synchronization," defined communication strategy as a commander-centric activity that aligns and nests communication efforts within an overall strategy.[34] It also highlighted communication synchronization as a core element, calling it an organization and a process focused on synchronizing and directing information-related capabilities and words with actions to achieve desired effects. The concept resembled a blend of STRATCOM and information operations.

In 2022, the Army followed the Marines' lead and published a new version of its Field Manual 3-61 titled *Communication Strategy and Public Affairs Operations*.[35] The manual's title was revised to include communication strategy in what was formerly only labeled public affairs operations. Yet, like the Marines, the Army basically defined communication strategy as public affairs. The more significant change to their doctrine was incorporating the joint concept of commander's communication synchronization (CCS), which the Army said was formerly called STRATCOM.[36] It adopted STRATCOM as part of its new public affairs doctrine under the CCS guise.

Joint Doctrine Note 2-13, *Commander's Communication Synchronization*, defined CCS as "the process for coordinating and synchronizing themes, messages, images, operations, and actions to support strategic communication-related objectives and ensure the integrity and consistency of themes and messages to the lowest tactical level through the integration and synchronization of all relevant communication activities."[37] It portrays CCS as STRATCOM orchestrated through an information operations working group process. It is a descriptive and instructive framework for understanding what STRATCOM is and how it can be operationalized. Yet, it has struggled to become institutionalized across the military services. STRATCOM still suffers from the challenges of its former ego in scoping the requirements, governing the process, and scaling it across the enterprise.

STRATCOM Rebrand to Integrated Communication Strategy

The U.S. military needs to commit to a vigorous communication concept that is effective in complex and contested environments and can be operationalized for scalable effects. It should also streamline its communication concepts but adopt a more self-evident term that captures all the major elements involved in STRATCOM. The term STRATCOM should be avoided due to its ambiguity and the connotative baggage it carries in the U.S. military. It needs a rebrand with a new name and even a new definition. The new name should be *integrated communication strategy* (ICS). It maintains the fundamentals of STRATCOM, clarifies the meaning with more descriptive words, and allows the continuity of terms that the Marine Corps and the Army are already using.

ICS mirrors integrated marketing communications (IMC) used in the commercial sector to manage marketing strategies. West Virginia University defines IMC as "a strategic, collaborative, and promotional business function" that unifies all marketing communications to ensure target audiences perceive "consistent, persuasive, and reinforcing brand messaging" across all channels.[38] IMC orchestrates a comprehensive brand contact scheme that facilitates desired perceptions, actions, and outcomes and helps organizations achieve broader strategic objectives. It recognizes that all interactions with stakeholders, whether intentional, dynamic, or inadvertent, have the communicative power to shape the target audience's perception and relationship with the brand. Therefore, it aims to influence those interactions directly and indirectly through strategic communication.

ICS adopts this definition and adds defense-related considerations to create a bespoke concept that accommodates Rumsfeld and Mullen's positions while retaining the conceptual robustness of STRATCOM's previous formal definition.

Defining Integration

Integration was a key STRATCOM element transliterated into ICS. It involves deliberate efforts to achieve coherence, synergy, consistency, and coordination when necessary, particularly among communication actors, activities, and messages.

Integrating communication actors. Integrating communication actors involves organizing, synchronizing, and sometimes managing organizations and people in communication initiatives. It can be top-down driven or formally managed, with higher levels setting communication objectives and directing

subordinates to align their communication programs. Alternatively, integration can be informally managed through working groups or ad hoc sharing of communication plans and priorities to secure informal support for a designated effort or to prevent communication contradictions.

Enterprise integration requires strategic guidance to establish a foundational framework for developing nested plans and initiatives that align with the strategic-level intent. One example would be to publish a *National Security Integrated Communication Strategy* as an appendix to the *National Security Strategy*. It should cast a vision for ICS for the entire government.

The guidance should be specific yet broad enough to enable each level and subordinate entity to develop their own strategies for how their particular missions and capabilities contribute to the overall mission. It should initiate the standard cascade of nested ICS at subordinate levels as corresponding appendices to documents such as the *National Military Strategy*, the military services' strategies, and the combatant commands' strategies, using the appropriate naming convention based on the level. This achieves omni-integration, which can be accomplished with or without a formal management mechanism.

The U.S. Department of Defense set an example by publishing its *Strategy for Operations in the Information Environment* in July 2023 to supplement its 2022 *National Defense Strategy*. Its stated purpose is to provide "a DoD-enterprise approach to ensure improved integration and oversight of information forces, capabilities, operations, activities, programs, and technologies."[39]

Nevertheless, ICS deserves its own carved-out strategy. Standalone treatment is necessary to develop a robust, dedicated strategy and doctrine for addressing cognitive dimensions and avoiding getting crowded out by information operations dedicated to physical or technical dimensions like cyber.

Integrating communication activities. Integrating communication activities in ICS should mimic the commercial sector's methodology for activity integration, governed by the PESO model© framework created by Gini Dietrich. PESO is an acronym referring to communication activities categorized as paid, earned, shared, and owned (see figure 2).[40]

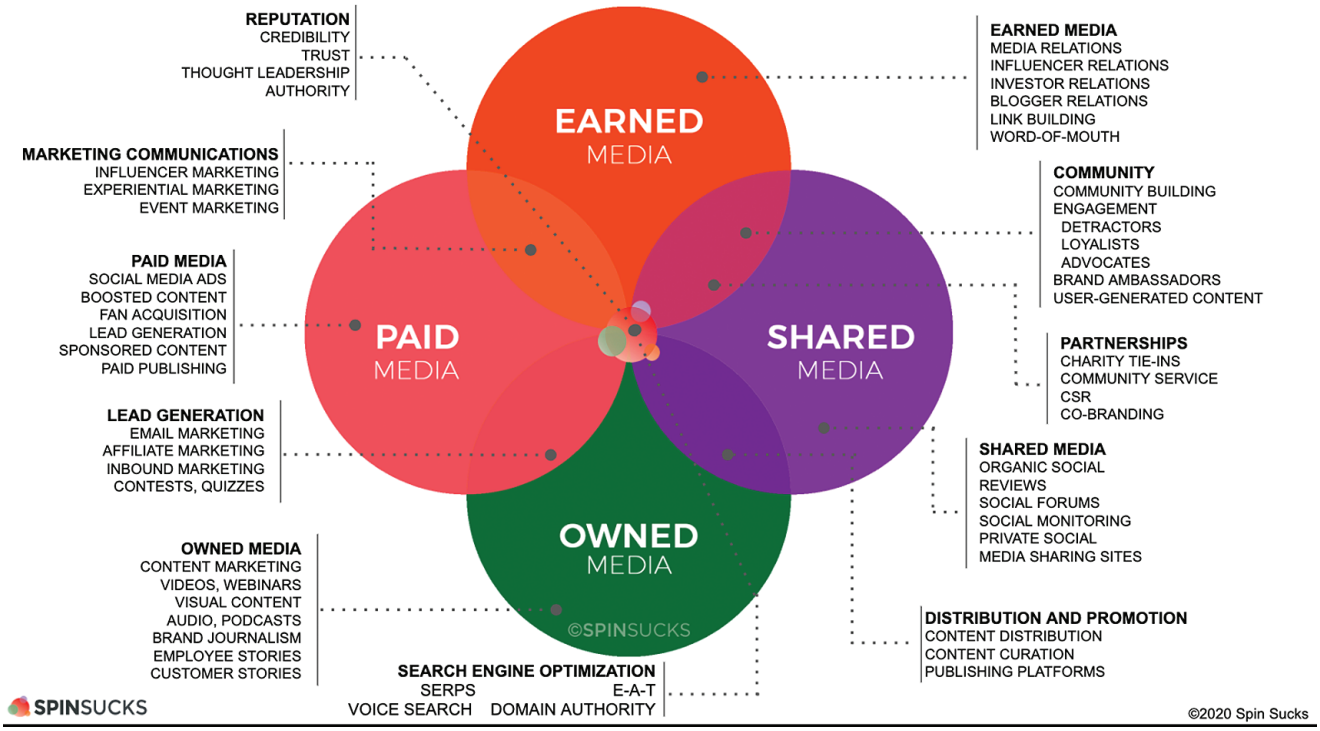
Paid includes activities like advertising and sponsorships. *Earned* activities generate free publicity and can include media coverage, product or service reviews, or word-of-mouth recommendations. *Shared* usually refers to activities on social media and other platforms the company doesn't own, subjecting it to their ecosystem and rules. *Owned* pertains to activities on platforms controlled by the company, such as its website, email, or podcasts. ICS can further add or adjust categories of activities based on its unique capabilities and relevant U.S. policies and values.

The PESO model also places reputation management at the core of the framework, which is instructive for ICS.[41] It suggests that all activities should reflect and enhance the organization's reputation. However, it also illustrates the inverse, that the power of communication activities to achieve desired effects depends on the organization's reputation. The stronger the reputation and brand, the stronger the influence of the communication activities. Thus, reputation management should be a key consideration throughout the framework to ensure the integrity and viability of the broader integrated activity structure.

Its scope includes the organization's internal and external actions, operations, and policies. An organization's reputation will suffer if it claims to care about people, but the public discovers it treats its employees poorly. Likewise, the military's reputation can suffer if it claims to uphold just war principles but is perceived as violating the law of war. Sometimes even violating stakeholders' expectations can damage a reputation despite the actions having legal protection. Consistency across these areas averts the say-do gap.

Integrating communication messages. Integrating messages starts in message development when an organization decides what to say. It should involve synthesizing the communicating organization's and the target audiences' perspectives. Too often, messages are crafted with verbose, Pollyannish, or defensive rhetoric that falls on deaf ears. They overlook the audience's viewpoints and what matters to them.

In contrast, commercial marketers occasionally use a Venn diagram to identify the overlap between a company's strengths and value propositions and customers' needs and desires (see figure 3). This overlap provides a menu of messaging options that are most likely to resonate and achieve the company's objectives. Similarly, during communication crises, companies sometimes use stakeholder matrices to outline stakeholders'



(Figure from Gini Dietrich, "The Challenges and Solutions of the PESO Model," Spin Sucks)

Figure 2. PESO Model Media Activity Framework

concerns and develop and prioritize messaging and communications that address them.

Centralized key messages should also be disseminated among communication actors to enable nesting and coherent implementation. Key messages concentrate and package the main ideas organizations want to convey, making them easy for anyone to transmit. This puts the onus on communicators in the upper echelons to share their key messages with downstream and lateral elements so they can adapt their messages to align with or reinforce the top-level messages.

When planning activities, the ideas undergirding the messages should point to the kinds of mediums, activities, and content delivery approaches that best fit and can produce the desired impact. "The medium is the message," according to communication theorist Marshall McLuhan.[42] It suggests the importance of selecting the right mediums and activities, given their influence over how messages are received and interpreted.

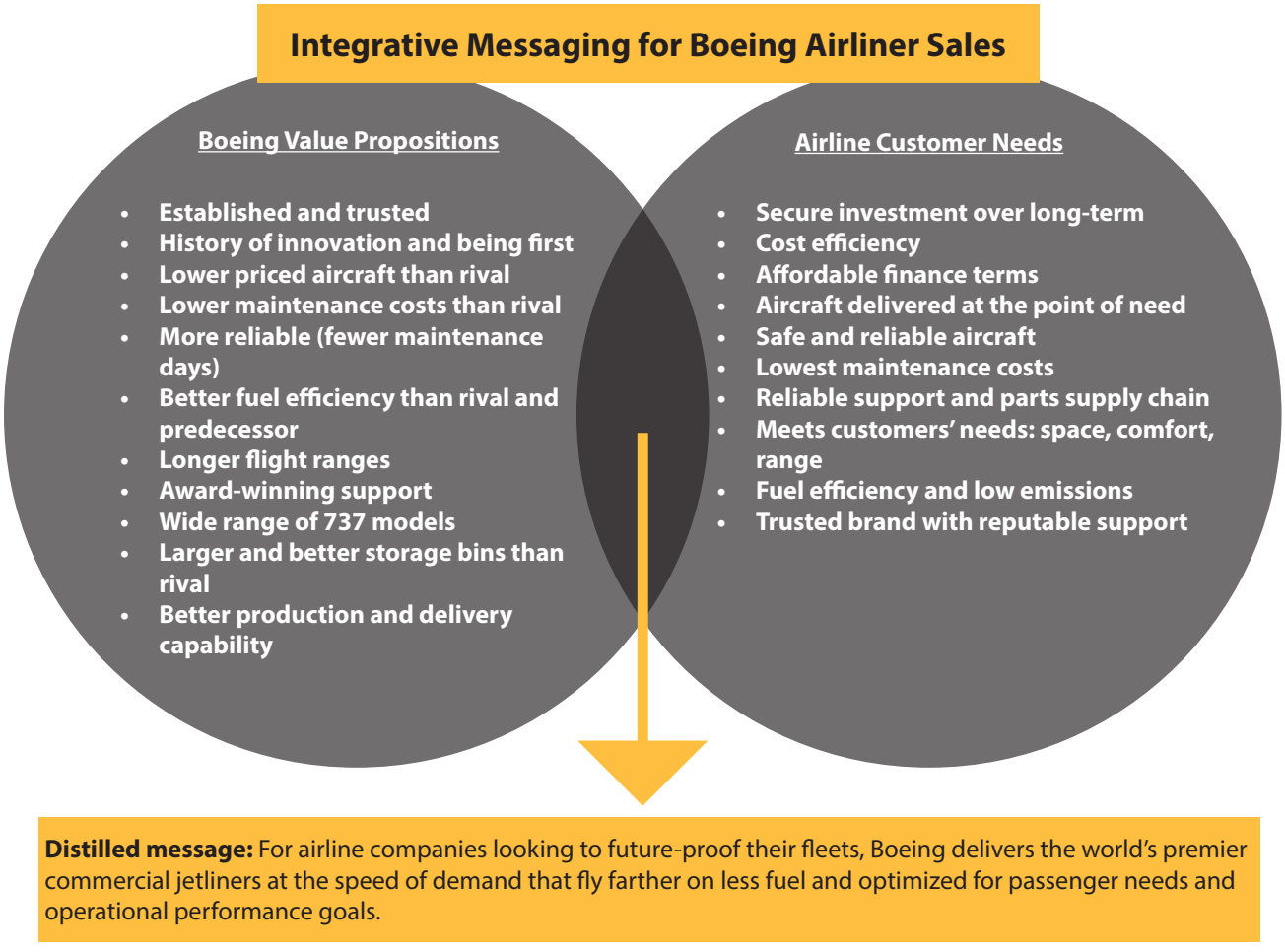
In the activity execution phase, communicators should employ a variety of activities to deliver messages widely, diversely, and repeatedly. It is also vital to ensure they convey the messages effectively, minimizing the risks of them being lost, misinterpreted, or overshadowed. This also underscores the importance of time integration of activities. That means planning activity executions with an awareness of external factors that can impact the communication process.

Defining Communication Strategy

In ICS, COMMSTRAT means more than public affairs or operationalizing public affairs as the Army and the Marines defined it. It also goes beyond describing it as public relations. Three primary tenets are offered here to define it.

COMMSTRAT theory of victory. Like any grand strategy, COMMSTRAT must have a theory of victory that explains what winning looks like and what it will take to win in an environment rife with competition and adversarial or frictional factors.

Defining winning in COMMSTRAT is predicting the minimum cognitive-related outcomes (e.g., changes in knowledge, attitude, opinion, and behavior) that facilitate the organization's strategic



(Figure by author)

Figure 3. Example of an Integrative Messaging Venn Diagram

goals. For example, communicators might predict they must maintain a 50 percent approval rating of a military element's presence or operations among the key public or stakeholders for a year to maintain adequate conditions and risk levels for the unit to conduct sustained operations to achieve its broader strategic objectives.

To set realistic goals, COMMSTRAT professionals must conduct appropriate research, benchmarking, and logical extrapolations. Similarly, the goal must be measurable to ascertain victory by straightforward observation or using correlated proxy metrics as key performance indicators. COMMSTRAT elements must also ensure their desired outcomes are within their facility and purview. For example, it cannot be expected to reduce attacks. Yet, it can be expected to influence how people think about the attacks, which may help reduce them. The former goal is the unit's winning criteria, while the latter is the COMMSTRAT's winning criteria that supports the unit's goal.

Defining what it will take to win involves developing broad-stroke propositions that outline how to secure and maintain a relative advantage toward achieving desired outcomes in a competitive environment. The propositions should read like task and purpose statements, and the purpose clause should suggest how the task secures a relative advantage. They can be organized into lines of effort, with various elements responsible for each.

An example proposition may read like this: "Leverage the communicative platforms, influence, and credibility of influencers and opinion leaders to boost the reach, reception, and effects of designated key messages with select key publics beyond the

capacity the supported communicating element can produce itself." An adversary-focused proposition might read like this: "Neutralize the most consequential opposition communications and communication actors to reduce their effects on friendly communication objectives and maintain an advantageous share of voice and influence on the information environment and key audiences."

COMMSTRAT strategized and operationalized. COMMSTRAT must also entail using the military's ends-ways-means strategy framework to enable detailed planning and executing of communication operations. A theory of winning accounts for two-thirds of a comprehensive strategy. Its vision of success and delineated paths to get there provide the strategy's ends and ways. Then, the strategist must flesh out each line of effort with more detail about the ways and identify the required means to make it executable and operational.

In COMMSTRAT, this means identifying communication tactics that make up the lines of effort such as holding joint press conferences with other government leaders to leverage their influence. It requires pinpointing the means or resources necessary to implement and execute the strategy such as personnel, organizations, capabilities, tools, or instruments. For instance, a theater public affairs support element may be needed to orchestrate the joint press conference.

The PESO framework provides the methodology for developing and organizing tactics and managing associated resources. In practice, COMMSTRAT equals the PESO framework with built-in integration requirements and a clear direction toward an established strategic goal. In more doctrinal terms, it is a multidimentional, cognitive-focused communication system of operations and structures that deliberately integrates, coordinates, and converges various capabilities, channels, and activities to achieve communication goals aligned with operational and strategic goals.

COMMSTRAT should be a coherent drone swarm of communication actors and activities with designated lanes, message payloads, and objectives directed toward strategic goals. It also incorporates public affairs, public diplomacy, psychological operations, civil affairs, web operations, and other relevant information capabilities (including the private sector), used prolifically and judiciously, consistent with applicable policy.

COMMSTRAT efforts should also be continually assessed for effectiveness in achieving those goals. Similarly, it requires iterating, innovating, and optimizing aspects of the PESO system. The operational and informational environment should also be assessed regularly to ensure that the goals and PESO configuration remain relevant and appropriate for their intended purpose.

COMMSTRAT game theory. COMMSTRAT should also retain STRATCOM's colloquial connotation of just being strategic about communications as a core tenet. Yet, a word of caution is warranted. Crude attempts to reduce this tenet to clever tactics or words should be rejected. Haphazard activities employed reactively or indiscriminately won't cut it in an increasingly complex information environment.

Despite its apparent simplicity, COMMSTRAT, even with its colloquial meaning, resembles a sophisticated game theory that relies on probabilistic predictions of outcomes involving many actors, foes, allies, and everything in between, who can be swayed toward or away from one's goals based on communicative decisions. It requires the military to communicate more intentionally, proactively, shrewdly, and sustainably, with a sharp estimate of likely outcomes—how actors and the relevant environment might respond to communicative actions or inaction.

It also implies being goal-driven rather than action-, tactic-, or message-driven. Furthermore, it involves treating audiences as the focal point and increasing understanding of them and their environments. This encourages the innovation of best practices that guide audiences toward the organization's desired goals. The substantial diversity among audiences necessitates highly targeted, tailored, and compelling communications to produce the intended effects. Nevertheless, limitations in resources or influence also require prioritizing which audiences to target. This may depend on the audiences' varying capacity to facilitate strategic goals or the organization's ability or resources to guide them toward its goals.

Conclusion

STRATCOM has always been as critical to defense security as violence. Contemporary and future

competition and conflict will demand it even more. To contest the information environment at scale, the U.S. military must increase its STRATCOM competency and capability within its conventional military institutions. Adopting ICS doctrine as an upgraded version of STRATCOM is a critical modernization for the cognitive dimension of information advantage.

Public affairs' flexibility, expansiveness, and political palatability make it the military's most accessible and valuable cognitive communication capability to lead the effort. It must adapt and grow to meet the requirements of ICS, which will be critical for the success of all military campaigns and operations, both foreign and domestic. ■

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Sgt. William Stewart, a 40th Transportation Company license instructor and examiner, provides instructions to newly assigned soldiers during a hands-on training session at Smith Barracks in Baumholder, Germany, on 16 June 2025. The monthly training ensures soldiers can safely transport supplies across the European theater. (Photo by 1st Lt. Nahjier Williams, 16th Sustainment Brigade)

Training Safety

A Leadership Imperative

Maj. Dylan Lee, Singapore Army

Of the 19,378 deaths suffered by the U.S. military from 2006 to 2021, 76 percent occurred outside combat scenarios during non-overseas contingency operations and 32 percent of total deaths were due to accidents.[1] As the U.S. Army prepares for large-scale combat operations, the rising scale, complexity, and tempo of operations across the globe are expected to further surge training demands and increase training safety risks.[2] Whereas most scholarly and professional military attention focuses on analyzing how new operational concepts and military modernization efforts meet these demands, the role of peacetime training safety as "a form of force protection, and an enabler for mission success" is often neglected.[3] Indeed, militaries and their leaders not only have the moral obligation to uphold *peacetime* training safety but must also regard it as a key imperative that impacts operational readiness, given its outsized influence on any military's ability and will to train effectively.[4] Yet, leadership is the most vital but the least researched of the numerous factors that influence training safety, ranging from individual "operator errors" to system failures at the organizational level.[5] As such, this article will explain *why* leadership is the critical factor in promoting peacetime training safety, which is essential for militaries to achieve both safe training and operational readiness simultaneously.

Definition and Literature Review

To set the foundations for this article, we must first define training safety and provide an overview of existing research. "Safety" is often defined as the "absence of harm."[6] However, because only the complete absence of risks can guarantee absolute safety, such definitions are less useful in the military context, which is inherently risky given that militaries wield lethal force in training and operations.[7] Rather, it is more useful to regard training safety not as a static standard but as a constantly calibrated goal pursued by military leaders who exercise professional judgment. In pursuing training safety, military leaders aim to maximize the operational benefits of training while minimizing the inherent risks of doing so.[8]

Existing literature on training safety provides a useful starting point for understanding the relationships between training safety and training realism, and how best to balance both seemingly antithetical imperatives. For instance, the bulk of military training-related literature focuses on the need for training to be realistic, since training serves to prepare soldiers for combat. Accordingly, professional organizations like the U.S. Army's Combined Arms Center and scholars like Bernard Loo correctly advocate for military training to closely replicate the realities of prospective combat environments, thus ensuring that soldiers can train to be as technically and tactically proficient as possible.[9] That said, Nick Turner and Sarah Tennant posit that routine training usually entails militaries accepting lower levels of risk, given reduced urgency during peacetime to subject soldiers to the inherently dangerous conditions of war.[10] Making a broader point, Dov Zohar and Orly Tenne-Gazit frame the need to balance risks with realism and readiness as a tension between safety and mission accomplishment, which they argue are "competing operational demands."[11] While existing literature is certainly helpful in highlighting the popular dilemma between training safety and realism, this article will refute this dichotomy because it is a counterproductive way for leaders to frame and achieve both training safety and operational readiness.

This raises the question, what can leaders do to attain both imperatives simultaneously? Literature that links military leadership to training safety exists, but only two studies explore this relationship in depth. The first study, authored by Mats Börjesson, Johan Österberg, and Ann Enander, explicitly discusses the role of leadership in training safety, which explains the need for leaders to model their personal commitment to safety, make judicious decisions on how to prioritize safety and risk, and engender positive attitudes toward safety through coaching.[12] The

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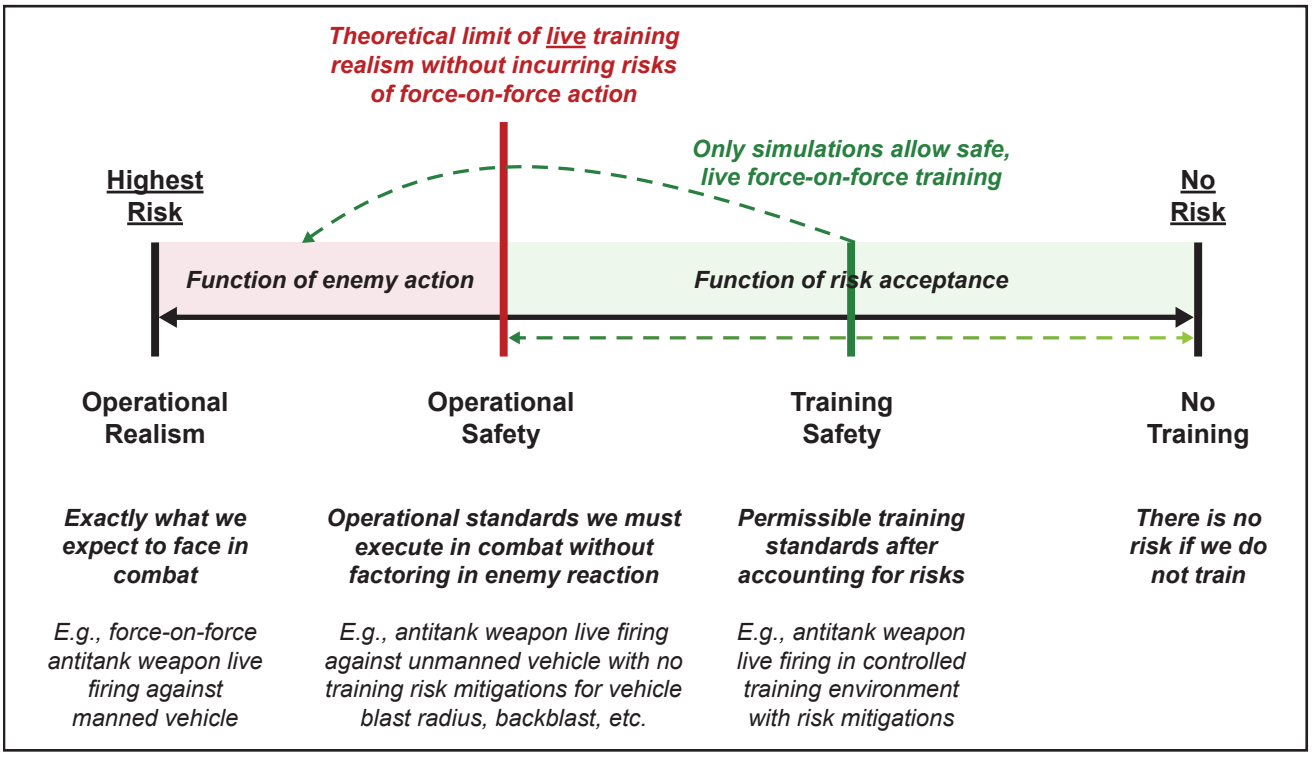
second was by Paul Cheak, who raised three points of note. First, he argues that leaders are instrumental in enforcing systems that uphold safety standards. For example, leaders implement systems of punishments and rewards to mitigate what Trent Lythgoe terms the "normalization of deviance," thus preventing militaries from entrenching poor safety practices as an acceptable pattern of behavior.[13] Second, Cheak argues that leaders must constantly review safety management processes in an exercise of double-loop learning to ensure that these regulations' underlying "assumptions, norms, policies, and goals" remain fit-for-purpose.[14] Interrogating the premises of safety practices prevents safety standards from devolving into blindly followed checklists.[15] Third, Cheak advocates for leaders to inculcate a safety culture that encourages each team member to understand how best to strike the balance between "risk-taking and safety."[16] This provides a more lasting method of ensuring training safety in dynamic environments that lack prescribed formulas to manage unpredictable situations.[17] Indeed, these studies provide valuable recommendations for military leaders and contextualize the findings of broader workplace safety-related studies to the military context.

Broader discourse on the relationship between leadership and safety is typically nonmilitary related, as part of the overarching operational health and safety field. For example, Earl Blair argues that a compelling leadership vision that prioritizes safety is key to engendering a strong organizational safety culture; in contrast, Tsung-Chih Wu, Chi-Hsiang Chen, and Chin-Chung Li advocate coaching as a key instrument to enhancing safety climate and performance.[18] However, even when taken collectively, current literature inadequately explains the role of military leadership in training safety. Operational health and safety-centered recommendations are helpful but are not contextualized to a unique military environment that deals with lethal force. While the studies by Cheak and Börjesson, Österberg, and Enander explain *what* leaders can do to improve training safety, they do not sufficiently explain *why* leadership is *the* foundational factor for safe and realistic training. Military leaders cannot fully appreciate why they are decisive in balancing the complementary desired outcomes of training safety and operational readiness without understanding deeper rationales underpinning their roles in training safety. To address the gap, this article posits that military leaders must understand their pivotal roles in providing "direction" and "purpose"—two key elements in the U.S. Army's definition of leadership—to guide the pursuit of peacetime training safety.[19]

Leaders Must Explain *What* Training Safety Is

The first imperative is for leaders to create a shared understanding of *what* training safety is. Army Doctrine Publication 6-22, *Army Leadership and the Profession*, states that leadership requires leaders to provide "direction," which communicates a leader's desired end state to align efforts toward a common mission.[20] Because training safety remains a poorly understood concept, leaders must first define what training safety as a desired outcome actually entails before explaining why training safety is important. As Turner and Tennant argue, there is a difference between the acceptable risks during routine training maneuvers vis-à-vis combat.[21] While most practitioners accept this, there nevertheless lacks an established method to analyze and understand the relationship between training realism and safety risks. Given this, the figure proposes a novel safety taxonomy for leaders to align their and their teams' understandings of training safety. This establishes the foundation for leaders to build lasting commitment toward shared training safety outcomes.

Referencing the figure, which is a risk (above the horizontal axis) versus realism (below the horizontal axis) scale, risk decreases from left to right, as does the realism of one's training experience. The rightmost limit of the scale represents the absence of risk, which Cheak explains as an untenable—and undesirable—possibility for operationally ready militaries, since militaries can only achieve zero risk without training.[22] Instead, leaders should focus on differentiating among the remaining three distinct but often confusing terms: (1) operational realism, (2) operational safety, and (3) training safety. Indeed, leaders who fail to differentiate the three terms are more likely to encourage their teams to pursue counterproductive outcomes while distracting their teams from focusing on the critical factor they should weigh their effort toward: training safety.



(Figure by author)

Figure. Military Training Safety Taxonomy

First, *operational realism* describes real-world combat environments that entail engagements with a live opponent and therefore begets highest risk. During peacetime training, an example of operational realism is a force-on-force live-fire exercise against an opposing force outfit that reciprocates with live rounds. While unavoidable in conflict and combat, such levels of realism are unacceptable in peacetime. After all, no leader should place their soldiers in life-threatening situations unless absolutely necessary. Yet, inexperienced and less reflective leaders often misinterpret well-intentioned studies that enumerate the virtues of conducting training in as realistic an operational environment as possible. Often, these leaders emerge with the expectation that pushing training close to such extremes is desirable. Hence, leaders must understand that training should never aspire to reach the limit of operational realism. This ensures that military leaders set appropriate goals and thus avoid the potentially deadly consequences of pushing training realism too far.

Second, *operational safety* differs from operational realism as it discounts the effect of enemy action. Operational safety stands for the operational standards that all soldiers are expected to execute in combat. A peacetime training example is to destroy a moving tank with an antitank weapon while accounting for risk factors like weapon backblast and vehicle blast radius in a tactical environment, albeit without retaliatory fire from the opposing force vehicle. It is the theoretical limit of *live* training realism without incurring the risks of force-on-force action, given that it is the standard we expect soldiers to safely execute their mission essential task list. Yet, would the above scenario also not entail too much risk? Should soldiers really be allowed to fire live antitank weapons at moving (albeit unmanned) tanks at night in poor visibility without any *external* intervention from training controllers while other troops are in close proximity to them? Indeed, while operational safety exemplifies a desirable level of soldiering proficiency, it entails unacceptably high risks in peacetime. This renders it an unrealistic training goal that leaders should avoid pursuing unless an urgent operational need calls for it, and even so, only if robust risk mitigations are put in place.

This leads to the third concept—*training safety*. As defined earlier, training safety is the ever-shifting balance between training risks and acceptable levels of training realism during peacetime. On the one hand, it can shift *leftward* along the risk-realism scale toward operational safety, thus making for more realistic but riskier training. On the other hand, it can slide *rightward* toward minimal or no training, which is less risky but counterproductive for operational readiness. Numerous factors result in the level of acceptable training safety fluctuating, ranging from individual leaders' risk acceptance levels to political guidance and public pressure. Yet, far from being challenging to influence, the level of training risk that a military accepts and the level of training realism it achieves is often a direct consequence of leaders' tactical actions. This includes whether leaders enforce adherence to training safety standards, decide to take unnecessary risks, or inculcate too much gung ho in their teams' cultures that jeopardizes the balance between risk-taking and safety. The more leaders build strong safety systems and cultures to enable the safer conduct of risky training, the more likely militaries can gradually shift training safety *leftward* toward increasing training realism while preserving training safety. As such, leaders must understand training safety as the only variable in the risk-realism scale they can influence at all echelons to promote a more optimal balance between training safety and operational readiness.

For completeness, it is important to acknowledge that technology allows troops to train at a level of force-on-force realism beyond the theoretical limit of training safety (i.e., operational safety). This includes training in live, virtual, constructive, and gaming environments and using simulations to preserve training outcomes while reducing risks.[23] Nonetheless, the point holds—without understanding training safety as the primary variable in the risk-realism scale that leaders can influence, leaders will likely continue shaping their teams toward undesirable outcomes (operational realism) or unrealistic goals (operational safety). Leadership is an irreplaceable cog in training safety because only leaders who are clear of the desired end states can align their teams toward desirable training safety goals. To do so, leaders must first clarify misconceptions among the three aforementioned concepts before inspiring their teams to pursue shared training safety outcomes. In turn, this allows leaders to engender lasting buy-in by explaining *why* training safety is important as operational and strategic imperatives.

Leaders Must Explain *Why* Training Safety Is Important

After establishing a common understanding of *what* training safety is, the second imperative is for leaders to "provide clear purpose for their subordinates" and create commitment to the shared goal of promoting training safety.[24] Without understanding *why* training safety is critical, shared goals will only last as long as leaders prescribe they do, without which individuals may revert to poor entrenched safety practices. Leaders must therefore explain the importance of training safety to create what Gene Klann described as a lasting, proactive, and intrinsic dedication to this shared goal within their teams.[25] Specifically, to inspire a long-term and organization-wide embrace of training safety, as Alan Deutschman explained, leaders must understand how to *frame* the impetus for change in a manner that resonates with their teams.[26] In this case, leaders are critical because only they can stimulate a shift in their teams' mindsets to one that embraces training safety as both an operational enabler and a strategic necessity.

The first way for leaders to reframe training safety is by presenting it as an *operational enabler* rather than an impediment to operational readiness. Often, a false dichotomy exists between training safety and operational readiness, where pursuing one is deemed to diminish the other.[27] As the figure suggests, the real trade-off is between *risk* and *realism*, where lower levels of realism may not degrade training *effectiveness* if the training is well-designed (e.g., deliberate after action reviews to codify lessons learned). Making a broader point about safety, Luis Andrade explained that "safety and mission do not have to pose a conflict of interest."[28] Singapore's former chief of the Army, Maj. Gen. Goh Si Hou, advocated a similar mindset and framed safety as an "operational capability" that allows units to preserve combat power if prioritized as a planning factor akin to force protection.[29] In peacetime, safety also increases "soldiers' will to fight" and train, since prioritizing safety allows them to focus their efforts on training hard without worrying that self-created safety breaches may potentially jeopardize their survival or cause injury.[30] Leaders who frame training safety positively encourage

A soldier assigned to 3rd Special Forces Group (Airborne) creates air pockets in an MC-6 parachute system during wet silk training at Atchley Pool on Fort Bragg, North Carolina, on 4 June 2025. Wet silk training prepares paratroopers to safely exit their parachutes and surviving after a water landing. (Photo by Sgt. Justice McDonald, 3rd Special Forces Group [Airborne])

their teams to regard the habits accrued through safe training as a desirable mission enabler allowing them to perform dangerous and lethal military tasks more safely and confidently. Conversely, leaders who frame safety as an operational impediment condemn their teams to aspire toward undesirable or unrealistic training outcomes. Given these, leaders are key in framing training safety as an operational imperative that can enable mission success.

The second way for leaders to reframe training safety is by presenting it as a *strategic necessity* for all militaries in peacetime, all-volunteer and conscript-based ones alike. Conscript-based militaries are understandably sensitive to affective public and political support for conscription. Without popular support, conscription—and defense—is compromised. For example, public support for the South Korean and Taiwanese militaries declined after several high-profile training-related military deaths in the past decade. They became at risk of feeding their adversaries' perceptions that they are militarily unwilling and unable to defend themselves.[31] Even in all-volunteer militaries, public trust and adversary perceptions of a military's ability to conduct operations effectively also depend on their ability to conduct it safely and without incident in lower-risk peacetime environments.[32] As Louis Hicks aptly states, "Families, communities, and the military itself seem to find accidental casualties even more horrifying than the more ordinary, enemy-inflicted variety."[33] Hence, safety (or lack thereof) is strategic as it can rapidly erode public trust in the military.

Beyond diminished perceptions of operational readiness, eroding political and public trust in one's own military also compromises strategic national resilience, a deterrence strategy adopted by large and small states alike. For instance, the 2022 *U.S. National Defense* Strategy defined *resilience* as a whole-of-nation "ability to withstand, fight through, and recover quickly from disruption."[34] Singapore's *Total Defence* strategy seeks to deal with threats and deter aggression by demonstrating the entire nation's capability to withstand and defeat pressure in six domains—military, social, psychological, economic, civil, and digital defense.[35] Both the U.S. and

Singapore's strategies require the nation to rally around their respective militaries to project a more holistic defense posture, which is critical in a threat environment where adversaries increasingly target states using multiple instruments of national power (e.g., information campaigns and sabotage of key infrastructure before a military invasion).[36] In such circumstances, militaries should add to national resilience rather than diminish it through safety-related erosions of public trust. In turn, leadership is critical because only leaders can effectively inspire their teams not only to safeguard trust in the military but also continue to strengthen it by training realistically and safely at the same time. Leaders play an irreplaceable role in training safety because only leaders can frame safety as an operational and strategic necessity, thus promoting ownership of training safety at all echelons as an individual responsibility that every soldier must own and uphold.

Conclusion

Training safety is a constantly calibrated balance between risk and realism, and it seeks to maximize the operational benefits of training while minimizing its risks. A common refrain is that militaries' risk tolerances swing to opposite extremes of the risk-realism scale like a pendulum whenever safety incidents occur and whenever anxieties have abated, with the cycle repeating itself in perpetuity. Strong leadership is required to break this pattern because only leaders can effectively create a shared understanding and appreciation of *what* training safety really is and *why* it is operationally and strategically critical to all militaries. Leadership provides direction and purpose for a well-informed and constructive safety culture to percolate through the military, thus explaining why it is *the* critical factor in promoting peacetime training safety. ■

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Riga, Latvia, on 3 September 1917, the day of the German conquest. The Battle of Riga was the last major campaign on the Eastern Front before Russia's provisional government began disintegrating. (Illustration from Hans W. Schmidt in *Illustrated History of the World War 1914–1918* [in German], vol. 7 [Union Deutsche Verlagsgesellschaft, 1918], via Wikimedia Commons)

The Battle of Riga

A Case Study for Successful Breakthrough Operations

Capt. Randy Noorman, Royal Netherlands Army

The key points of judgement for the higher headquarters as regards combat will be where to apply their limited number of penetrating ISTAR assets to understand the enemy deep, where to apply long-range fires to shape the enemy, and when the balance between sensors and fires has met the conditions for committing a concentrated force.

—Jack Watling

On 1 September 1917, the German Eighth Army under the command of Gen. Oskar von Hutier conducted one of the most successful breakthrough operations of the First World War while crossing a major river about twelve miles to the southeast of Riga, Latvia. The attack began with over 1,100 guns, howitzers, and mortars conducting a very intense and complicated preliminary bombardment that lasted just over five hours, during which over half a million shells were fired at Russian positions. This was followed by three divisions crossing at three different sites on a front nearly six miles wide.[1] Preceded by specialized assault detachments called *Sturmtruppen* (stormtroopers) and supported by the highly effective artillery bombardment, these divisions were quickly able to overcome the initial Russian defenses. However, this was just the first echelon, and within just forty-eight hours, a total of nine German divisions, divided into three different assault echelons, had crossed the 300- to 400-meter-wide river. On the morning of the third day, German troops entered Riga basically unopposed. Although the majority of the Russian Twelfth Army managed to escape the encirclement, the German victory was unprecedented at the time and served as a blueprint for Germany's *Kaiserschlacht* (Kaiser's battle) on the Western Front in the spring of the following year.[2]

The Battle for Riga is an interesting case study for comparison to the current dilemma facing both the Russian and Ukrainian, as well as Western, armies of overcoming the consequences of the so-called "transparent battlefield."[3] Although the transition from combat distributed along a contiguous front into the tactical and operational depths of the adversary is a process that only fully came into being with the development of the *deep battle* and *deep operation* within the Red Army during the interwar period, there are still important parallels between current battlefield conditions in Ukraine and the tactical difficulties in fighting through the elaborate defensive systems of the First World War.[4] In a recent article, retired Maj. Gen. Mick Ryan also emphasized the difficulties in conducting a contested river crossing operation and hinted at possible Russian river crossing attempts in the near future.[5] Beside this interesting possible prospect, however, the primary goal of this article is to use the Battle of Riga as a means to demonstrate that the German responses to the problem of breaching in and fighting through a defense in depth, on a conceptual level, though much more rudimentary, are not dissimilar to those necessary under modern conditions. To this end, this article will compare the highly successful Riga offensive with the failed Ukrainian counteroffensive in the summer of 2023 to identify the parallels that can provide insights into how to potentially find a way out of the current tactical stalemate in Ukraine.

The Tactical Dilemma

Although defense is usually regarded as the stronger form of warfare, the main reason offensive actions can be successful is because an attacker can choose the time and place of an attack and establish a favorable correlation of forces. Historically, this was achieved mostly through mass. During the latter half of the nineteenth century, however, an important shift in the so-called offense-defense balance began to take place due to technological advancements that led to huge increases in firepower. Massive casualties suffered during offensive actions forced armies to disperse even more on the battlefield. Consequently, it became far more challenging to concentrate fighting power at the decisive point, making the defense even more dominant. In September 1914, an uninterrupted front line took shape across northern France (and,

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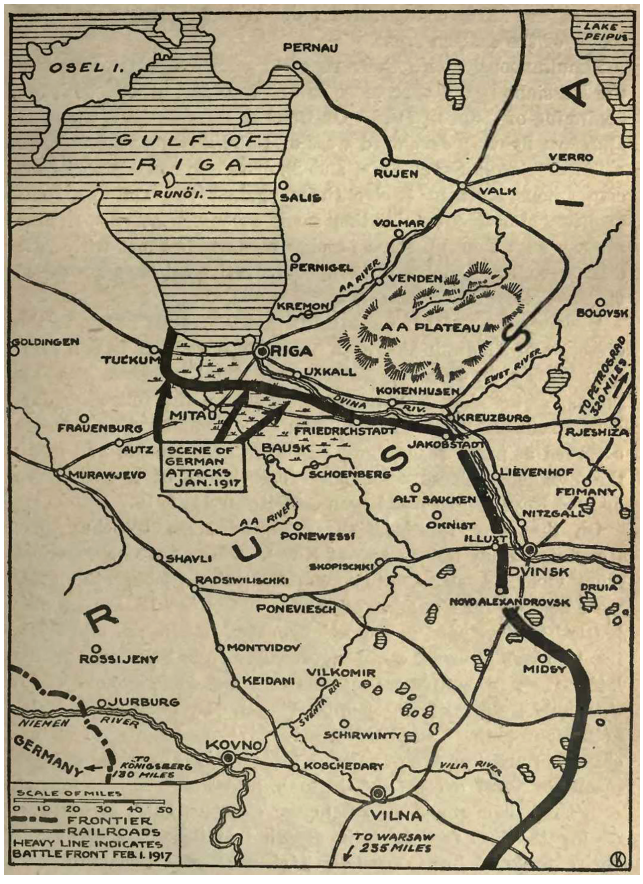


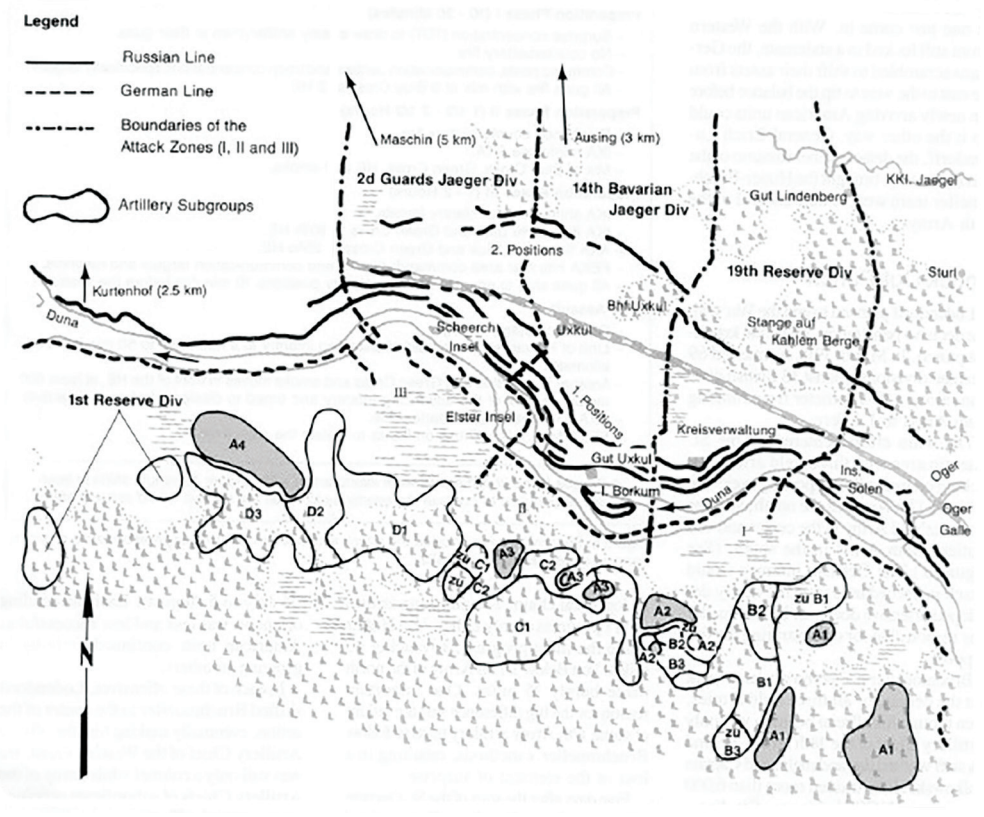
The map shows actions and positions during the German counter-offensive toward Riga after the Russian 12th Army offensive (Battle of the River Aa) from January to February 1917. (Map from Francis J. Reynolds, Allen C. Churchill, and Francis Trevelyan Miller, eds., *The Story of the Great War*, vol. 6 [John A. Collier & Son, 1919], via Wikimedia Commons)

due to its lower troop density, to a lesser degree on the Eastern Front), and in due time, defenses began to disperse in depth in response to the increasing lethality of artillery concentrated against densely packed troops in frontline trenches. As a result, the actual conduct of combat actions expanded from the traditional line of contact and came to include distributed combat actions across time and space.[6] From that moment on, an assault had to be conducted and sustained all the way through the entire depth of an enemy's tactical defense.

The main dilemma facing all belligerents during the First World War was thus how to enable maneuver through fire to overcome what Soviet theorist Georgii Isserson called a fire intensive front and prevent premature culmination of the attack across larger distances.[7] This is usually divided into three separate phases: breaking into the enemy's front line; breaking through the tactical depth of the enemy's defenses, which by itself could be multiple miles deep; and finally, breaking out in order to defeat the enemy's operational reserves.[8] Breaking in was not the main difficulty. Fighting through, however, would take the belligerents four years to achieve, while the methods for breaking out would not be realized until after the mechanization of warfare. Communication technologies during this time were simply not advanced enough to facilitate effective coordination between artillery, which was located at the divisional echelon, and the advancing infantry, which remained dependent on individual rifleman deploying in vulnerable linear formations. Consequently, all belligerents began searching for new ways and methods, as well as technological solutions, to reenable maneuver against a modern defense. These attempts led to the establishment of combined arms warfare on different tactical levels aimed at combining effects rather than mass. At higher echelons, numerous advancements were made in order to adjust artillery fire to the advancing infantry. The use of gas was one such attempt, as well as a method to increase and diversify the effects of existing artillery. The tank was another, developed to offer protected firepower to the advancing infantry. Meanwhile, the first developments in the conduct of tactical air support and air interdiction were made. Additionally, basically all armies experimented with specialized assault detachments to a certain extent.

The German Responses to the Tactical Dilemma

Despite eventually losing the war, it was the German army that would prove to be most successful in trying to overcome this tactical dilemma. Already in 1915, the *Oberste Heeresleitung* (OHL, or German High Command) ordered the establishment of a specialized assault formation to experiment with new weapons and tactics. It was to become the impetus for the creation of multiple so-called *Sturmbataillonen* (assault battalions), operating as training cadres and elite assault formations, as well as the formation of *Stosstruppen* (shock troop) detachments within regular infantry formations. By delegating heavy support weapons that would otherwise only be found at higher echelons down to lower tactical levels, stormtroopers could provide their own



Organization and Missions of German Artillery

Group		Sub-group	Mission	Batteries				
				Field Guns	Hvy Guns	Lt Field How	Hvy Field How	Hvy Arty Mortars
AKA	A	A1	Neutralize the enemy artillery.	5	5	-	2	-
		A2		6	-	-	1	-
		A3		7	1	-	-	-
		A4		7	1	-	1	-
IKA	B	B1	Lay fire on the first-line positions to prepare for assault in the 19th Reserve Division's attack zone.	4	-	8	6	3
		B2	Lay heavy fire on the second-line positions to prepare for the assault in the 19th Reserve Division's attack zone.	-	-	3	3	-
		B3	Lay down a fire barrier to the east.	9	2	-	-	-
	C	C1	Lay heavy fire on the first-line positions to prepare for the assault in the 14th Bavarian Jaeger Division's attack zone.	6	2	7	10	5
		C2	Lay heavy fire on the second-line positions to prepare for assault in the 14th Bavarian Jaeger Division's attack zone.	2	2	3	3	-
	D	D1	Lay heavy fire on the first-line positions to prepare for assault in the 2d Guards Jaeger Division's attack zone.	5	-	7	7	2
		D2	Lay heavy fire on the second-line positions to prepare for assault in the 2d Jaeger Division's attack zone.	1	-	5	3	-
		D3	Lay down a fire barrier to the west and provide fire support for the 1st Reserve Division in case of a Russian attack.	6	2	-	-	-
			Total	58	15	33	36	10

(Images from David T. Zabecki, "Der Durchbruchmueller," *Field Artillery* [August 1990])

Bruchmüller's Positioning of Fire Units Near Riga to Support the Attack on 1 September 1917

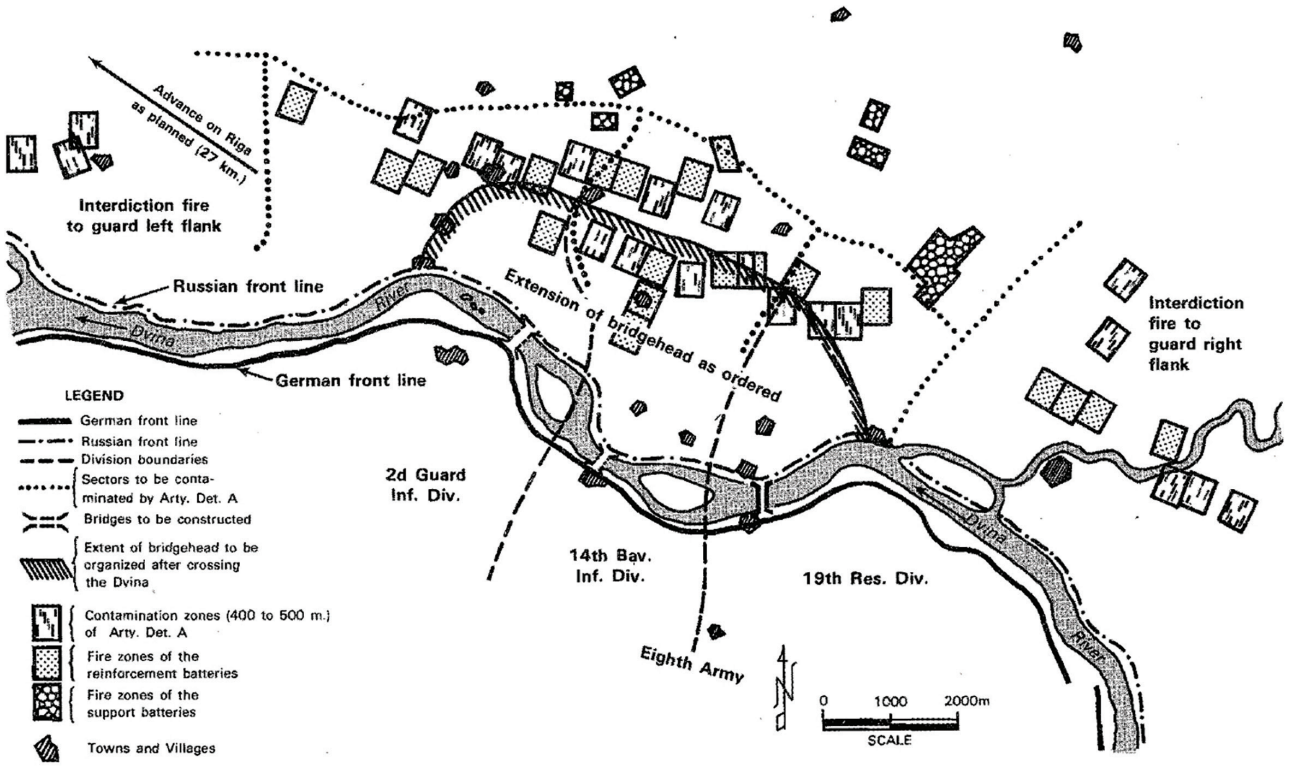
fire support and disband the vulnerable linear formations to instead operate in small mutually supportive groups, enabling them to exploit the terrain for cover and concealment during forward movement. Operating machine guns, rifle grenades, mortars, flamethrowers, and even small field guns, stormtroopers penetrated enemy defenses, bypassing strongpoints and disrupting the enemy's ability to resist from within its own rear area. Not surprisingly, this necessitated a strong degree of independence of action and initiative, or *Auftragstaktik*, which the Germans introduced to the lowest tactical levels accordingly.[9] At higher tactical echelons, several innovations led to greater effectiveness of artillery and improved coordination with the advancing infantry.

A key figure in developing new artillery tactics was Lt. Col. Georg Bruchmüller, nicknamed *"Durchbruchmüller"* [Breakthrough Müller], the German army's leading artillery officer, whose role and impact on the development of artillery tactics, then and now, cannot easily be overstated. Bruchmüller aimed not to destroy but rather to temporarily neutralize the enemy through shock to facilitate the stormtroopers' assault.[10] One of the first changes he applied was moving away from the prolonged preliminary bombardments conducted several days in succession. Not only did these not have the proper effect, but they also gave the enemy a clear understanding of where the assault would take place, eliminating the element of surprise. Instead, the duration of the bombardment was reduced to several hours, but with a much higher intensity through a concentration of (relatively) accurate fire. He successfully implemented the revolutionary "Pulkowski" method for predictive fire by calculating ballistics using mathematics, eliminating the necessity for the ranging of individual pieces and batteries prior to the bombardment, thereby further increasing the element of surprise.[11] Additionally, he extensively used gas shells containing different chemicals for alternating effects in order to incapacitate enemy artillery and seal off the breakthrough sector from enemy reinforcements.[12] Opposed to the decentralized employment of assault formations, these comprehensive and complicated artillery preparations required centralized command and control.[13]

The Battle of Riga

The defense of the Russian front near Riga was assigned to the Russian Twelfth Army under the command of Gen. Dmitri Parskii. Two of its corps, the II and VI Siberian, defended the Russian bridgehead on the western bank of the Dvina, which was where Parskii expected a possible German attack, mainly because this would enable the Germans to penetrate Russian defenses before crossing the river. The Russian XXI and XLIII Corps defended along the eastern bank of the Dvina, covering a front of more than sixty miles toward the southeast. The front section that the Germans actually selected for their assault, opposite the village of Üxküll, was defended by the Russian 186th Rifle Division, part of XLIII Corps. Being in between two revolutions, however, the Russian army was short on almost everything, including morale. Equally important, the Russians could muster only sixty-six artillery pieces for fire support within the intended breakthrough sector.[14] Nonetheless, Russian troops occupied strong natural defenses and constructed at least two successive lines of fortifications, each consisting of multiple trench lines. Therefore, to be successful, any German attack within this sector had to cross the river in full sight of Russian troops occupying higher ground before breaking into and fighting through the actual Russian defenses.[15]

For the upcoming assault, Hutier received significant reinforcements. The units that were to spearhead the assault spent up to two weeks behind the front rehearsing extensively the newly developed assault tactics that were applied at Riga for the first time on a grand tactical scale. His plan called for a short but intense artillery barrage during which the initial assault formations would cross the river and break into the Russian positions. They would then bypass enemy strongpoints and further infiltrate Russian defenses. The first echelon to cross the river would consist of the 2nd Guards Division on the left flank, the 14th Bavarian Division in the center, and the 19th Reserve Division on the right flank. At the same, time three other German divisions would stage a diversionary attack against the Russian bridgehead on the western bank of the Dvina to prevent Russian troops from retreating northward, out of the city. Once the initial bridgehead was secured, a pontoon bridge was to be built in each divisional sector, paving the way for the second and third echelons to cross. The ultimate aim was to envelop Riga before Russian troops could withdraw from the city and trap a large part of the Russian Twelfth Army inside.[16]

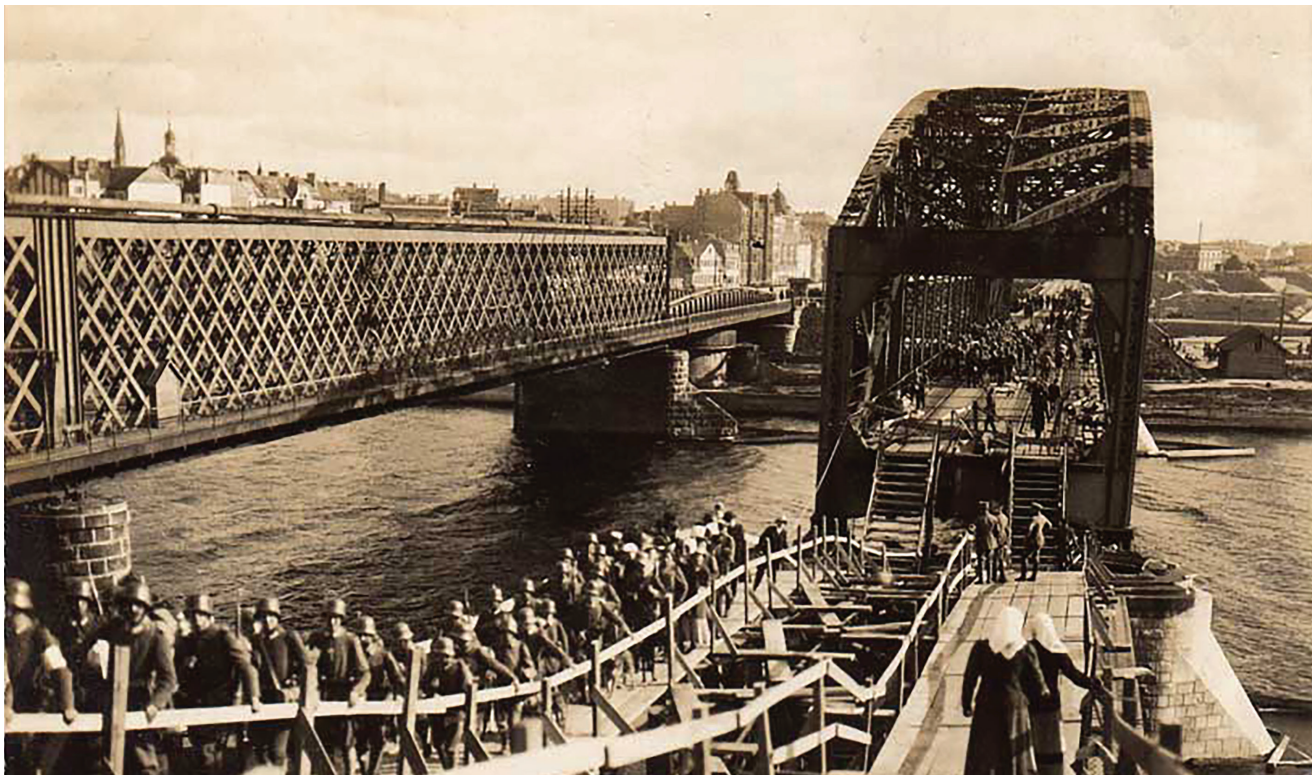


(Map from Charles E. Heller, *Chemical Warfare in World War I: The American Experience, 1917–1918*, Leavenworth Papers No. 10 [September 1984])

Zones of German Gas Fired (Gas Squares) in Support of a Crossing of the Dvina River before Riga, Eastern Front

Meanwhile, Bruchmüller was brought in to orchestrate the artillery. Centralization was a key element in his ability to plan and coordinate the bombardment effectively, and on arriving, he immediately gathered all available guns, howitzers, and mortars under his personal command, which previously operated primarily under divisional-level control.[17] The Germans had extensively reconnoitered the Russian defenses in advance using aerial photography, mapping trench systems and accurately locating artillery batteries, means of communication, and even command posts down to battalion level. To effectively coordinate its effects in time and space, the initial bombardment itself was divided into five different phases while the 152 artillery batteries were divided into task-organized groups, each with its own assignment within each phase. Some of these were tasked to fire "barrier barrages," sealing off the intended breakthrough sector in order to prevent Russian reinforcements from intervening.[18] Others aimed to suppress Russian artillery or were directed against infantry positions, creating so-called "gas squares" within which different types of gas shells were used with complementary effects.[19] Bruchmüller was thus one of the first to distinguish between the close and deep battles and to recognize the need to coordinate them.[20] All the while, preparations were masked by the near complete German air superiority and the heavily forested area of operations, which extended all the way up to the riverbank.

At 0400 hrs. in the morning of 1 September, the hurricane bombardment began with more than 1,100 tubes firing simultaneously along a front nearly ten thousand yards wide, achieving an average density of sixty-eight guns and howitzers and sixty mortars for almost every one thousand yards of front. The opening phase was primarily aimed against Russian artillery and, containing huge numbers of gas shells, achieved almost instant fire superiority within the selected breakthrough sector. After two hours, the emphasis shifted toward the Russian front lines, primarily using



German troops crossing the Daugava (Dvina) River in Riga via a railway bridge, which had been demolished by retreating Russians. (Photo courtesy of Wikimedia Commons)

high explosives, while dedicated batteries continued pounding Russian artillery positions. Finally, during the last twenty minutes, almost all available tubes, including relatively short-range mortars, joined the final barrage in preparation for the upcoming assault. In all, in just over five hours, the Germans fired more than half a million shells, enabling the assault formations to cross the river basically unhindered. Once they reached the other bank and broke into the first Russian trenches, the leading infantry units fired green flares, signaling the artillery to begin the creeping barrage, or *feuerwalze*, themselves following closely behind.[21] The Russian defenses, meanwhile, quickly began to falter.

During the next phase, the main difficulty was trying to combine fire and maneuver in such a way that the artillery was able to follow the infantry's rate of advance and not, as had been the case during previous battles, the other way around. Besides using green flares, Bruchmüller advocated the use of forward observers who would join the infantry units during the attack. They were accompanied by several telephone operators laying out telephone cables as the forward units advanced, relaying target information and the limit of the infantry's advance back to static observation posts along the front, further toward the rear, which in turn were connected to the artillery batteries.[22] Additionally, the Germans deployed airplanes with crews who were specifically trained to correct artillery fire through the use of Morse code radio messages, while fighter aircraft actively searched for approaching Russian airplanes. Even more innovative, three so-called "infantry planes" were allocated to each of the three assault divisions in the first echelon; their task was to report on the progress of the advance. Finally, dedicated ground attack planes carrying bombs and machine guns were tasked with attacking Russian troop concentrations behind the front.[23]

Each phase of the attack continued to be meticulously supported by artillery, all part of Bruchmüller's orchestration, dominating the battlefield to such an extent that Russian resistance soon crumbled and enabling German troops to move in company-size formations basically unhindered and in relative safety.[24] Once the Germans gained a proper foothold on the right bank of the Dvina, the lighter guns were allotted

back to divisional level and rafted across the river in order to support the advance toward the second Russian line of defense. The heavier guns, with longer effective range, continued to support the attack from the left bank.[25] Meanwhile, German engineers immediately began building three pontoon bridges, one in each division sector, and as a result, within twenty-four hours, six out of nine divisions had crossed the river.[26] Under this relentless assault, the Russian defense soon collapsed, and while a number of Russians surrendered, most units simply broke and ran, leaving most of their guns and heavy equipment behind. Parskii, commander of the Russian Twelfth Army, ordered several counterattacks to be undertaken; however, those actions were far beyond Russian capabilities at that moment. The German advance therefore continued virtually unopposed until it ran into the 2nd Latvian Rifle Brigade, which had managed to put up a hasty defense along a small river. This offered the Russians troops just enough time to abandon the city, albeit without heavy equipment, and formed the main reason the Germans could not fully exploit their initial success. Nonetheless, German troops entered Riga on 3 September, less than sixty hours after the operation had begun.[27]

The Fundamentals

The development of tanks and armored vehicles was another attempt to return mobility to the battlefield during the First World War, enabling troops to concentrate and maneuver under fire by offering mobile protection. Mechanization has since then led to nothing less than a transformation in warfare, both tactical and operational. Making a correct translation of the First World War's tactical dilemmas to the present is therefore not an easy accomplishment, particularly as battlefield capabilities of modern armies, as well as the battlefield itself, have again expanded significantly over the last decades. Currently, the proliferation and density of drones on the Ukrainian battlefield ensures that almost complete transparency is achieved along the front, extending multiple miles beyond the forward lines with decreasing density as it progresses.[28] Modern land-based strike weapon systems, meanwhile, can achieve a high level of accuracy and destruction at far greater distances. Although these developments generally favor the defender, enabling it to combine effects from dispersed locations, surprise and a physical massing of forces remain necessary preconditions for success during offensive actions. On a conceptual level, therefore, the primary tactical dilemma basically remains unaltered, because now, as then, it results in the inability of the attacker to achieve the necessary concentration of forces at the decisive point, which remains a key principle in warfare.[29] This is especially true when breaching linear obstacles, which is why the fundamentals of breaching operations—suppress, obscure, secure, reduce and assault—have become more relevant and presumably even more difficult to achieve.

Breaching operations are not that dissimilar to gap-crossing operations like the crossing of the Dvina River because, in either case, the attacker is forced to move through certain predetermined chokepoints at a relatively low speed, making the attacker extremely vulnerable. Success, meanwhile, depends on the attacker's ability to achieve the necessary mass once the obstacle has been crossed in order to conduct follow-on operations. The number of crossings or lanes thus determines the speed at which the attacker can generate sufficient combat power to continue the attack. During World War I, repelling an assault was in large part achieved through the mass employment of artillery batteries firing from relatively fixed, though possibly concealed, locations. Nowadays, however, the available assets to accomplish this are much more diverse, mobile, and effective and therefore able to concentrate effects while operating from dispersed positions.

Successful assaults require suppressing the enemy's fires that can affect the forces conducting the breach or crossing through effective targeting and obscuration, including electronic attack. However, the complex distributed nature of a modern defense complicates the attacker's intelligence gathering process and targeting cycle. Besides blocking enemy reinforcements or counterattacks, securing these chokepoints also requires establishing air defenses against enemy drones and attack aviation. Meanwhile, while the assault is underway, shaping the battlefield in the depth of the enemy's defense is crucial to retain momentum following the breach or crossing.[30] These are complex operations that depend on centralized battlefield management to integrate and synchronize all available sensors and fires at higher echelons in order to disrupt the enemy's sensor-to-shooter links and set the conditions for a the deployment of a concentrated force.[31]

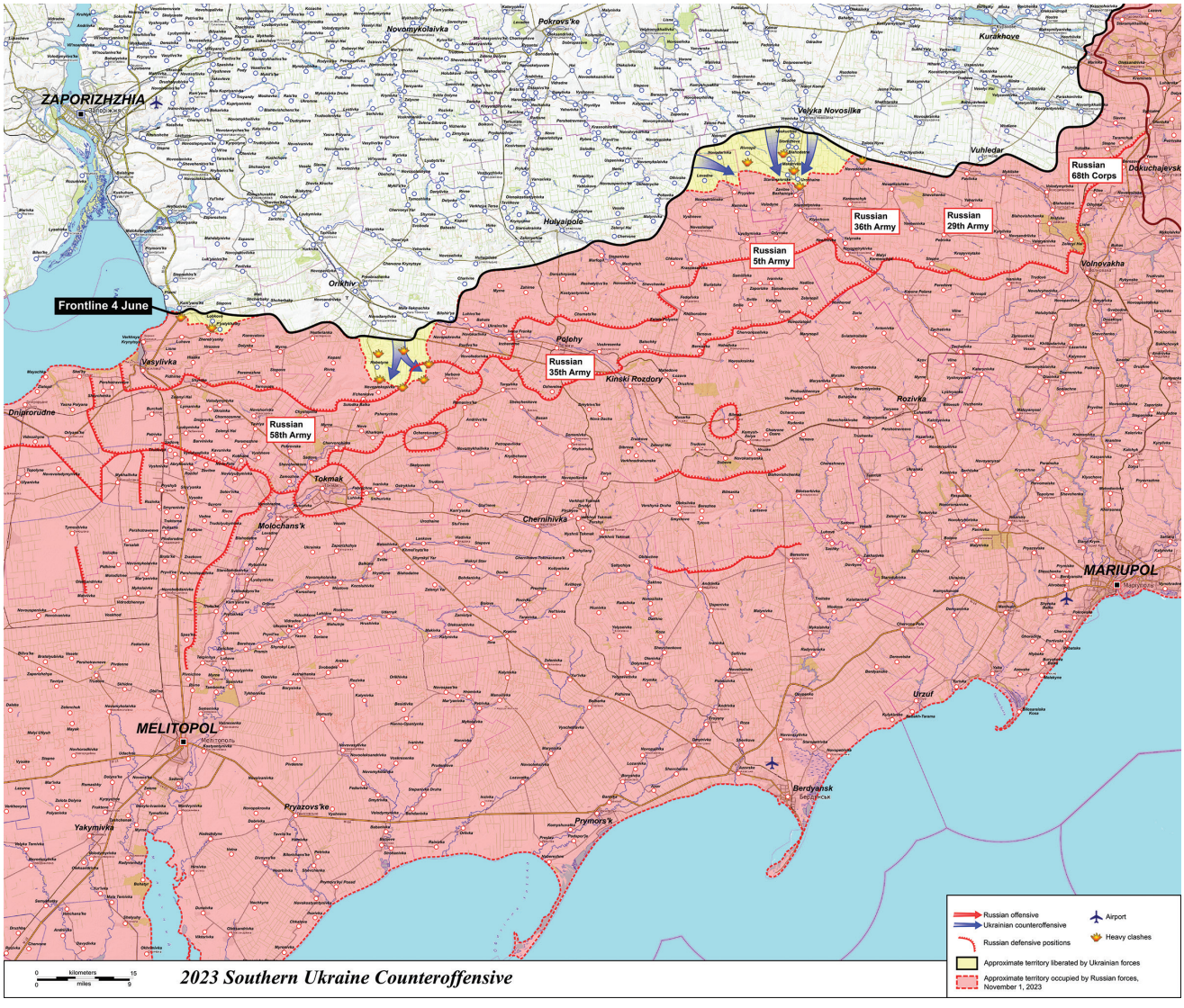
In a recent report, the Institute for the Study of War referred to the current tactical problem of forced dispersion and positional warfare as being the result of the so-called "Tactical Reconnaissance Strike Complex," a combination of tactical reconnaissance conducted primarily by drones but also radar and electronic warfare assets, with long-range strike systems such as artillery (with or without precision munitions) as well as first-person-view drones and loitering munitions.[32] In the Soviet and Russian military lexicon, this has been referred to as the "reconnaissance-fire (ROK) and reconnaissance-strike complexes (RUK)" at the tactical and operational levels, respectively.[33] More commonly referred to as a sensor-to-shooter cycle, the main differences from traditional artillery are the depth to which one can adjust fires, extending far behind the enemy front line; increased precision; and especially the speed that can be achieved from target detection to subsequent destruction. Though much more complex and dynamic, the current challenge in order to restore maneuver basically remains the same as it was during World War I: reestablishing conditions that enable a concentration of forces by disrupting the defenders' ability to effect and disrupt the breach or crossing as well as isolating the attackers' breakthrough sector from enemy reinforcements through effective battlefield air interdiction.[34] If this is not possible, one alternative is to establish combined arms formations at the lowest tactical levels by providing the necessary means to enable dispersed tactical units to operate independently.[35]

The 2023 Ukrainian Counteroffensive

The Russian defenses in Zaporizhzhia Oblast in 2023 were among the strongest along the entire front line and were subdivided into three different layers, each consisting of multiple obstacle barriers, including deep and dense minefields as well as trench systems, stretching out to almost twenty miles in depth.[36] Much like its Soviet predecessor, however, Russian defenses consisted not of the uninterrupted trench lines reminiscent of World War I but rather of dispersed clusters of strongpoints manned by individual companies and platoons with overlapping fields of fire and large amounts of antitank guided missiles. These positions were backed by artillery firing from dispersed positions further behind and tanks operating in small groups to support local counterattacks, as well as large amounts of drones in both reconnaissance and attack roles.[37] The Russian troops manning these defenses primarily belonged to the 42nd Motor Rifle Division and 7th Airborne Division (VDV), both under the command of 58th Combined Arms Army. Six regiments in total, augmented by naval infantry and two other divisions (19th and 76th) held back in reserve. Together, these units could muster up to a thousand artillery pieces, including multiple launch rocket systems (MLRS) and almost two thousand tanks and armored fighting vehicles. Ammunition supplies for artillery on site were enough to last over a month of high-intensity combat.[38]

Following repeated war games, the Ukrainians selected the Orikhiv-Tokmak axis as the main effort, with a total frontage of about twenty miles wide and with the ultimate aim of capturing Melitopol in order to sever Russian lines of operation along the Black Sea coast. Secondary attacks were conducted at Bakhmut and in the direction of Berdyansk in order to tie down Russian reserves. To accomplish this task, the Ukrainian army gathered at least nine brigades along the main effort, most of them newly raised, and divided them into three separate echelons.[39] Ninth Corps, making up the first echelon consisting of 33rd, 47th, and 65th Mechanized Brigades (making it equivalent to a division in strength), was to breach the Russian front line and was therefore assigned most of the new Western equipment. Tenth Corps, forming the second echelon and outfitted mostly with older Soviet equipment, would then continue the attack toward Tokmak. The third echelon, the so-called "Maroon" Corps, included the more elite 46th Airmobile and 82nd Air Assault Brigades and would exploit the attack toward Melitopol. This was deemed sufficient to overcome the initial six Russian regiments, as long as the necessary tempo was maintained, and prevent the arrival of reinforcements. The initial assault was to be preceded by preparatory artillery fire, while in the weeks leading up to the offensive, a shaping operation was conducted using guided MLRS (GMLRS) and Storm Shadow or Scalp cruise missiles against Russian command-and-control and logistical nodes. Meanwhile, preliminary operations around Bakhmut began in mid-May in order to tie down Russian forces.[40]

The main artillery preparation began during the early morning hours of 4 June. The ensuing ground



(Map by Rr016 via Wikimedia Commons)

2023 Southern Ukraine Counteroffensive During the Russo-Ukrainian War

assault, however, was delayed for several hours because of inadequate deconfliction measures during the forward passage of lines, leading to several friendly fire incidents. The actual ground assault, therefore, was not conducted immediately following the artillery bombardment. Consequently, Russian troops manning their defenses were not suppressed while the lead Ukrainian units began their advance.[41]

The next problem arose when the advancing mechanized companies, supported by small numbers of tanks, tried to break through the exceptionally deep Russian minefields. While trying to work their way forward, Ukrainian mine-clearing vehicles became easily targeted by Russian antitank guided missiles. The tanks and infantry fighting vehicles following behind soon became immobilized by mines while trying to get out of the vulnerable corridors. These were then effectively targeted by Russian artillery and first-person-view drones. Those who were able to escape from this carnage were subsequently picked off by Ka-52 attack helicopters and Lancet loitering munitions operating from longer ranges. During the opening days of the offensive, multiple Ukrainian mechanized companies suffered this fate and were virtually annihilated.[42]

As U.S. military officials began pressing the need to concentrate forces at the decisive point, Gen. Valerii

Zaluzhnyi, the Ukrainian commander in chief at the time, instead decided the opposite.[43] After four days of concentrated mechanized assault ending in failure, during which the Ukrainians lost over half of their mine-clearing equipment, they reverted back to employing small-scale dismounted infantry assault tactics supported by small numbers of tanks and infantry fighting vehicles.[44] Although this limited Ukrainian losses, it sacrificed tempo, and as a result, the Russians were able to bring in significant additional reinforcements. As the offensive grinded down into an attritional phase, the counterbattery battle intensified.[45] While a significant amount of Russian artillery systems ended up being destroyed, it was not enough to mitigate Russian dominance in fires. The initial commitment of 10th Corps, followed by the Maroon Corps in July, to reinforce or rotate frontline formations made a successful breakthrough and subsequent exploitation even more unlikely, despite the attack frontage being narrowed from twenty to just over six miles. Nevertheless, the advance continued slowly but steadily throughout August. The Ukrainian 47th brigade eventually managed to capture the village of Robotyne on 28 August, eighty-five days after the start of the attack and a mere fourteen kilometers from the initial line of departure, which had been an objective for the first twenty-four hours. By mid-September, however, it became clear that the offensive had finally culminated.[46] There are a number of important and perhaps obvious reasons why the Ukrainian counteroffensive failed:

- the choice of the general staff to commit newly raised brigades along the Ukrainian main effort instead of more experienced troops;
- the general lack of training on new Western equipment;
- a shortage of specialized mine-clearing vehicles;
- the fact that each brigade possessed only two to three companies capable of offensive action, which necessitated their relief by regular infantry every time they captured a Russian position and thereby reducing the overall tempo;
- their inability to conduct operations at scale because of battalion and brigade staffs being undertrained; and
- the fact that the Russians possessed detailed information about the Ukrainian operational plans, to name but a few.[47]

These reasons, however, merely illustrate that the Ukrainians could not solve the primary tactical dilemma both sides had and still have to face, which, as Zaluzhnyi himself stated afterward, is that "modern sensors can identify any concentration of forces, and modern precision weapons can destroy it."[48] Furthermore, he argued, "The success of the troops operations directly depends on the effectiveness of strikes and fire, so the hunt for the enemy's fire is a priority for both parties."[49] Zaluzhnyi clearly stressed the importance of the counterbattery battle to be won as a prerequisite for maneuver, which nowadays encompasses much more than just the artillery, but if successful it can reestablish conditions that enable a (temporary) concentration of forces at the decisive point.

Furthermore, there are a number of clear indications why the Ukrainian army failed in doing so. For one, the density of artillery was not particularly high to begin with. The greatest number of 155 mm howitzers operating at one time in concert to support the offensive along the Orikhiv-Tokmak axis was fifty-five, firing a maximum of seventy rounds per gun per day, but usually much less. The availability of GMLRS was likewise severely limited.[50] Additionally, the deep strike campaign, prior to and during the offensive, was not sufficiently aligned with actual ground operations and the offensive's goals to be achieved, as it primarily targeting Russian logistical hubs and command-and-control facilities far behind the front as well as elements of the Russian Black Sea Fleet.[51] Later, while the offensive was ongoing, GMLRS strikes were reprioritized to target Russian artillery, but by then it was too late. Moreover, Russian countermeasures against Western precision weapons such as GMLRS and Excalibur were quite effective.[52] Besides the limited efficacy of Ukrainian ground-based fires, Ukrainian air assets were equally unable to conduct battlefield air interdiction because of strong Russian air defense capabilities. The distributed nature of Russian defenses made it difficult for Ukrainian artillery to mass its fires and destroy or suppress the Russian defenders.[53] Meanwhile, the Russian Tactical Reconnaissance Strike Complex, in contrast, enabled them to target massed Ukrainian armor effectively, in turn forcing them to disperse. What remained were individual tanks and armored vehicles that were easily picked off by individual standoff weapons.

Conclusion

The German army at Riga deployed three divisions on a front nearly six miles wide. In contrast, the Ukrainians in Zaporizhzhia attacked along a front three times as wide, with a force approximately only one-third of that size. In both cases, the attacking formations planned to advance in three successive echelons in order to sustain the attack and maintain tempo. Despite Ukraine's obvious low force-to-space ratio, the need for concentration of forces at the decisive point as a prerequisite for offensive action remains as relevant today as it was a century ago. The same is true for its vulnerability to increases in firepower. A defense in depth derives its strength from its ability to project and sustain defensive combat power from longer distances, creating a sequential and overlapping effect through a system of mutually supporting weapon systems, traditionally directed primarily against an opponent's front. Historically, due to limited ranges for observation and fires, the defense had to be equally dense to achieve the desired effects. Today, more than ever before, modern weapons enable a defender to concentrate effects from relatively large distances and dispersed positions against an attacker's front and far beyond.

A comparison between the two offensives therefore reveals the necessity to be able to temporarily shield the planned breakthrough sector from the enemy's (mostly indirect) effects and prevent it from being strengthened through reinforcements. This is what the *deep battle* was designed to accomplish, although during the First World War, this development still was in its infancy. It is also clear that under modern circumstances, this has become much more complex and difficult to achieve. It no longer means just silencing the enemy's artillery—which, operating from dispersed positions, is more difficult to locate and destroy by massed fires—and also blinding enemy sensors and different attack forms including controlling, or at least affecting, the electromagnetic spectrum. Coordinating and synchronizing the necessary assets and their effects to register as cumulative effects requires centralization at higher levels. Suppose an attacker is unable to establish these conditions, however. The other logical option remaining is to disperse and to generate the necessary firepower not by massing forces but by delegating heavy weapons down to lower tactical levels, enabling smaller units of action to provide their own fire support. At Riga, the Germans applied both. The centralized and well-orchestrated preliminary artillery bombardment by Bruchmüller and the deployment of specialized assault detachments on a grand tactical scale proved to be the key ingredients for the stunning German success. In 2023, the Ukrainian army failed at the first and therefore switched to the latter out of necessity. For any breakthrough to be successful in the future, sensors and fires need to centrally coordinated to achieve the preconditions that enable the commitment of a concentrated force. ■

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U.S. and Philippine service members download equipment from USAV *SSGT Robert T. Kuroda* (LSV 7) during Salaknib 2025 at Dingalan Bay, Philippines, on 6 April 2025. Combined joint logistics over the shore demonstrates the Philippine and U.S. forces' critical capability of bringing vehicles and equipment to the shore in austere environments or when port facilities are unavailable and aims to enhance logistics, interoperability, communication, and cooperation between the United States and the Philippines. (Photo by Staff Sgt. Tristan Moore, 8th Theater Sustainment Command)

Distributed Logistics and Deterrence

Maj. Christopher M. Salerno, U.S. Army

Distributed logistics across the U.S. Indo-Pacific Command (USINDOPACOM) area of responsibility (AOR) can directly support deterrence efforts and enable the joint force to campaign more effectively within the region. As the *National Defense Strategy* states, "For logistics and sustainment, we will reinforce our capability to quickly mobilize and deploy forces and to sustain high-intensity joint denial operations despite kinetic and non-kinetic attack and disruption."[1] First, the Department of Defense's (DOD) efforts to create a contact force within the People's Republic of China's (PRC) disruption zone demands a resilient sustainment infrastructure, which requires distributing formerly consolidated bulk supplies across the region. Second, this distribution requires a diplomatic effort to gain regional access agreements. Finally, distributed logistics directly enable deterrence by denial and resilience. The *National Security Strategy* describes how today's decisions will lay the foundation for the necessary advantages to win in this competitive era.[2] Establishing a distributed logistical footprint across the USINDOPACOM AOR requires significant investment over the next decade to support U.S. efforts.

Background

Secretary Lloyd Austin's decision in the spring of 2022 to permanently shut down and drain the Red Hill Underground Fuel Storage Facility in Hawaii presents an opportunity to redesign the United States' logistical infrastructure within the region.[3] Red Hill contained 250 million gallons of fuel across twenty bulk containers underneath a mountain range.[4] Built in the 1930s, Red Hill was the U.S. government's initial response to concerns about the vulnerability of above-ground fuel storage facilities, which can be exposed to kinetic and nonkinetic effects across all domains.[5] They specifically present a risk in the Pacific region as it consists of long sea lines of communication, and depending on a single bulk storage site undermines any sustained U.S. efforts in the region. The Defense Logistics Agency recognizes the dangers inherent in consolidated bulk stores.[6] In his Red Hill announcement, Austin said, "The distributed and dynamic nature of our force posture in the Indo-Pacific, the sophisticated threats we face, and the technology available to us demand an equally advanced and resilient fueling capability."[7] This is true not only for fuel but also for the entire sustainment infrastructure. The decision to build a resilient logistical distributed infrastructure will now form the backbone of the successful U.S. joint operations concept for competing and winning in the region.

Joint Force

The DOD's efforts to counter the PRC's antiaccess/area denial (A2/AD) within the Pacific require a resilient sustainment infrastructure. Adm. John Aquilino, former USINDOPACOM commander, recognized how the Red Hill crisis provided an opportunity to transition to a distributed sustainment model that is resilient and capable of meeting the force's needs.[8] Logistics form the backbone of the joint force and power projection within the USINDOPACOM region, and given its size and the adversary's capabilities, a distributed logistical infrastructure becomes a fundamental requirement for a successful joint force. Failure to transition to a more distributed logistical infrastructure will weaken U.S. power projection in the Pacific; it will ultimately undermine credibility because all U.S. service operational concepts depend on dispersed operations.

Multidomain operations requires distribution of forces with the massing of effects, a 2023 RAND study on the Army's role in the Pacific found that "such distribution of combat power will increase and complicate support demands in intra-theater and in-country logistics distribution, air defense, ground security, and allied and partner coordination for RSOI [reception, staging, onward movement, and integration] of incoming forces."[9] In 2022, the 8th Theater Sustainment Command drew upon the forward-staged Army Prepositioned Stock 3, a brigade combat team's worth of equipment in a civilian commercial port in the Philippines, to support rapidly deploying forces from Hawaii.[10] The ability to quickly deploy forces without waiting on shipment across long sea lines of communication directly enables the joint force. Disaggregation only works if the DOD makes critical logistical investments within the region and continues to regularly test that capability as part of joint and combined exercises. The joint force needs a contact force within the disruption zone capable of surviving long enough to help degrade the A2/AD effects to support operations to counter a cross-strait invasion of Taiwan. Consolidated shipping across long sea lines of communication is more vulnerable and less agile than prepositioned stocks and distributed bulk stores spread across the region. The agility afforded the joint

force from a distributed logistical posture enables U.S. forces to project power to emerging, regional crises.

The opportunity to update U.S. logistical infrastructure within the region is decisive and will better position America over the next few decades. However, logistics distribution within the USINDOPACOM AOR contains two interconnected risks that must be seriously addressed. The first risk is that transferring fuel reserves from sites hardened and secured from a range of multidomain threats outside the adversary's disruption zone increases the likelihood they can be effectively targeted early in a conflict and deny U.S. force projection. Second, the U.S. lacks a depth of supplies, and without large depots, the remaining supplies will be spread too thin, potentially undermining an extended campaign. Distributing supplies poses too much additional risk if not tied to creating extra depth throughout the supply chain, constructing multidomain hardened facilities within the AOR, and reinvesting in sea and airlift to support the concept. However, Secretary of the Navy Carlos Del Toro has stated that the U.S. Navy does not need to construct additional fuel sites and can distribute the fuel from Red Hill to existing locations.[11]

A multidomain environment presents a series of new adversary capabilities and potential effects that critical infrastructure must be protected against. Scientific advancements will affect logistics for the entire military within a multidomain environment, and it must respond.[12]

The Navy secretary could be correct in that existing facilities will suffice within the region. However, the risk is high that they were built without considering an adversary's lethal and nonlethal capabilities. Cyber is one example of a vulnerability that needs to be accounted for in the logistical architecture.[13] These distributed nodes should be built similar to how Red Hill was in response to the adversary's capabilities; otherwise, the joint force may find itself without the necessary supplies. The dispersal of supplies may be key, but if the critical infrastructure is not developed to support the dispersal of logistics with an eye toward protection against multidomain threats, then it remains vulnerable. If the United States' sealift suffers, these dispersed nodes may be left isolated and undersupplied. These risks are not insignificant, and the joint force should request the funds to address them properly.

The joint force assumes additional risk if it believes any conflict will be quickly decided and thus underinvests in the necessary logistical depth required to support an extended campaign. U.S. critical supplies lack a depth of quantity and take time to replace, a critical concern that hampers U.S. support to Ukraine.[14] Rep. Rob Wittman of the House Armed Services Committee stated, "In my estimation our mobility and logistics forces are in a clear decline."[15] These are legitimate concerns that merely distributing supplies do not solve. The intervening years between Red Hill's construction and the present day have not reduced the logistical demands of large-scale combat between great powers. It will require massive quantities of supplies that will need intermediate staging bases along the sea lines of communication. These concerns must be addressed if the joint force plan to distribute additional supplies further forward is to be a credible deterrent.

These concerns are valid but do not undermine the idea that a distributed logistical footprint forms the backbone of the joint force's ability to compete with the PRC in the USINDOPACOM region. It enables the joint force to operate sustainably inside the adversary's disruption zone and better positions U.S. forces to respond to crises as they emerge within the region. The shutdown of Red Hill is not a dire threat to U.S. national security, but it still represents an opportunity to reinvest in the sustainment infrastructure to support regional deterrence better. However, the United States must continue diplomatic efforts to support this change.

Diplomacy

Distributing the U.S. logistical infrastructure is a military effort supporting regional security. U.S. forces must leverage regional partners and

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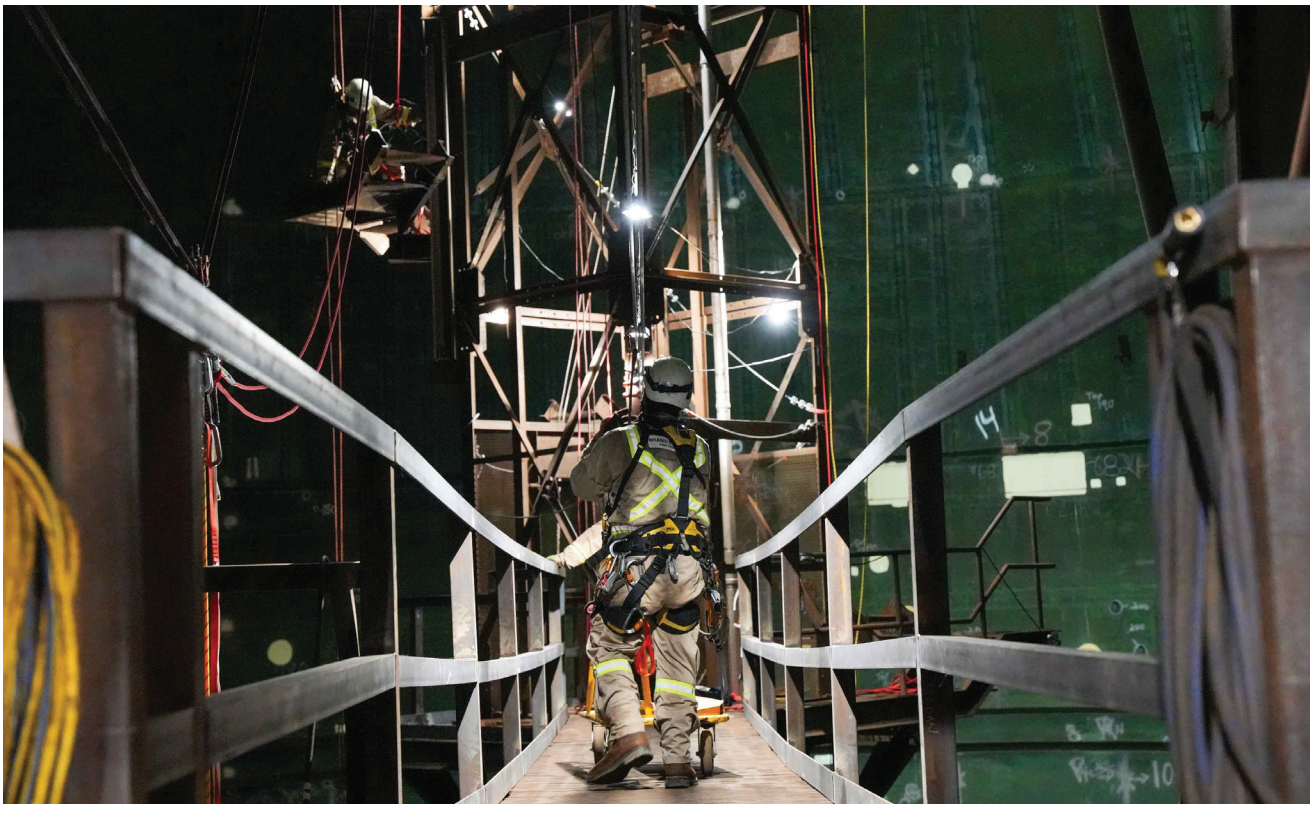

Contractors with Navy Closure Task Force-Red Hill prepare a fuel tank's center tower for tank cleaning operations at the Red Hill Bulk Fuel Storage Facility in Honolulu on 27 May 2025. (Photo by Mass Communication Spc. 1st Class Glenn Slaughter, U.S. Navy)

allies to effectively counter the PRC's A2/AD. The 2022 *Indo-Pacific Strategy* states, "Consistent with our broader strategic approach, we will prioritize our single greatest asymmetric strength: our network of security alliances and partnerships."[16] In a 2022 statement to the Senate Armed Services Committee, Aquilino highlighted how the PRC has upgraded across all warfighting domains, enabling their A2/AD.[17] China can interdict U.S. forces with kinetic and nonkinetic effects, but it is primarily built to counter air and sea forces.[18] Regional partners and allies remain key to getting the necessary infrastructure staged forward within the AOR. This requires a diplomatic effort that the DOD cannot achieve alone.

This effort necessitates a whole-of-government approach, as it will require diplomatic agreements with allied and regional partners. The U.S. government built its logistical infrastructure in Europe over decades in partnership with allies and partners. This same level of diplomatic effort is required in the Pacific as the foundation for a distributed sustainment infrastructure. A joint force supported by a distributed logistical infrastructure that attains the necessary access agreements is a credible threat to the PRC, ultimately promoting regional deterrence. Maj. Gen. David Wilson, U.S. Army Sustainment Command commander, highlighted that it would require diplomatic effort to gain parity with Europe within the Pacific in "Acquisition and Cross-Servicing Agreements" for U.S. forces.[19] During an interview with the Center for Strategic and International Studies, Gen. Charles Flynn, U.S. Army Pacific commander, emphasized recent agreements with the Philippines to enable the joint force.[20] These agreements enable effective competition and strengthen regional deterrence and also operations through robust logistics. The day-to-day campaigning is fundamental to integrated deterrence and cannot occur without these prerequisite access agreements.

These diplomatic efforts are not without risk, specifically complicating a military response when differing regional partners and allies are not connected via a single defense treaty. The *Indo-Pacific Strategy* highlights the importance of leveraging partners and allies.[21] These arrangements proved quite durable over the last two administrations, demonstrating an enduring strength; however, the region still lacks a single unifying

As part of the Army Prepositioned Stock 3, military vehicles are staged and awaiting upload onto the USNS *Red Cloud* on 10 April 2022 at Subic Bay, Philippines, in support of Balikatan 2022. The APS3 mission demonstrates the 8th Theater Sustainment Command's command and control of the APS3 Fix-Forward operation and assesses the operational flexibility to ensure strategic readiness. (Photo by Master Sgt. Sheila Fourman, 8th Theater Sustainment Command)

alliance.[22] The dispersal of logistics connects many differing nations, but still, these nations that may not be bound to work together in case of conflict could undermine the United States' ability to respond. This risk can become minimized with bulk storage stored further along the sea line of communication and should be an impetus for additional efforts to align our partners and allies closer together. As an example, the trilateral summit among South Korea, Japan, and the United States shows the region's strengthening as demonstrated in a joint statement after a 2023 Camp David meeting: "We are united in a common purpose to strengthen our shared region."[23] These are separate alliances, but its enhanced coordination helps reduce risk. Seeking to enhance cooperation between other U.S. regional partners and allies within the region will help minimize the risks associated with having a collective security agreement like NATO. These diplomatic efforts, tied with increased interoperability between the militaries of these respective countries, help increase deterrence within the region.

Deterrence

Distributed logistics help form the joint force's effort to establish a persistent presence in the disruption zone to counter the PRC's A2/AD systems and to directly support U.S. deterrence in the region. Deterrence is about demonstrating the potential and getting the adversary to believe you are capable and willing to follow through.[24] First, distributed logistics support deterrence by denial, demonstrating the logistical credibility underpinning any U.S. challenge to a cross-strait invasion of Taiwan. Second, establishing a distributed logistic posture within USINDOPACOM enables deterrence by resilience, as outlined in the 2022 *National Defense Strategy*. Gen. C. Q. Brown, then–chief of staff of the Air Force, said, "Credible military logistics capability is a key element of integrated deterrence."[25] The decision to invest in a distributed logistical footprint across the USINDOPACOM is a strong signal to the PRC of America's commitment within the region, its ability

to deny a cross-strait invasion of Taiwan, and a quick rebound from a multidomain Chinese attack.

Deterrence by denial. A distributed logistical footprint across the USINDOPACOM AOR directly supports regional deterrence. Thomas Shelling writes about the "latent violence that can influence."[26] This threat of violence must be credible. One can achieve deterrence by demonstrating that the adversary's actions will not succeed, which is deterrence by denial.[27] America aims to deter Chinese aggression, including a cross-strait invasion of Taiwan. Logistics underpins any successful operation, and U.S. actions within the First and Second Island Chains are no different. Distributed Maritime Operations, Stand-In Forces, Expeditionary Advanced Base Operations, and Agile Combat Employment can only succeed if properly sustained. Bulk goods secured in consolidated facilities along long sea lines of communication do not properly support those efforts. U.S. forces must demonstrate the capability to challenge a cross-strait invasion of Taiwan, which requires a distributed logistical footprint to help ensure long-term investments within the region. It will also require substantial funds, diplomatic efforts, and ongoing military engagements with allies and partners, which will increase the credibility of the U.S. threat to deny a cross-strait invasion. A distributed logistical footprint supports deterrence by denial but also supports deterrence by resilience by reducing U.S. vulnerabilities within the region.

Deterrence by resilience. A distributed logistical footprint within the USINDOPACOM AOR directly supports deterrence by resilience. As outlined in the 2022 *National Defense Strategy*, deterrence by resilience is "the ability to withstand, fight through, and recover quickly from disruption."[28] The massive quantity of fuel maintained in a singular location is susceptible to many multidomain threats. U.S. forces cannot access and distribute the fuel rapidly when needed supplies are consolidated in a single location. Replacing a single site with multiple underground sites, above-ground sites, underwater sites, and tankers creates a more resilient infrastructure.[29] Red Hill demonstrated the opposite of resilience because it was a single point of failure. A distributed logistical system creates more nodes, and this flexibility creates resilience within the system and directly supports deterrence, as the adversary must account for each point. By doing this, no single action can logistically cripple U.S. efforts within the region, and U.S. forces can quickly adjust to an attack.

U.S. military action, even within logistics, could cause PRC escalation within the region. A 2023 RAND study found six triggers in the U.S. military that may cause PRC escalation: "threats to physical or regime security; U.S., allied, or partner hostile intent; threats to regime legitimacy; threats to PRC economic development; threats to PRC regional influence; and weak U.S. commitment to the defense of allies and partners."[30] Distributing logistics increases the joint force's resilience and signals a strong commitment to the region; however, the PRC may see this as a "threat to PRC regional influence."[31] This may cause escalation within the region, the exact thing investments are attempting to deter. This risk is real but ultimately associated with any military action. It is not exclusive to the decision to distribute logistics within the region, but the DOD and U.S. government must decide if the benefits gained from distributing logistics outweigh the potential escalation costs.

A distributed logistical footprint is a tangible investment in deterrence. This effort supports the four elements of deterrence highlighted by Flynn in 2021: "capabilities, posturing, signaling, and will."[32] It demonstrates U.S. resolve within the region through investments in the necessary critical infrastructure and that U.S. joint operational concepts have the necessary logistics to counter China's A2/AD operations. It builds the necessary resilience within the system to enable U.S. survivability in case of hostilities.

Recommendations

The DOD needs to outline a way forward that prioritizes building the necessary distributed logistical infrastructure within the USINDOPACOM. Infrastructure investments provide an opportunity to leverage the information element of national power. The distributed logistical infrastructure directly supports U.S. priorities in the region and invests in U.S. regional partners and allies, whose economies can benefit.[33] This should be connected to a messaging campaign focusing on the region's priorities as it builds resilience and aids in security. Free and open sea lines of communication connect nations, raise prosperity for all, and help maintain a free and open world. Messaging the benefits of the rules-based order should not be reactive but proactive against PRC aggression. Information

activities within the DOD and across the entirety of the U.S. government should continue to support a unified messaging campaign for the region. Logistical infrastructure investments are a small part of any information campaign. They demonstrate capability to the adversary, which the joint force should message at every opportunity.

Conclusion

The *National Security Strategy* says we are in a "decisive decade," as investments made now in a distributed logistical infrastructure support better posturing of U.S. forces over the next ten years.[34] The joint force requires a sustainment infrastructure to support operations within the disruption zone and respond to crises as they emerge. Distributed logistical infrastructure cannot be built overnight but requires continued investment and diplomatic support. This committed investment within the USINDOPACOM ultimately builds resilience within the system and signals credibility to the adversary necessary for deterrence. This entails risk, but the risk associated with not updating the USINDOPACOM's logistical footprint remains greater. The United States must continue making the necessary regional investments while working with partners and allies to secure the future. ■

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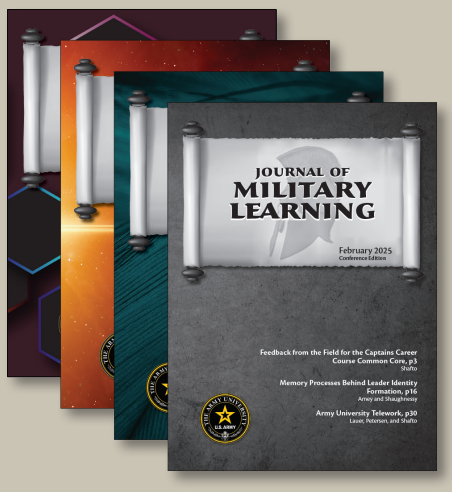


Russia's Gerbera drones (*shown here*) share a distinctive body shape with Iranian-designed Shahed-136 drones. (Screenshot from Telegram)

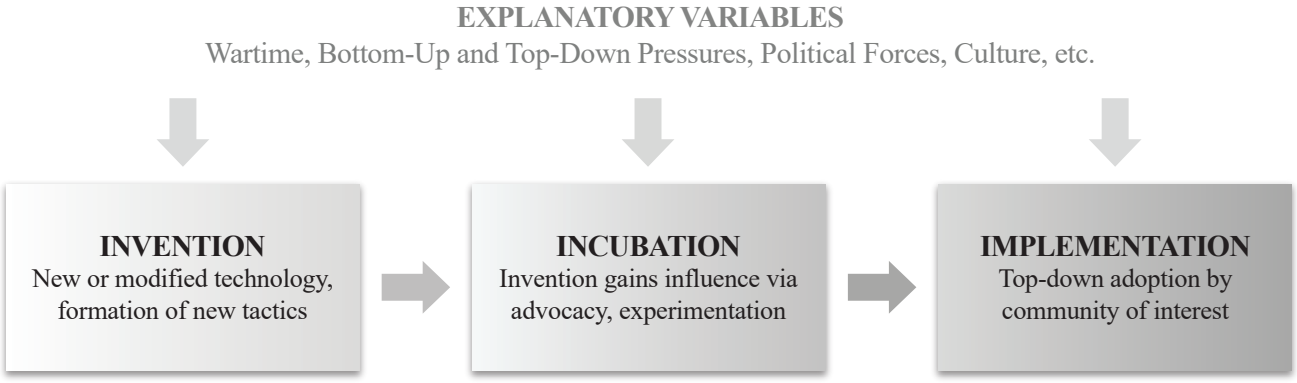
Russia's Changes in the Conduct of War Based on Lessons from Ukraine

Adapting Technology, Force Structures, and the Defense Industry

Col. Vytis Andreika, Lithuanian Armed Forces

Russia has demonstrated a remarkable ability to quickly learn and innovate despite suffering substantial losses in Ukraine. This makes Russia a challenging enemy that defies previous assumptions about its military strengths. This article argues that the Armed Forces of the Russian Federation (AFRF) has successfully adapted their conduct of war by integrating new technologies and tactics, thereby enhancing their combat effectiveness against the Armed Forces of Ukraine (AFU). By focusing on drone and electronic warfare (EW), this adaptation has led to demonstrable shifts in battlefield dynamics and has boosted operational capabilities, presenting a serious challenge to traditional NATO defense strategies.

Using the military innovations theory developed by Michael C. Horowitz and Shira Pindyck, this article examines how the AFRF has adapted its conduct of war based on lessons from the ongoing war in Ukraine,



(Figure from Michael C. Horowitz and Shira Pindyck, "What Is a Military Innovation and Why It Matters," *Journal of Strategic Studies* [2023])

Figure 1. Military Innovation Process

particularly where the AFRF has demonstrated significant technological and tactical advancements.[1] Horowitz and Pindyck's theory outlines the stages of invention, incubation, and implementation, which are applied to analyze three specific case studies: the use of Iranian one-way attack (OWA) Shahed drones, first-person-view (FPV) drones, and lightweight EW systems. Of note, this article does not explore other military innovations like glide aviation bombs or reconnaissance-strike complexes, as their examination would exceed the scope of this article.

This analysis shows the AFRF's ability to innovate, challenging perceptions of its rigidity and resistance to change. Military innovations in the use of Shahed drones, FPV drones, and counter-unmanned aerial vehicles (C-UAV) while also using lightweight EW systems illustrate Russia's capacity to institutionalize innovation within its doctrine, force structures, and the military-industrial complex. These changes are a potential threat to the Baltic States and their NATO allies, given its geographical proximity. It highlights the urgent need to address these challenges to prepare for future wars.

A Theory of Military Innovations

Examining military innovation theory enables us to assess if Russia has adapted its way of war through lessons from the war with Ukraine. In their study, "What Is a Military Innovation and Why It Matters," Horowitz and Pindyck argue that there is no consensus on the wide range of conceptual definitions of military innovation. They propose a new theoretical framework for understanding military innovations.[2]

They define military innovations as "changes in the conduct of warfare designed to increase a military's ability to generate power" through invention, incubation, and implementation.[3] The first stage, invention, is creating new technologies or tactics, or modifying existing ones to solve specific problems in new ways. The second stage, incubation, is the products of invention gaining status and influence through advocacy or experimentation via bottom-up or top-down processes. The third stage, implementation, is the top-down process of political leaders leading the relevant community of interest to adopt the invention. Often, after adoption, the innovation can diffuse and spread to other countries.[4]

Note that these changes must occur at the operational level or be tactical by nature, but they must also be operationally significant to be adopted and be intended to enhance or translate into actual military power. Moreover, military organizations change their way of war when they undergo a military innovation process (see figure 1) that begins with the invention, includes a period of incubation in which the invention is seen as significant, and ends with the implementation of the invention.[5]

Russia may undergo the process of military innovation differently. However, Horowitz and Pindyck's proposed military innovation theory allows for the organization and comparison of innovation cases to address whether the AFRF is changing its way of war based on lessons from the war in Ukraine. Using this framework, three military innovations from the ongoing war—Iranian OWA Shahed drones, FPV drones, and C-UAV EW systems—are analyzed.

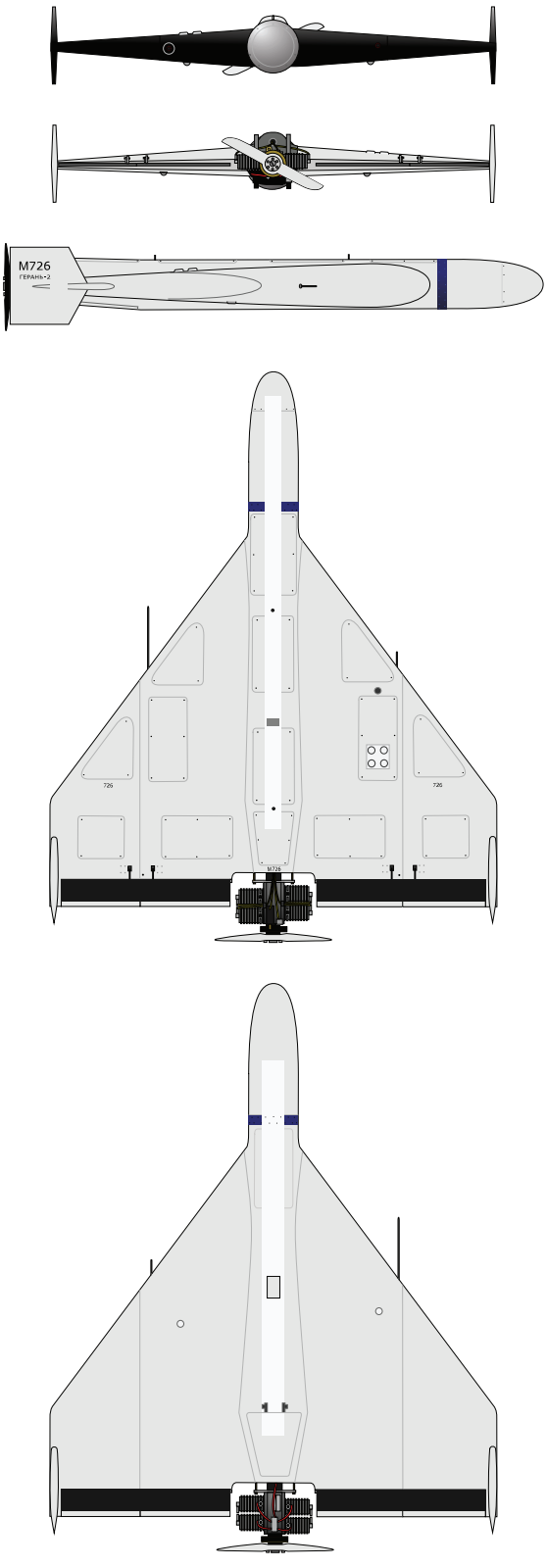
One-Way Attack Shahed Drone

Applying Horowitz and Pindyck's framework to the AFRF's adoption of Iranian OWA Shahed drones demonstrates each stage of military innovation. These low-cost drones enable Russia to continue targeting critical infrastructure and terrorizing the civilian population, thereby overstretching Ukrainian air defenses (AD) and enabling the AFRF to rebuild depleted stocks of more expensive missiles.

The Shahed drones—Shahed-136 and Shahed-131—are delta-wing drones capable of carrying up to 40 kg of explosive payloads to preplanned targets over long (900 to 1,500 km) distances at speeds up to 170 km/h (see figure 2).[6] They are an attractive alternative to ballistic and cruise missiles due to their low cost and ease of production.

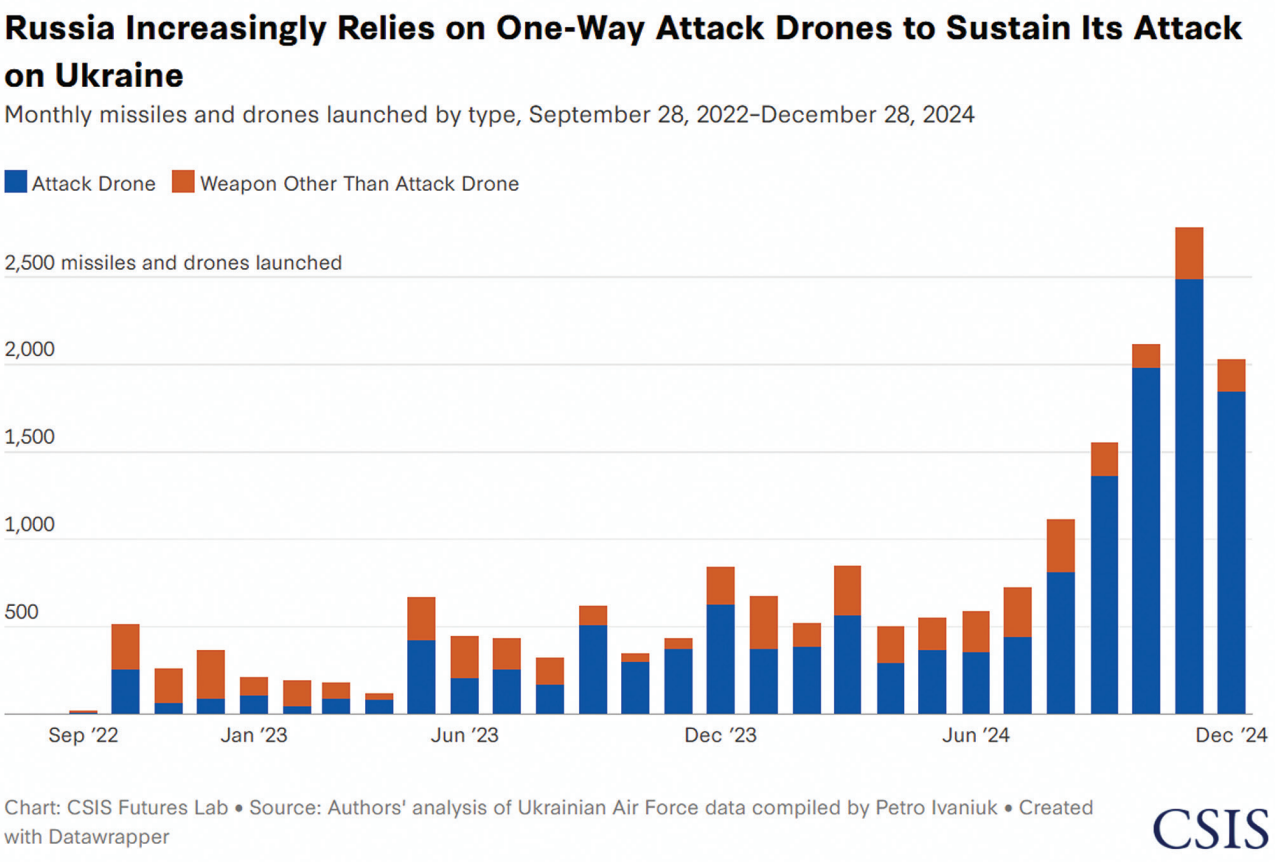
The impetus for the diffusion of Iranian Shahed technology into Russian warfare was the depleted stocks of traditional missiles and the need to conduct sustained attacks on Ukrainian infrastructure. The AFRF began using Shahed drones in early September 2022, with Russian operators receiving training in Iran.[7] The AFRF had probably used 86 percent of its Iskander missiles, 46 percent of its sea-launched Kalibr cruise missiles, and 52 percent of its air-launched cruise missiles by October 2022.[8] According to Russian military experts, the Shahed drone represents a new type of weapon that is transforming the Russian strategy of saturating military and civilian infrastructure deep within Ukraine at a fraction of the cost.[9] With an estimated cost of $35,000 per unit, Shahed drones offer a cost-effective alternative to the Iskander M ballistic missiles (approximately $2 million) and Kalibr cruise missiles ($1 million).[10] To counter this saturation strategy, Ukraine was forced to allocate its resources and adapt its AD tactics.

The mass production of Shahed drones highlights Russia's commitment to integrating this technology. As Iran supplied several hundred Shahed drones to the AFRF, there were initially a few cases of its usage.[11] After seeing its effectiveness, Russia made a top-down decision to acquire more Shahed drones. In early 2023, the Russian military-industrial complex signed a $1.75 billion franchise deal with Iran to supply six thousand Shahed drones to the AFRF by September 2025 and to build a factory in Alabuga, Tatarstan, to manufacture a modified version of the drone under the names



(Figure by Alexpl via Wikimedia Commons)

Figure 2. Shahed-136/Geran-2 One-Way Attack Drone



(Figure from Neil Hollenbeck et al., "Calculating the Cost-Effectiveness of Russia's Drone Strikes," Center for Strategic and International Studies, 19 February 2025, https://www.csis.org/analysis/calculating-cost-effectiveness-russias-drone-strikes)

Figure 3. Monthly Missiles and Drones Launched by Type (September 2022–December 2024)

Geran-1/2.[12] The factory started production in May 2023 and averaged about twenty drones per workday.[13] Between January and September 2024, the factory produced 5,760 drones, fulfilling the contract agreement.[14] In mid-2023, the Russian military made another top-down decision to mass produce the ten times cheaper, low-tech decoy drones Gerbera, which were intended to make themselves conspicuous to radars and deplete or distract the AFU AD, thereby improving the penetration rate of the armed Shahed drones.[15] As drone production ramped up, the number of drone attacks significantly increased in its efforts to oversaturate the AFU AD (see figure 3).[16]

While specific unit designations remain unconfirmed, the AFRF has likely integrated Shahed drones into specialized units under the Russian Aerospace Forces. Dedicated Shahed drone units and the constant increase in usage suggest an evolution of tactical thought regarding the drones, even if it is not formally codified in AFRF doctrine.

Early on, between September and December 2022, Russia used drones in uncoordinated attacks during the day using nap-of-the-earth flight profiles along highways or riverbeds. The AFU responded by establishing mobile fire groups and destroying the drones using machine-gun fire.[17] However, in early 2023, the AFRF refined their tactics to include swarm attacks, launching six to eight Shahed drones at night. The AFU responded by using all available means to defeat the attacks, including mobile fire groups, EW systems, man-portable air defense systems, short-range air defenses, tactical aircraft and helicopters, and hardening infrastructure.[18] By the end of 2023, the AFRF began targeting critical infrastructure with massive waves of Shahed drones combined with traditional precision missiles. The AFRF would employ the Gerbera decoy

Russian state-media-released video on 20 July 2025 details one of the country's key drone assembly centers in Alabuga, Tatarstan. This production facility domestically manufactures the Iranian-designed Shahed drones under the name Geran-2, supporting Russia's ongoing war against Ukraine. (Screenshot from Zvezda TV)

drones to trigger Ukraine's AD radar illumination, recording their positions and then being followed by Shahed drones. Hours later, cruise missiles would be launched to either bypass or overwhelm the AD systems, and then be followed by ballistic missiles timed to coincide with the approaching Shahed drones and additional cruise missiles from various directions at multiple targets. This tactic aimed to overload the AFU AD and saturate selected targets with high aerial threats, thereby depleting Ukraine's limited AD resources.[19] To counter this tactic, the AFU began using EW teams equipped with the Pokrova EW system to spoof the Shahed drones' internal global navigation satellite system (GNSS) signals, leading to significant flight path errors.[20] To reduce the vulnerability to EW spoofing, Russia began installing a separate navigation system called Kometa, which featured an eight-element GPS-controlled reception pattern antenna that enhanced the drone's resilience against GNSS signal jamming and spoofing, unless the AFU also employed EW suppression triangulation.[21] In late March 2025, open-source evidence suggested that the AFRF has since updated their tactics. Russia now strikes a target simultaneously rather than sending drones in waves.[22] This evolution demonstrates Russia's ability to adapt and innovate in response to battlefield realities.

In conclusion, deploying Shahed drones demonstrates how the AFRF has learned, evolving its military strategies through innovation. Russia diffused Iranian technology during the invention stage to solve missile stock shortages and sustain long-range strike capability. During incubation, the AFRF experimented with uncoordinated attacks, refined tactics, and institutionalized drone production through partnerships and domestic manufacturing. In the implementation stage, Russia mass-produced and upgraded Shahed drones, incorporated them into new drone force structures and integrated them into swarm tactics and deep strikes with precision missiles to overload Ukrainian AD.

FPV Drones

The increasing use of FPV drones marks another significant shift in Russia's way of war in Ukraine. During its second year, Russia faced a significant increase in the deployment of cheap and lethal Ukrainian FPV drones, which gradually took a leading role (up to 70 percent) in causing losses to equipment and manpower, making frontline breaches virtually impossible.[23]

FPV Drone "Dozor"

FPV Drone "Dozor" designed for reconnaissance, destruction of enemy manpower and military equipment

Parameter name	Meaning
Maximum takeoff weight, kg	2.7
Payload weight, kg	Up to 1.2
Range, km	Up to 10
Flight time, min	Up to 20
Speed, km/h	Up to 130
Practical ceiling, m	1000
Operating temperature range, °C	From -20 to +40
Launch / landing method	Vertical
Battery capacity, mAh	5000
Operating frequency range, MHz	868 – 915 / 5800
Manufacturer	OOO Prom Kompozit Moscow

FPV Drone "Ghost"

FPV Drone "Ghost" is designed to destroy enemy manpower and equipment

Parameter name	Meaning
Maximum takeoff weight, kg	3.5
Payload weight, kg	Up to 1.5
Range, km	Up to 7
Flight time, min	Up to 30
Speed, km/h	Up to 120
Practical ceiling, m	1000
Operating temperature range, °C	From -20 to +40
Launch / landing method	Vertical
Battery capacity, mAh	6000
Operating frequency range, MHz	860 – 1020 / 1200; 5800
Manufacturer	LLC UralDronZavod Yekaterinburg

(Figure translated from General Staff of the Armed Forces of the Russian Federation, *Handbook: FPV Drones Used by the RF Armed Forces in the SMO* [2024])

Figure 4. Example of FPV Drones Available for Order to Frontline Units from Suppliers

Gen. Valery Zaluzhny, former AFU commander in chief, emphasized the role of FPV drones in the war after recognizing Ukraine's disadvantage in weapons and manpower. These drones, a critical tool for precision strikes, minimized direct contact and reduced the number of casualties.[24]

Ukraine started mass producing its FPV drones when they faced a deficit of depleted artillery ammunition stocks in August 2023.[25] An FPV drone is a low-cost ($500) quadcopter with a video camera and a 0.7–3 kg improvised armor-piercing, cluster, or thermobaric warhead (see figure 4). Controlled remotely by pilots, they can engage targets at speeds of 120 km/h over distances from 5 to 10 km.[26]

Recognizing the effectiveness of FPV drones, the AFRF rapidly diffused the same military innovation within its forces, showcasing an impressive ability to learn and adapt on the battlefield.[27] The driving force for the spread of FPV drones was the low-cost precision strikes on Ukrainian combat vehicles and personnel, reducing the need for direct contact and minimizing casualties.

Russia shows its dedication to military technological advancement by using standard, mass-produced FPV drones developed by civilian manufacturers and volunteer organizations. However, Russian military bloggers first pointed out that these drones performed inadequately, and the dominance of a single supplier restricted the AFRF's access to diverse models.[28] In response, in April 2024, the Russian Ministry of Defence (MOD) implemented a top-down decision to accelerate the fielding of FPV drones by funding special projects that united civilian volunteers, sponsors, the "People's OPK" (a public initiative to support the defense industry), and the MOD. As a result, civilian manufacturers increased production volumes of up to forty thousand drones per month and created new types of FPV drones.[29] By the

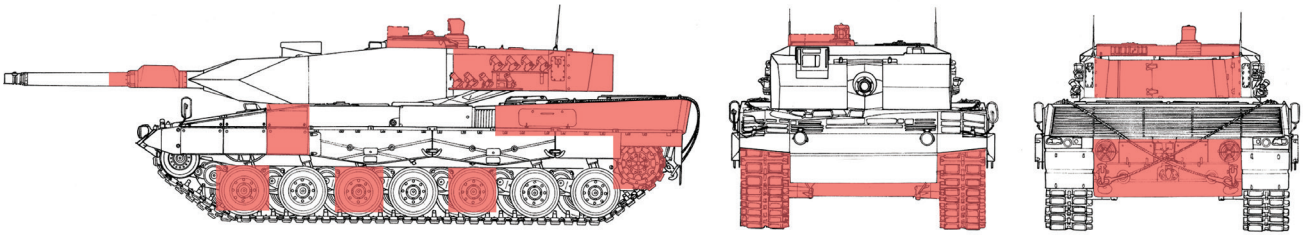
Russian troops build a two-kilometer mesh net "tunnel" in early 2025 to protect against Ukrainian FPV drones. In theory, FPV drones on their final attack trajectory will get entangled in the net or go off course. (Screenshot from X)

end of 2024, the General Staff of the AFRF published a catalog featuring fifty-eight types of FPV drones, which frontline units could order from suppliers.[30] This decentralization and independence allowed frontline units to increase their strikes from several hundred to almost two thousand per day.[31]

As the Russian FPV drones became more widespread and proved their effectiveness, Russian troops continuously refined drone tactics from the bottom-up, resulting in a dramatic increase in FPV drone strikes. This increase demonstrates a significant shift in the Russian way of war, with low-cost precision FPV drones increasingly replacing or augmenting traditional ground attacks.

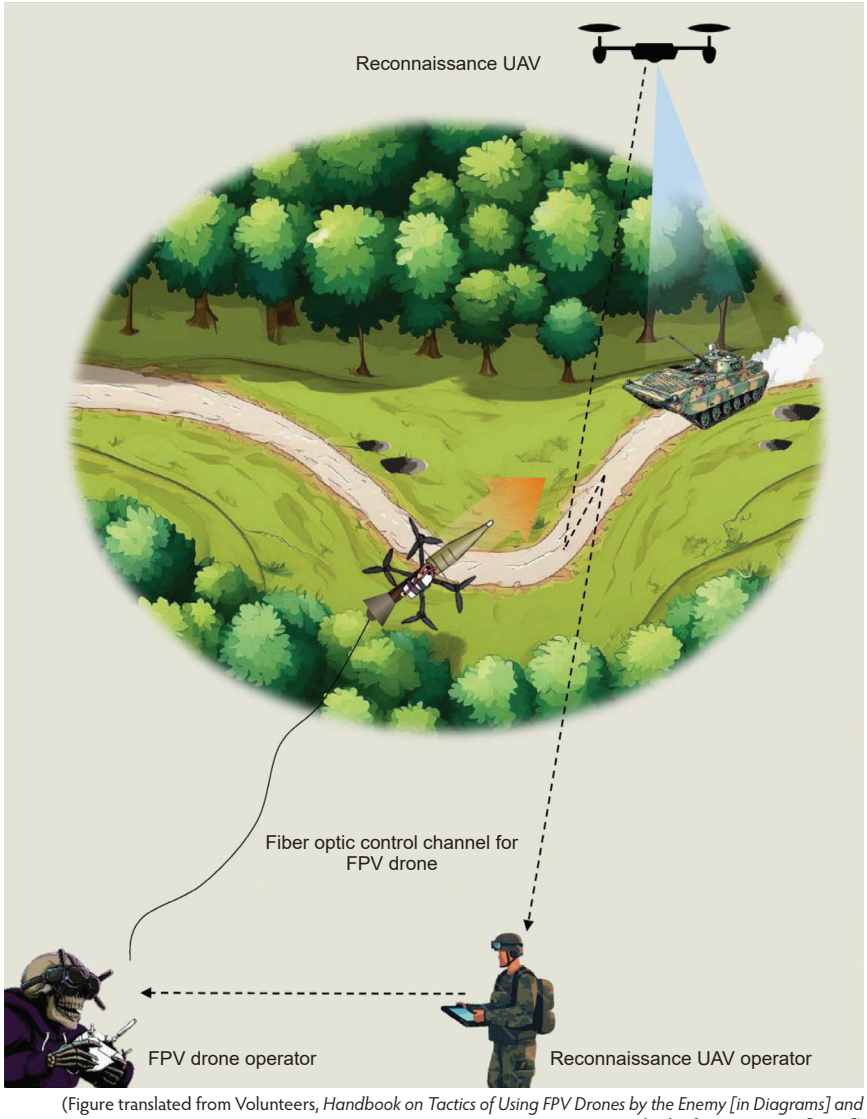
First, the FPV drones are designed to destroy any combat vehicle. For instance, all tanks are designed to sustain fire from the front. The appearance of FPV drones made tanks extremely vulnerable, because FPV drones can maneuver and attack from the side, top, or rear, wherever the armor is weaker.[32] This threat became so prevalent on the modern battlefield that it forced AFU armored vehicles to withdraw from frontal positions and remain hidden 3–10 km away from the front line; consequently, AFU armored counterattacks became highly vulnerable. This frontline withdrawal allowed the AFRF to more easily retain seized strongpoints from AFU counterattacks, as AFU attacks were conducted without combat vehicles in dispersed infantry formations to avoid being lucrative targets (see figure 5).[33]

Second, FPV drones have become individualized weapons, able to chase a single AFU soldier on the front line. Russian military experts claim that there



(Figure adapted from Russian Air Force Military Educational and Scientific Center, *Operation and Use of Unmanned Aerial Vehicles [FPV drones]* [2023])

Figure 5. Marked Leopard Tank Indicating Vulnerable Parts to an FPV Strike



(Figure translated from Volunteers, *Handbook on Tactics of Using FPV Drones by the Enemy [in Diagrams] and Methods of Counteraction* [2024])

Figure 6. Tactical Application of FPV Drones Example—Using Fiber-Optic Cable for Control

are sectors on the front line where the AFRF has FPV drone superiority, the AFU has dominance, and there is parity. In these areas, every soldiers movement is immediately targeted by two to three drones within 6 km from the front and either side.[34] The combination of FPV drone strikes in concert with glide aviation bombs and artillery barrages has become so deadly that it forced the AFU to adapt by dispersing troops and altering its tactics.[35]

Third, the AFRF began to isolate Ukrainian strongpoints with FPV drones by interdicting their flow of troops and supplies 3–10 km behind the front.[36] This new tactic forced the AFU to withdraw from some positions or conduct sustainment operations by walking 5 km and carrying up to 40 kg of supplies.[37] To counter the same threat from the Ukrainian side in early 2025, the AFRF started constructing mesh tunnels to protect their ground supply routes.[38] This tactical evolution of FPV usage demonstrates Russia's ability to adapt and innovate in response to battlefield realities.

Most of these bottom-up driven tactics were institutionalized in Russian military tactical publications. The Military Training and Research Centre of the Russian Air Force released a publication in the last quarter of 2023 titled *Operation and Use of Unmanned Aerial Vehicles (FPV Drones)*, which describes FPV characteristics, preparation, piloting, maintenance, safety instructions, and establishing standards for theoretical, simulator, and flight training within the AFRF.[39] Additionally, Russian volunteers released a memo for soldiers describing instructions for preparing warheads for FPV drones, including the dismantling of Javelin missiles.[40] Finally, Russian volunteers also published in the last quarter of 2024 the *Handbook on the Tactics of Using FPV Drones by the Enemy (in Diagrams) and Methods of Counteraction*, which contains nineteen tactical applications of FPV drones (see figure 6).[41] The development of new doctrine underscores the institutionalization of this innovation within the AFRF.

The implementation of FPV drones led to the formal incorporation of FPV drone crews at the tactical-unit level. Notably, the Russian MOD announced in January 2024 that the first UAV company was formed on the front line with FPV crews engaging enemy targets.[42] The composition of FPV crews was likely diffused from the AFU and included four

persons: a senior, an FPV drone operator, an ammunition specialist, and a reconnaissance drone operator.[43] In October 2024, the Russian defense minister ordered the "Rubikon" Centre for Prospective Unmanned Technologies to form five unmanned detachments for operations in Ukraine.[44] The Russian MOD established an entirely new branch in December 2024, the unmanned systems troops.[45] The Russian unmanned systems troops formed the first drone regiment at the military district level in January 2025 with forty-one FPV drone strike units. Similar regiments may be formed in other military districts in the future.[46] The establishment of specialized units underline the institutionalization of this innovation within the AFRF.

It is important to highlight that FPV drones still have specific vulnerabilities: short flight duration (seven to ten minutes) and range (up to 10 km), as well as vulnerability to EW.[47] To address the short flight time and range, the AFRF sometimes strike preidentified targets (e.g., bunkers) if they cannot hit high-value targets or land the drone and wait (up to six hours) until the target appears to ambush it.[48] To extend the range, the AFRF might use a "mother" agro drone with signal retranslation to lift and launch two to three FPV drones up to 60–70 km.[49] The final and most significant FPV drone vulnerability is its susceptibility to radio frequency and GNSS signal electromagnetic jamming. In 2024, both sides jammed 60–80 percent of all FPVs operated.[50] In March 2024, Russians were the first to introduce FPV drones with fiber-optic cables to counter electromagnetic jamming, a specific Russian innovation, allowing them to penetrate areas of heavy jamming and hit targets up to 10 km.[51] According to Russian military experts, this innovation played a crucial role in Russia's recent success in retaking Kursk.[52]

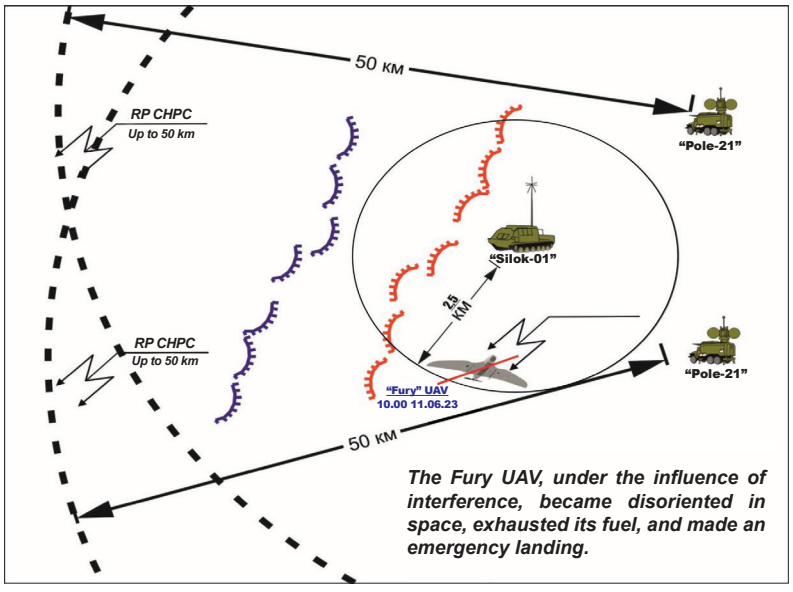
In conclusion, the adoption of FPV drones by the AFRF illustrates rapid military innovation. Russia diffused Ukrainian innovation during the invention stage to minimize casualties and enable standoff, low-cost precision FPV drone strikes on AFU combat vehicles and troops. During incubation, the AFRF experimented with tactics, technology, drone units and centralized its FPV drone production. Russia institutionalized FPV drone innovation in the implementation stage by enhancing collaborative production, standardizing tactics, and adjusting force structures. The AFRF's evolving drone capabilities highlight a learning process driven by battlefield necessity, showing that Russia is actively changing its approach to warfare based on lessons learned from the war in Ukraine.

Moreover, inspired by the current war, Russia's allies are diffusing FPV drone innovations into their arsenals. For instance, China is intensifying efforts to develop and integrate FPV and swarm drones into its armed forces.[53] Kim Jong Un, after his troops encountered FPV drones in Ukraine, mass-produced FPV drones in North Korea with technical support from Russia.[54] Similarly, Serbia's armed forces adopted Komar FPV drones developed by Serbian defense industry enterprises in 2024.[55]

Lightweight C-UAV EW Systems

The extensive use of company-level lightweight C-UAV EW systems represents a third military innovation in the Ukraine war. While not originally a Russian invention, the country's mass production and integration of these systems into its force structures and doctrine have significantly altered its approach to modern warfare. The threat from drones was already evident during wars in Donbas and Syria.[56] Back then, EW systems proved the most effective way to counter drones by jamming their GNSS positioning, navigation, and timing signals or radio frequency links, which control drones or share video data.[57] During that time, Russia had invented and developed mostly vehicle-based C-UAV EW systems like Krasukha-4 (2014), Pole-21 (2016), Shipovnik-Aero (2016), Repellent-1 (2017), Silok-01 (2018), or Palantin (2019).[58] One issue the AFRF faced after invading Ukraine was that these large and sophisticated vehicle-based C-UAV EW systems became high-value targets for AFU long-range fires.[59] This situation led to another problem: there were too few of these systems to effectively cover the entire front line.

The rapid proliferation of small drones caught the AFRF somewhat off guard. Ukrainian drones were helping to reconnoiter, direct or adjust indirect fire, command troops, or drop improvised explosives, mines, or grenades on Russian troops.[60] This issue became very grave for the AFRF because a $200 commercially available off-the-shelf Ukrainian DJI Mavic drone could destroy a $3 million Russian tank by simply dropping a grenade through an open hatch and detonating the ammunition stored inside the turret.[61] The introduction of company-level lightweight C-UAV EW systems



(Figure translated from Russian Ministry of Defence, *REMINDER on Protection and Counteraction Against Enemy UAVs* [2024])

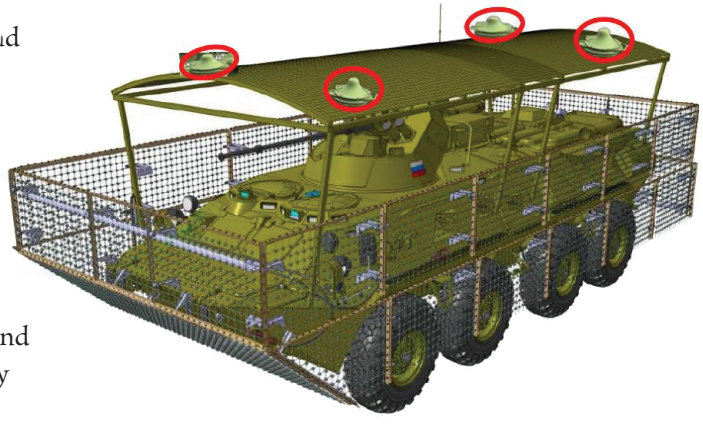
Figure 7. Illustration of Russian C-UAV Tactic in Mid-2023 Using Pole-21 and Silok-01

significantly improved the AFRF's ability to protect its forces from drone attacks.

Due to the extensive threat from Ukrainian drones, the AFRF urgently needed to develop both kinetic and nonkinetic solutions to protect frontline units, a need formally acknowledged by the Russian MOD in its tactical manual *REMINDER on Protection and Counteraction Against Enemy UAVs*. The manual institutionalized the use of vehicle-based C-UAV EW systems and antidrone rifles. According to the manual, EW companies had to deploy EW systems like the Lesochek, Pole-01, or Silok-01 to protect high-value targets such as command posts or artillery positions (see figure 7); in contrast, EW assets like the Zhitel and Palantin had to protect frontline units. It was recommended that each infantry platoon have one operator with an antidrone rifle for close protection against drones.[62] As seen from the manual, other company-level lightweight C-UAV EW military innovations such as vehicle-mounted C-UAV jammers, drone detectors, and portable C-UAV jammer domes that the AFU already utilized were still in the incubation period within the AFRF as of mid-2023.

The sudden influx of deadly Ukrainian FPV drones targeting Russian combat vehicles likely spurred the rapid development of vehicle jammers by the Russians. These vehicle-mounted C-UAV jammers create a protective "dome" around the vehicle by jamming multiple frequencies within a specified radius to disrupt drone communications and navigation.[63] By the end of October 2023, the Russian MOD released a series of guidelines to ensure the protection of combat vehicles from FPV drones, including the use of four vehicle-mounted C-UAV jammers (see figure 8).[64] Two additional vehicle-mounted C-UAV jammers were also codified into Russian doctrine at the end of 2024.[65] Urgent standardization and mass production of vehicle-mounted C-UAV jammers represent a significant Russian top-down effort to address the devastating threat from Ukrainian FPV drones.

The exponential growth in Ukrainian FPV drones has allowed for the targeting of not only Russian combat vehicles but also individual soldiers. Instances of two or three FPV drones pursuing a single soldier have become common, necessitating the dispersion and reduction of troops in the trenches.[66] This lethal battlefield environment impeded Russian leadership from implementing and fielding the remaining military innovations in C-UAV EW at the company level.[67] The objective was to equip each infantry platoon position with a drone detector, a portable C-UAV jammer



(Figure from Russian Ministry of Defence, *Guidelines for Ensuring the Protection of APCs from FPV Drones* [2023])

Figure 8. Illustration Explaining How to Use Vehicle-Mounted C-UAV Jammer Volnorez

Counter UAV Means

56

Control and navigation channel suppression system "SHUM-22TK"

The "SHUM-22TK" complex is designed to counteract communication channels of navigation systems and control channels of unmanned aerial vehicles.

Parameter name	Meaning
Suppressible navigation systems	GPS, GLONASS
Suppressed communication frequencies, MHz	400 – 470; 860 – 930; 2400 – 2483.5; 5150 – 5945; 1176 – 1228; 1242 – 1279; 1575.32 – 1575.52; 1598 – 1606
Range, m	Up to 1500
Dimensions, cm	62 x 55 x 33
Weight, kg	36

"Strizh-3" UAV detection and protection system

The "Strizh-3 UAV" detection and protection system is designed to detect unmanned aerial vehicles and block their control and navigation channels.

Parameter name	Meaning
Suppressible navigation systems	GPS, GLONASS
Suppressed communication frequencies, MHz	433, 868, 900, 1200, 2400, 5200, 5800
Range, m	Up to 2500
Built-in battery capacity, A/h	-
Dimensions, cm	35 x 35 x 170
Weight, kg	15

Portable complex "Taran-PRO"

The "Taran-PRO" portable complex is designed to disrupt the flight mission of a UAV by suppressing communication, control, and navigation channels.

Parameter name	Meaning
Suppressible navigation systems	GPS, GLONASS, Galileo, BeiDou
Suppressed communication frequencies, MHz	340 – 460; 824 – 980; 1200 – 1500; 2200 – 2458; 4000 – 5250
Autonomy, min	-
Range, m	Up to 2600
Suppression sector, hail	360
Weight, kg	-

Mobile electronic warfare station "Argus-Antifuria"

The mobile electronic warfare station "Argus-Antifuria" is designed to prevent the flight of unmanned aerial vehicles in the area of action by setting up high-power directional interference.

Parameter name	Meaning
Suppressible navigation systems	GPS, GLONASS, Galileo, BeiDou
Suppressed communication frequencies, MHz	400; 900; 1200; 1500; 2400; 5800
Autonomy, min	-
Range, m	2000
Suppression sector, hail	360
Dimensions, cm	150 x 120 x 120
Weight, kg	18

(Figure translated from General Staff of the Armed Forces of the Russian Federation, *Handbook: FPV Drones Used by the RF Armed Forces in the SMO* [2024])

Figure 9. Example of Four Types of Russian C-UAV Jammer Domes Available for Order from Suppliers to Frontline Units

dome, and an antidrone rifle.[68] The introduction of company-level lightweight C-UAV EW systems has significantly improved the AFRF's ability to protect its forces from drone attacks. A passive drone detector identifies and locates drones and their ground control stations by analyzing video frequencies, while the portable C-UAV jammer dome autonomously detects approaching drones and creates a radio interference "dome," jamming one or multiple frequencies within a 200–500-meter radius to disrupt drone communications and navigation.[69] The antidrone rifle is a handheld device that allows the operator to emit directed energy at drones, jamming their communications and navigation up to 5 km.[70]

There was an urgent battlefield demand for these lightweight C-UAV EW devices. Like FPV drones, state firms under Rostec, Russian private companies, and volunteers stepped in to fill these gaps with novel solutions. In April 2024, the Russian MOD made a top-down decision to fund small manufacturers' mass production of lightweight C-UAV EW devices. By the end of 2024, this decision allowed frontline units to quickly field five thousand C-UAV EW devices per month and develop new types of military innovations.[71] Ukrainian military EW experts identified approximately sixteen types of drone detectors developed by Russian companies.[72] The General Staff of the AFRF published a catalog where frontline units could order twelve types of portable C-UAV jammer domes (see figure 9) and twelve antidrone rifles.[73] The mass production of lightweight C-UAV EW systems, supported by state firms, private companies, and volunteers, highlights Russia's commitment to integrating this technology into its military strategy.

The proliferation of lightweight jammers led to the evolution of the C-UAV doctrine. The Russian MOD could not keep up with the pace of battlefield

innovations, so Russian volunteers codified counterdrone techniques into the *Handbook on Tactics of Using FPV Drones by the Enemy (in Diagrams) and Methods of Counteraction*. This manual emphasizes the importance of early detection of enemy drones, either visually or using drone detectors, and their electromagnetic suppression through portable C-UAV EW jamming domes or antidrone rifles.[74] Despite the increasing density of C-UAV EW equipment on the front line, the impact on reducing drone threats remains uncertain. Both sides are engaged in intense EW competition and are facing two significant challenges.

The first challenge is the rapid changes and extension of frequency bands used by drones' onboard radio-electronic equipment. For instance, when Russian C-UAV EW devices began jamming standard commercial radio frequencies and navigation signals, the AFU responded by switching to less commonly used frequencies with higher power. The AFU then began testing jammed frequencies by sending a single drone; if the frequency was jammed, they would change it and send another, and if the drone successfully passed through, they would then send the rest through the unjammed frequency.[75] This adaptation forced Russian EW spectrum analyzers to detect the new frequencies and update their C-UAV jammers accordingly. In response, the AFU began utilizing frequency hopping to evade suppression.[76] In certain instances, Russians reprogrammed their drones to the same frequencies, causing the AFU to inadvertently jam their drones when attempting to counter Russian drones.[77] Both sides have learned that C-UAV EW devices cannot be fixed to any single frequency and must be constantly updated based on electromagnetic detection results. Open-source evidence indicates that the AFRF is field-testing C-UAV equipment that uses artificial intelligence (AI) to detect and suppress frequencies used by the AFU.[78]

The second challenge is using advanced electromagnetic protection devices and technologies by drones to prevent C-UAV jamming. For example, both sides have begun encrypting drone radio frequencies, causing drones to ignore signals that do not match the encryption key.[79] Additionally, more expensive drones utilize preprogrammed routes, necessitating precise position-tracking methods.[80] Finally, Ukraine and Russia are both developing drones equipped with onboard AI systems capable of identifying and locking onto targets, which can navigate using AI with inertial gyroscopes, thereby eliminating the need for command-and-control signals from operators and rendering them impervious to jamming.[81]

In conclusion, the quick adaptation and widespread use of lightweight C-UAV EW devices by the AFRF highlight a significant change in the way of war, driven by the bottom-up battlefield realities in Ukraine. With the increasing threat from Ukrainian drones, especially the deadly FPV models, the AFRF has focused on enhancing electromagnetic protection at the company level. Initially reliant on large, vehicle-based EW systems, the AFRF faced critical vulnerabilities due to their high-value target status and limited coverage across a vast front line. In response, Russia bypassed traditional bureaucratic hurdles by dramatically accelerating the military innovation process of smaller, more flexible C-UAV solutions, including drone detectors, antidrone rifles, portable jamming domes, and vehicle-mounted jammers. After the diffusion of these technologies from Ukrainian forces, Russians implemented them through decentralized mass production and doctrinal integration.

The intense competition between Russia and Ukraine in countering drones highlights the need for continuous innovation to maintain an edge and has broader implications. The lessons learned from this war have shaped Russia's approach to warfare and influenced other countries like China to diffuse similar counterdrone technologies into their military.[82]

Conclusions and Further Research

This article has demonstrated that the AFRF has successfully adapted its conduct of war based on

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A Russian soldier carries an antidrone rifle. Since the beginning of the war in Ukraine, Russian soldiers have received improved antidrone rifles that are capable of drone detection at a distance of up to one kilometer. (Photo from the Russian Ministry of Defence)

lessons from the war in Ukraine, challenging previous assumptions about its rigidity. As argued in the introduction, the AFRF has effectively integrated new technologies and tactics—notably OWA Shahed drones, FPV drones, and lightweight C-UAV EW systems—to enhance combat effectiveness against the AFU, leading to demonstrable shifts in battlefield dynamics.

Russia has successfully diffused and integrated Shahed drones, enabling cost-effective, long-range saturation attacks on Ukrainian critical infrastructure and population. By diffusing and implementing FPV drone warfare into its strategy, Russia has been able to carry out low-cost precision strikes that have significantly altered battlefield dynamics. Finally, the diffusion and use of lightweight C-UAV EW systems have enhanced Russia's ability to defend against the threat from Ukrainian drones at the company level.

Through the lens of military innovations theory, it is evident that Russia is adapting its tactics and technology based on lessons from Ukraine, institutionalizing changes within its doctrine, force structures, and the military-industrial complex. This ongoing process underscores the dynamic nature of modern warfare and the need for continuous advancements to maintain a strategic edge. Recognizing this, the Russian MOD announced the "Voentekh" project in February 2025 to accelerate the implementation of technological innovations by testing new products on the battlefield and introducing them to the AFRF.[83]

Overall, the AFRF's ability to innovate and adapt through the integration of new technologies and tactics challenges conventional wisdom about its military capabilities and how Russia will reconstitute its military force following the war's conclusion in Ukraine.[84] The spread of these technologies to Russian allies highlights their broader impact on global security. These developments pose potential threats to the Baltic States and their NATO allies, in which they will need to address these challenges to be ready for future war. Further research could identify whether the Baltic States and their NATO allies need to change their legacy military strategies to enhance their AD systems to detect and counter the persistent threat of OWA drones like Shahed and invest in the development of lightweight C-UAV EW solutions to protect their combat vehicles and troops from the imminent threat of Russian FPV drones.

NATO's *2022 Strategic Concept* emphasizes the need to maintain technological superiority and invest in

innovation.[85] Further research could also determine whether cheap and scalable OWA drones, FPV drones, and lightweight C-UAV EW solutions are mature enough innovations to be diffused and implemented into the Baltic States and their NATO allies' doctrine, force structures, and defense industries. ■

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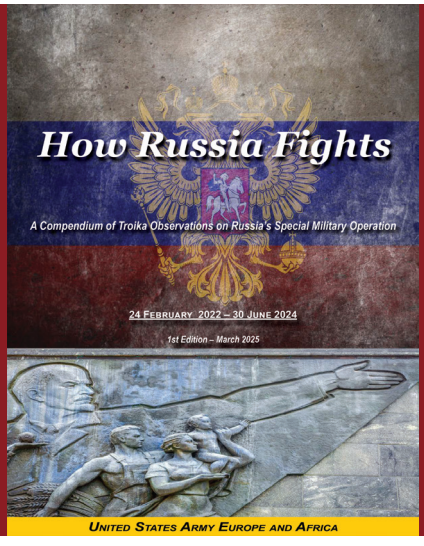

How Russia Fights

A Compendium of Troika Observations on Russia's Special Military Operation

This compendium summarizes and categorizes Russian military performance in the SMO, drawing on more than two hundred Troika Observation reports from 24 February 2022 to 30 June 2024, a period during which the Russian Armed Forces clearly demonstrated how Russia fights. The compendium is organized according to the six U.S. Army warfighting functions. The Russian Armed Forces do not use "warfighting functions" or any similar binning of elements of combat power. However, because this compendium is designed for use by U.S. commanders and their staffs, observations are grouped as Americans might so they will be easier to find.

Access the compendium online at https://api.army.mil/e2/c/downloads/2025/07/11/f2b1e75e/how-russia-fights-a-compendium-of-troika-observations-on-russia-s-special-military-operations.pdf.

Cadets' Perceptions of Hand-to-Hand Combatives Instruction for Officer Development

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Developing officers to meet the Nation's military needs serves to "produce intellectually astute and innovative leaders who [are] capable of understanding complex issues, be they command-related or not."[1] Furthermore, commissioned officers from the U.S. service academies such as the U.S. Military Academy at West Point (USMA) are expected to lead enlisted personnel while maintaining a high level of character and competence.

Cadets at USMA, like other military students at the U.S. Air Force Academy and the U.S. Naval Academy, attend academic, military, and physical education (PE) courses. Each pillar is designed to help cadets pursue a career in the military. USMA's PE360, Combat Applications, lasts nineteen lessons, covering multiple psychomotor skills and techniques as well as providing future officers the purpose that combatives has in leadership. This study was designed to hear the perceptions of cadets using the critical incident technique (CIT) regarding their experiences in Combat Applications as they relate to their future as officers in the Army.

Physical Education at West Point

The mission of USMA is "to build, educate, train, and inspire the Corps of Cadets to be commissioned leaders of character committed to the Army Values and ready for a lifetime of service to the Army and Nation."[2] The mission of USMA's Department of Physical Education (DPE) is "to educate, train, and inspire the Corps by challenging each cadet in activities that promote holistic health and optimal physical performance, commissioning physically fit and mentally tough leaders of character."[3] In this context, two courses offered are considered combatives related: Boxing, which is taken during freshman year, and Combat Applications, offered during junior year. Both courses stimulate cadets affectively (fear management, stress arousal, etc.) and physically (kinesthetic awareness, proprioception, etc.) through close-quarters combat, yet they are not the only means

Maj. Joe Clegg grades two cadets during a final exam bout for PE360, Combat Applications, on 4 March 2024 at West Point, New York. (Photo by Capt. John Bates, U.S. Army)

for creating mentally tough leaders. Additional courses such as Swimming, Military Movement, Personal Fitness, and Unit Fitness all help in pursuing the vision of DPE (to cultivate a culture of physical fitness excellence) and focus faculty on the purpose of teaching in the PE program at West Point.[4]

Combat Applications and Officer Development at West Point

Combat Applications includes boxing, Brazilian jiujitsu, and American-style wrestling techniques. Students are instructed on fundamental skills that enhance previous skills learned during plebe-year Boxing. Each lesson builds upon previous lessons to advance each cadet from beginner to experienced participant. The course includes a midterm tournament (cadets fight three times during the tournament) and paired matches based on skill and weight for their two final exam bouts. Cadets must also take two quizzes based on lectures given by the course director. The stressful environment progresses by initially starting with the points of emphasis in pummeling followed by ground-technique instruction. Cadets begin sparring at the end of lessons and start on their knees to avoid injury due to falls and takedowns. The intensity increases until the midterm bouts, after which the stand-up portion of the course begins and takedowns and body strikes are introduced. Once again, a progression is followed to the final exam.

Methods

Through a qualitative research study, researchers sought the perceptions of military students regarding the impact of the mandatory combatives training

in Combat Applications on their development as officers. Investigators were interested in understanding the perceptions of those cadets who were close to graduation and how the course positively or negatively impacted their development toward becoming officers in the U.S. Army.

Researchers were approved to target the cadet population enrolled in Combat Applications during the fall of 2022 at USMA. A convenient, purposeful sampling of 494 potential students who had earned a final grade from the course were sent emails recruiting their participation in a two-question qualitative survey. The survey questions included: (1) Can you describe specific incidents in the hand-to-hand combatives course at USMA that you believe have a positive influence on your development as a cadet and as a future officer? (2) Can you describe specific incidents in the hand-to-hand combatives course at USMA that you believe have a negative influence on your development as a cadet and as a future officer? Of the 494 potential participants, seventy-three cadets (about 15 percent) consented to participate in the survey.

These seventy-three participants were directed to an online qualitative questionnaire in Qualtrics. Data was collected and arranged by positive and negative statements for all participant responses. The date and time stamp identified each singular report (both positive and negative) from when the survey was submitted. Utilizing Excel, the research team then coded each positive and negative response by ID number. The research team coded the data by reviewing each statement, seeking the incident reported. If a participant failed to provide a response at all, then they were removed from the study; this happened seven times. Responses that did not include an incident in one of the categories (positive or negative) remained in the study and were annotated.

The research team included Combat Application instructors at the USMA; therefore, the online qualitative survey was necessary to avoid any authority over the participants while responding to the survey. This method for collecting data also allowed for the maximum amount of data collection in a rather short amount of time. Student names and ID numbers were kept anonymous throughout the study due to the online submissions. These two steps were important as researchers were solely interested in the perceptions that these military students had as it related to their career as officers in the U.S. Army.

The critical incident technique served as the guideline for categorizing all responses. Originally designed as a positivist approach and consisting of what Gregory Bott and Dennis Tourish described as "a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles," some researchers have adjusted the approach to be more interpretive and inductive.[5] While the CIT does not follow a rigid set of rules, there is a "flexible set of principles that can be modified and adapted to meet the specific situation," which the current research team followed through an inductive content analysis.[6]

A primary feature of the CIT is that it relies on a participant's memory of the events they participated in. Relying on a flexible set of principles and participant memories, researchers in this study requested participants answer two open-ended questions regarding the time spent in the required collegiate hand-to-hand combat physical education course. John Flanagan noted that participant memories were "usually satisfactory when the incidents reported are fairly recent."[7]

Field and observer memories must be discussed when discussing memory and recall. Briefly, field memories are considered those in which participants experience a "high degree of emotion," while observer memories "are more common in memory for temporally remove events, such as events of one's childhood."[8] Therefore, in a class setting where physical altercation is required, researchers believed that the memories experienced from participating in the course were considered recent and accurate due to the nature that hand-to-hand combat presents and its associated "high degree of emotion," even though participants had answered the survey questions up to three months after the course had been completed.

Following Flanagan's steps, researchers ensured that qualifying responses included specific incidents regarding the course as stated by the participants.[9] Any response not mentioning a specific incident was marked as not eligible. As stated previously, the research team consisted of instructors within the course, so they were easily able to ascertain incidents that were relevant to the course. Participants were asked to focus

on actual events as opposed to general impressions as they related to their own potential as an officer, which followed Flanagan's recommendation to obtain participants perceptions from the course and the effect it has on them as it relates to their desired career.

During the coding phase, researchers noted that some responses included more than one incident and therefore yielded more than one code. At the same time, researchers found that in some cases, no relevant incidents were mentioned, and therefore, the response was coded "n/a" or "not eligible." Researchers were tasked with reviewing the responses three different times over two months. This step followed the constant comparative method to help with codifying individual codes. Once the research team accomplished their data analysis individually, the team met to discuss similarities and differences amongst their findings. Following the constant comparison method whereby data was coded, the coded data led to categories or clusters of codes, which led to the concepts that were ultimately agreed upon by the research team.[10]

Recognizing the biases that the research team had due to their involvement in the course as instructors, researchers attempted to increase the trustworthiness of their findings by incorporating the help of peer combatives instructors external to the study. This step helped ensure that the agreed upon codes and categories matched the study's intent and that all incidents reported were accurate and related to the course. This process included providing all participant responses (positive and negative), all codes from each researcher, and all categories that codes built to the external group. After peer instructors reviewed the data analysis, the external review team reported their agreement or disagreement with the findings from the examples they were provided. In total, the external review team negated three response codes from the positive responses; these were withdrawn from the study, leaving seventy response codes of which three themes arose that were positive. The research team and the external group agreed that the two negative themes were accurate given participant responses.

Results

A total of seventy-three participants contributed to the study, of which three total positive responses and forty negative responses were deemed unacceptable based upon established criteria set by the investigators. Examples of a positive unacceptable response include "Nothing" and "No comments." Examples of negative responses deemed unacceptable include "the quiz," "none," and "I don't think there were negative influences in this course." Additionally, responses from the negative statements were removed because participants provided positive responses when asked to provide negative influences, which occurred seven times and included "I genuinely believe that everything that happened in that course will benefit me in my future career as an officer," and "None. This class helps build grit and develops mental fortitude to overcome adversity and failure through perseverance."

Following inductive analysis of the 109

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Table. Frequency of Key Elements by Category

Positive Perceptions	Frequency	Percent	Negative Perceptions	Frequency	Percent
Understanding	38	26.39%	Opponents	13	32.50%
Leader Opportunity	30	20.83%	Lack of Time/Lack of Preparation	10	25.64%
Confidence	17	11.81%	Grading/Losing	7	17.50%
Emotional Response	11	7.64%	Injured	2	5.00%
Grit/Resilience	7	4.86%	Cleanliness	1	2.50%
Physical Fitness/Exercise	6	4.17%	Lack of Awareness	1	2.50%
Motivation	4	2.78%	Need for More Competitions	1	2.50%
Warrior Ethos	4	2.78%	Pace of Class	1	2.50%
Prepared	4	2.78%	Practicality of Drill	1	2.50%
Coaching	3	2.08%	Respect	1	2.50%
Humility	3	2.08%	Quizzes	1	2.50%
Skill Acquisition	3	2.08%	Take Accountability	1	2.50%
Teamwork	3	2.08%			
Aggressive	2	1.39%			
Competition	2	1.39%			
Risk Analysis	2	1.39%			
Character Developing	1	0.69%			
Knowledge Retention	1	0.69%			
Realistic	1	0.69%			
Safety	1	0.69%			
Self-Discipline	1	0.69%			
Total Perceptions	144		**Total Perceptions**	40	

(Table by author)

responses (combined total of acceptable responses from both positive and negative cues), researchers identified a total of 184 key elements that held important concepts from the Combat Applications course. Forty-six positive responses contained more than one key, while the negative responses only saw this occur eight times. These additional elements helped to contribute to the 184 overall key elements from both the positive and negative responses. There were twenty-one positive categories and twelve negative categories in total. The list of frequencies and percentages by key element, both positive and negative, are presented in the table. Percentages were established based upon the total number of key elements positively and negatively.

The top three positive and top two negative perceptions are presented below in detail. Included examples were taken from responses that stood out among the rest and helped to provide a deeper understanding of the response as well as the meaning the participant conveyed when demonstrating the usefulness or, lack thereof, that combatives education is believed to hold on their future as an officer in the U.S. Army.

Positive Perceptions

Understanding. Overall, cadets described the benefit that the educational lectures held in the course, which entailed the course director speaking to all enrolled students about his time in the military, the importance of a competitive environment, how competitions can help a leader when attempting to raise the skill level of their soldiers, and why it is important that officers implement combatives in their units upon arriving. One student reported that these lectures were "inspirational" as he wrote, "The first speech before midterms was very inspiring and helped me understand why all cadets need to be fit and prepared to

fight, regardless of branch." Another stated, "I learned a lot from combatives—not just from the actual sparring, but also from the lectures. I feel excited about integrating combatives into PT when I'm a PL."

To a slightly lesser degree, students described that their understanding came from experiencing something that they had not experienced in their past, and therefore, are now more willing to overcome obstacles. One student contributed,

> [Combatives] taught me how to fight effectively and use the grit factor to overcome my opponents. I learned that if I can endure the pain long enough, my opponent will tire out and I could defeat them easily from there.

Another reported,

> I think this class was possibly the most important DPE class we took at West Point … I came into the class thinking I was unaggressive and was going to lose every fight and feel defeated by the end. Instead with the help of the great staff I had fun learning the basics of Combatives … this improved my confidence and made me feel like I was actually more ready to be an officer.

Leader opportunity. Participants reported many instances that combatives could help them lead in the future, recognizing that these skills would help them as a second lieutenant or more. One cadet provided,

> The chance to go full out in a physical fight provided self-awareness to my personal level of grit. It taught me how to control my efforts and manage my strength to win in my fights. I think this management will be valuable to understand as I teach my soldiers such skills.

Another said, "An explanation of WHY unit combative training is essential, but also HOW to implement it healthily and productively … it showed and explained how it is manageable and possible to do what is taught to us."

Confidence. Unsurprisingly, many responses included an increase in confidence in engaging in an aggressive sparring session, controlled bout, or a fight for a grade (midterm and final exams are graded fights). Some reported an enhanced ability to act such as this student who wrote, "I think it increased my confidence and made me a more aggressive and decisive person." Others responded that the confidence gained will help them be a better officer in the future. One participant contributed,

> Overall, the combatives class was an excellent experience that better prepared me to be an officer and had a positive impact on my personal and professional development. I feel more confident and capable as a result of the training, and I know that the skills I learned will be invaluable throughout my military career.

Negative Perceptions

Opponents. A majority (32.5 percent) of the negative perceptions related to the opponent that many participants faced. While participants did not necessarily always mention how that will affect their leadership potential, it could be inferred that they will take this negative experience with them and seek to avoid these issues when leading as an officer. One participant reflected on the differences in gender, stating,

> When partners wouldn't put in any effort to provide feedback or provide any resistance to help us learn the skills and to think of the next move. When paired with a male partner for one of the quick practice rounds, he very obviously didn't try at all and let me move him without resistance … he could have given me the respect as a teammate to provide a reasonable amount of resistance to help us both practice and learn.

Another recognized that size plays a role in "real-life" scenarios, stating,

> If the class sizes were larger, we may have been able to more evenly distribute ourselves during the final matches. This said, at the same time it does not matter, as we will not be able to pick the size of the other person in a real-life situation.

Time constraints (lack of time/lack of preparation). It was not surprising for researchers to hear that more than a quarter of the elements reported included a time constraint. DPE operates two nineteen-lesson courses each semester, leaving little time to advance from the novice combatant level. Researchers expected to hear participants state they wished they had more time. As one participant contributed,

> The only negative influence would probably be that there was not enough about fighting

U.S. Military Academy cadets spar with weapons during combatives training on 7 October 2021 at West Point, New York. (Photo by Dan Furlong)

> using weapons such as knives or rifles. I think that would have been better for my development as a future officer if there were more realistic situations.

Discussion

The current findings provided valuable insights into what cadets viewed as important to their future as officers. Understanding appeared as the highest-ranked positive perception. Many cadets suggested that, in terms of fighting, understanding the why behind the how is extremely important for their development as future officers. Cadets stated they enjoyed the lectures, finding them motivating, which seemingly led to increased internalization of the importance of combatives training in the conventional Army. This has been reported in previous sport psychology research where philosophy and moral principles communicated in martial arts and combat sports training provide opportunities to connect values with required behaviors.[11]

Cadet comments regarding the usefulness of learning about the morality of fighting concurrently with how the human brain learns physical skills were consistent with previous research. Sports that develop skills that were once useful for combat and hunting have also been linked with development of a moral code.[12] Cadets recognized that the lectures on training the required physical skills and those on developing a warrior mindset provided a deeper educational experience. Physical education instructors are catalysts for setting the motivational climate and the level of enthusiasm in the room.[13] This is especially true when the climate invites fun, some degree of ability, and a willingness to produce effort. Several incidents pointed to the lecture on applying combatives to officership as positive and enjoyable because it linked the warrior ethos with the mindset cadets will need as officers, along with it being a trait they will instill in their future soldiers.

Leader opportunities are also important to the educational framework at the USMA. Leadership, along with character development, is a foundational tenet of the USMA programmatic outcome goals. As a result of combatives training, cadets felt the training better prepared them to be officers as well as having a positive impact from a professional development perspective. Cadets indicated that they learned how to assess risks and respond to high-pressure situations quickly and effectively, skill sets critical for any military officer. Combat sports often contain underlying values that may be well-suited for acquiring life skills based on the values of proficiency, persistence, and control such as leadership.[14] This may be because the grit required in dealing with adversity and coping skills have been found to transfer to other difficult life conditions.

Cadets also noted how the combatives training provided by the USMA PE faculty was effective in instructing a combined class of cadets with mixed abilities. Several cadets expressed being forced out of their comfort zones by receiving feedback from different people as they would exchange partners throughout. This provided cadets with continued repetitions

of listening to or providing constructive criticism as they learned from or facilitated the learning of others. Findings indicate that social skills (teamwork, leadership) can be learned through sport.[15] These social skills are necessary for individuals to succeed as future officers in the U.S. Army. This study successfully shows that physical education is the model environment for developing not only social life skills but also positive self-directed skills such that students come to value the training because they find it beneficial for their future.[16]

Improved confidence was also reported by cadets. Research has defined confidence as believing that one's capabilities are effective for success when performing in competitive and social settings.[17] Cadets described feeling more confident and capable because of combatives training and acknowledged the skills learned would be invaluable throughout their military career. With the opportunity to fight other students in the class, cadets appreciated that they could use their newly acquired skills against an opponent, testing their confidence and competence under pressure. Developing the ability to maintain confidence under pressure is vital for one's mental toughness.[18] Literature suggests that competition during physical education lessons improves the number of confident students.[19]

Appreciation for the need to acquire skills required as soldiers and officers in the U.S. Army was also influential in developing confidence in cadets through combatives training. Cadets admitted to enjoying the increased confidence that resulted from them feeling they could now hold their own in a fight. This supports previous research that hands-on combatives training produces confidence that one can defend themselves in the event situations become combative.[20] Also, cadets stated that combatives training helped them develop in terms of grit and determination, growing in their warrior ethos. This aligns with the literature that suggests soldiers with a background in combatives training are better prepared to navigate challenges with confidence and the appropriate amount of aggression.[21] Cadets reported that every future officer should experience the challenge of being evaluated in a one-on-one fight solely on whether they won or lost, and that this experience is instrumental in instilling the warrior ethos and developing confidence.

Research suggests there are other views to consider regarding combatives training outside of building confidence and warrior ethos. For example, not developing or growing in confidence could leave one unmotivated and discouraged as an officer where they no longer have confidence when performing routine tasks or facing expected challenges.[22] Therefore, physical educators should incorporate combatives training that promotes the use of one-on-one fighting as a way of assessing not just skill acquisition but also competency. Physical educators help cultivate a positive learning culture, as well as develop adaptive behaviors, among students related to confidence and resilience.[23]

The highest-ranking negative perception by cadets regarded opponents. Some cadets stated that they perceived little training value fighting an opponent with a wrestling, judo, or combatives background. When someone with fighting experience fought someone inexperienced, it often resulted in the inexperienced fighter being unable to demonstrate or utilize the skill or skills they learned over just nineteen lessons. Some cadets reported this had a negative influence on their development, leaving them discouraged because this was attributed to unfairly influencing their grade. Research has indicated that fear of losing can lead to adaptations and behaviors due to the perceived public humiliation of losing, the event's significance, or possible injury.[24] This would support one's discouragement or poor perception of training value, citing external conditions to the cadet as the cause of their failure.

Other criticisms involving opponents included partners who displayed little effort or resistance to provide proper stimulus feedback to facilitate learning and skill acquisition. This study supports the research that suggests developing fighting skills and confidence helps cope with the austere and potentially stressful circumstances cadets may encounter throughout their military career; cadets training in combatives recognize it requires effort, consistency, commitment, and sacrifice from themselves and others.[25] Simone Cecchini et al. reported that combat sports training not only improves motor skills along with tactical abilities, but a key component of training is also social development and working to improve each other.[26]

Some cadets recognized when their opponent was less skilled and felt obligated to lower their speed and intensity when fighting. This also created consternation for some cadets who felt that fighting someone who was clearly less trained and able to engage them

U.S. Military Academy cadets fight during the midterm exam for PE360, Combat Applications, on 17 November 2021 at West Point, New York. (Photo by Dan Furlong)

did not adequately challenge them. Cadets made the connection that they would not be able to select the other person's size, weight, or skill in a real-life conflict. Darius Mojtahedi et al. reported that individuals with greater levels of confidence demonstrate lower levels of apprehension and manage negative emotions better.[27] It makes sense that those possessing greater size, weight, or skill would be disappointed if they felt they had to restrain the display of their talents. Conversely, less skilled or smaller fighters might not find the same satisfaction because demonstration of skill demands the defeat of others who may be bigger, stronger, or better.[28]

Another negative perception was the time constraint of the class. USMA's Combat Applications course consists of nineteen fifty-minute classes that are required for graduation. Many cadets felt that the class should extend longer than nineteen lessons. Reasons for doing so included allowing for more sparring before fights as well as wanting exposure to fighting with weapons. Several students cited that they would support increasing from two fight days to four, engaging in eight or more fights. This supports reports from Cecchini et al. who found that participants displayed significantly greater levels of intrinsic motivation after just four weeks of beginning athletics.[29] One of the arguments from cadets for increasing the number of lessons, along with the number of fights, was to offer more exposure to fighting, evaluate their abilities among the class, and identify the better or more skilled fighters. Research suggests that students who are regularly exposed to competitive situations in athletics have more opportunities to assess their abilities in relation to others.[30] Also, elements that influence motor skills learning in physical education include time, practice, and student skill level.[31]

Research has provided that both the acquisition and retention of skills and concepts were related to practice at appropriate levels of intensity.[32] Motor learning requires the generation of new pathways and patterns. Because of this, some behaviors and abilities are easier to learn than others.[33] Accomplishing daily activities such as tying shoes, texting, swinging a bat to hit a ball, or playing the drums all require a series of precise

movements. Similarly, combatives training requires time and practice to produce movements and reactions that require timing, tactile feedback, and body awareness.[34] This supported negative views associated with not enough time allowed to free-spar or practice techniques in a less calculated way. Cadets reported that a great amount of time was allowed for them to focus on learning a technique or drill, but they did not have enough time or opportunity to replicate it in a more real-time, fight-like environment.

The findings from this study support the continued use of combatives instruction at the USMA and discuss both the positive and negative influences that students believe could impact their future as officers. Challenging cadets in social, emotional, and physical realms hopefully brings about positive change. Using the results of this study can enable combatives course development to incorporate more time for in-class practice and add to the course lectures, possibly discussing the positive atmosphere opponents can have and the impact that a "poor sport" can have on their peers.

Conclusion

The purpose of this study was to hear the perceptions of military students regarding the impact a mandatory hand-to-hand combatives PE course had on their development as officers through a qualitative research study. Through this approach and relying on the CIT, volunteer participants reported that their potential as officers was improved due to the lectures incorporated into the course; they facilitated understanding and explained how to implement combatives training into physical training—leader opportunity. Combined with increased confidence reported from daily sparring, cadets overwhelmingly reported positive outcomes from a mandatory PE combatives course as it relates to developing officers.

The U.S. Army must continue to stand ready to defend the country and defeat its enemies. Developing leaders who embrace a combatives culture and who understand that soldiers may need to fight in close-quarters combat is a piece of building a formidable force. Soldiers need officers who understand the importance of hand-to-hand combat and who create a culture that embraces it. Future and current officers who implement hand-to-hand combatives training enhance soldiers' skill sets, ultimately leading to a more prepared soldier. By failing to recognize this point, officers in the U.S. Army may be setting their soldiers up to fail should the soldier encounter close-quarters combat. ■

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Soldiers with 2nd Battalion, 263rd Air Defense Artillery, 678th Air Defense Artillery Brigade, 263rd Army Air and Missile Defense Command, South Carolina Army National Guard, engage targets with the .50 caliber machine gun on an AN/TWQ-1 Avenger Air Defense System during a live-fire exercise 28 April 2024 at Fort Jackson, South Carolina. Soldiers worked as teams loading ammunition and shooting while enhancing weapons proficiency and teamwork. (Photo by Sgt. Tim Andrews, U.S. Army National Guard)

The Evolution of Air Defense

Adapting to Emerging Threats

Maj. Vincent R. Wiggins, U.S. Army

If you know the enemy and know yourself, you need not fear the result of a hundred battles.

—Sun Tzu

Warfare is evolving at an unprecedented pace, and nowhere is this more apparent than in the skies. The rapid proliferation of unmanned aircraft systems (UAS), cruise missiles, and advanced rotary- and fixed-wing aircraft has dramatically increased the complexity of modern battlefields.[1] These threats are no longer confined to peer adversaries; nonstate actors and regional powers now wield sophisticated capabilities that challenge traditional postures.[2] The Army must recognize that outdated air defense models are ill-suited to countering these emerging threats.[3]

Despite the urgency of this reality, air defense modernization efforts have been hampered by systemic failures in capability development and force integration. The absence of adaptable air defense solutions, combined with the continued separation of air defense artillery (ADA) from maneuver forces, has created critical vulnerabilities. If the Army does not reevaluate its approach, it risks further fielding systems and structures incapable of responding to the evolving threat landscape.

The Culture of the ADA Community: A Barrier to Tactical Development and Maneuver Integration

The air defense's organizational isolation began in 2005 when all ADA units were removed from divisions and reaggregated into theater-oriented brigades subordinate to Army air and missile defense commands (AAMDC).[4] What looked efficient on a PowerPoint slide quickly calcified into a cultural gulf: air defenders no longer shared training calendars or field problems with the combined arms formations they once protected. Over time, the branch's lexicon and professional education drifted away from the maneuver force, eroding the intuitive understanding of how fires support ground movement.

That erosion is not theoretical. Following a recent Patriot deployment, one senior captain concluded that "the multi-year defense of stationary assets such as air bases has inherently degraded the Patriot Air Defense force's ability to conduct movement and maneuver on the battlefield."[5] His choice of words is telling. Instead of describing how air defense fires enable maneuver, he framed success as the battery's ability to "conduct movement and maneuver." The distinction matters: fires formations do not maneuver; they support and complement the maneuver of others.[6] Yet, air defenders routinely conflate the two terms, revealing a branch-wide blind spot about their role within the fires warfighting function.[7]

Maj. Danny Lee Rumley Jr. noted that when short-range air defense (SHORAD) was removed from division formations in 2005, it severed most maneuver units' direct connection to the ADA branch; this disconnect has been worsened by ADA's frequent deployment cycles, which limit relationship building with fires and other combat arms counterparts.[8] His comments underscore how organizational separation and relentless deployment tempo disrupt informal networks that translate air defense fires into effects to support maneuver and further widen the cultural gap between ADA and the combined arms team.

A follow-up study highlights how removing SHORAD from divisions created a generational gap, leaving air defenders and maneuver commanders with little shared experience—resulting in limited understanding of ADA capabilities across the force.[9] Their assessment echoes voices across the fires enterprise: as each cohort passes through company and field grade billets without habitual ADA integration, the institutional memory for how to weave surface-to-air fires into maneuver shrinks—and the professional development of future combined arms leaders suffers.

The confusion is reinforced by the operational reality ADA brigades have faced for nearly two decades: an unbroken cycle of theater-level deployments that tie batteries to fixed bases and a command relationship that orbits AAMDCs instead of corps' headquarters. After an ADA Best Warrior Competition

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in 2021, one warrant officer admitted, "These warrior tasks and battle drills are things that we don't do regularly in the Army."[10] The remark exposes a training diet shaped less by preference than mission demand. When the branch's main effort is defending airfields, calendars fill with emplacement drills, not rehearsing aerial security operations or cueing engagements while brigade combat teams (BCT) fight through contact.

ADA branch schools devote hundreds of hours to radar theory and missile kinematics, yet allocate almost no time to the doctrinal relationship between fires and maneuver.[11] Young officers graduate as experts in sensor coverage diagrams but cannot overlay them with integrated graphic control measures; warrant officers can recite track-correlation algorithms yet struggle to build their sensor network into a division's main effort.[12] Deprived of habitual exposure to combined arms problems, their technical mastery is offset by a tactical myopia that leaves them ill-prepared for tomorrow's highly mobile fight—yet these are the very officers drafting capability statements and advising on force design decisions. When maneuver-disconnected air defenders define the requirements, modernization efforts risk producing exquisite technical solutions that fail to satisfy fundamental combined arms principles or counter emerging threats in the close fight.

The Cultural Degradation of Maneuver Competency Reflected in Army Doctrine

Despite Army doctrine centering freedom of maneuver as the decisive idea of land combat, successive ADA doctrinal publications codify a conception of air defense largely divorced from maneuver.[13] Some indicators are listed below.

Capability vagueness obscuring actual limits. Army SHORAD doctrine claims that "M-SHORADs [now Sgt. Stout] and Avengers are most suited for early engagement of UASs."[14] Yet, both systems can only defeat Group 3 UAS or larger, leaving maneuver forces misinformed and exposed to waves of smaller drones that dominate the close area.

Missing fire-control connective tissue. Joint doctrine leaves no ambiguity: "An ADAFCO [ADA fire control officer] is required in any area/region/sector AD command in which an Army AMD [air and missile defense] capability is employed."[15] The Joint Air Ground Integration Center (JAGIC) must coordinate every ADA engagement through the ADAFCO at the division level.[16] Yet, the current structure for newly formed division air defense (DIVAD) battalions and their division headquarters omit ADAFCO billets. Further, Army SHORAD doctrine never references the position.[17] Building SHORAD formations without their mandated liaison guarantees that trigger-pullers remain disconnected from the joint kill chain. Embedding ADAFCOs at every division with a DIVAD—and realigning ADA units under conventional command structures—would restore that connective tissue, create habitual relationships for combined arms training, and unlock innovation.

Guidance that conflicts with joint doctrine. Air defense doctrine emphasizes centralized planning and "decentralized execution" that pushes engagement decisions to crews.[18] But joint doctrine directs that authority for manned aircraft engagements "normally remain at the SADC [sector air defense commander] or higher," with lower delegation limited to cruise missile and unmanned aircraft.[19] The inconsistency risks tactical confusion and inflated expectations of what SHORAD crews may engage during high-tempo operations.

Outdated reliance on visual aircraft recognition. Maneuver planners habitually exploit darkness to mask movement and gain surprise; yet, ADA doctrine treats daylight, clear-weather visual aircraft recognition (VACR) as a primary identification method. Air defense doctrine admits that during night or inclement weather, "visual detection, identification, and range are difficult, if not impossible," advising Stinger teams not to fire under such conditions.[20] According to a 1990s Army study, even under ideal daylight, it recorded a 37 percent fratricide rate when Stinger crews relied on VACR.[21] Despite this data, air defense doctrine makes VACR proficiency a training requirement without addressing limited visibility scenarios.[22] This daylight-centric planning factor leaves ADA unprepared to support the nocturnal tempo preferred by combined arms formations. It sets the stage for senior leaders to tout VACR as a cure-all—an argument once echoed by a senior doctrine officer.[23]

Missing building blocks for maneuver integration. Across air defense doctrine, readers will not find standard staff products—no mission-type tactical tasks, battle position diagrams, or schemes of ADA concept

Soldiers from Charlie Battery, 5th Battalion, 4th Air Defense Artillery Regiment, 10th Army Air and Missile Defense Command, engage targets with the .50 caliber machine gun on an AN/TWQ-1 Avenger Air Defense System during a move-and-shoot live-fire exercise 8 June 2021 at Shabla Air Defense Live Fire Range, Bulgaria, in support of Saber Guardian 21. (Photo by Staff Sgt. Michael Gresso, U.S. Army)

sketches.[24] Every other fires- or maneuver-support field manual provides these visual touchstones; their absence denies maneuver staffs a shared lexicon and leaves air defenders without doctrinal templates for integrating surface-to-air fires into an operation.[25]

Failure to adapt the Army's security operations framework. Field Manual (FM) 3-98, *Reconnaissance and Security Operations*, lists five fundamentals that guide security operations: provide early warning; provide reaction time and maneuver space; orient on the protected force, area, or facility; perform continuous reconnaissance; and maintain enemy contact.[26] ADA inherently performs each of these, from an aerial perspective, every time it defends an asset, yet no ADA manual crosswalks air defense tasks to this well-understood framework. The omission deprives maneuver planners of a familiar construct for integration and blinds air defenders to established techniques for shaping an aerial screen, guard, or cover.

Aviation doctrine shows the template ADA lacks. FM 3-04, *Army Aviation*, devotes full chapters to security operations, includes detailed graphical concepts for each form of maneuver, and includes a menu of aviation-specific tactical tasks.[27] The publication enables aviators and supported units to share a mental model of how rotary-wing fires shape the fight. ADA doctrine offers no comparable road map, perpetuating the cultural and procedural gulf identified throughout this article.

These additional doctrinal inconsistencies reinforce the cultural drift noted earlier: air defenders codify a static, asset-centric worldview and then use that understanding to shape capability requirements. When the manuals themselves confuse fires with self-contained maneuver, omit proven security frameworks, and blur engagement authority, the modernization enterprise naturally produces weapons and organizations optimized for the wrong problem set—further evidence that a maneuver-disconnected ADA culture is steering the Army's AMD future.

Leadership development shortfalls and command-and-control misconceptions. The doctrinal and cultural gaps described above manifest most acutely

in the misunderstandings that ADA leaders carry into field exercises and deployments. Because leader-development venues—from the ADA Basic Officer Leader Course and Captains Career Course to other ADA scholarship—seldom immerse students in a joint fires network, many commanders and staff officers conflate coordinating altitude with engagement authority.[28] The result is a tacit belief that anything flying below the coordinating altitude belongs solely to the ground force commander; joint doctrine says otherwise.[29]

Coordinating altitude is unequal to engagement authority. Army Techniques Publication 3-91.1/Air Force Tactics, Techniques, and Procedures 3-2.86, *The Joint Air Ground Integration Center*—a long-standing Army–Air Force agreement that predates the current DIVAD design—directs divisions to "[coordinate] with the SADC or RADC [regional air defense commander] using the ADAFCO."[30] Army air traffic control agencies manage airspace below the coordinating altitude to prevent in-flight collisions of aircraft and munitions; those clear-airspace authorities emanate from the airspace control authority (ACA), not the air defense command.[31] Defensive counterair (DCA; the parent of ADA actions), by contrast, is governed by the area air defense commander (AADC), who designates airspace control measures to enable surface-to-air fires.[32] Because the ACA and AADC may be different commanders, joint doctrine emphasizes that coupling collision-avoidance control with engagement authority requires close coordination "for unity of effort, prevention of friendly fire incidents, and deconfliction of joint air operations."[33] Surface-to-air fires are not bound by the coordinating altitude and must still flow through the ADAFCO/JAGIC network for engagement procedures. More plainly, the Army's airspace control doctrine, FM 3-52, states that coordinating altitude "does not include authorities vested in the area air defense commander."[34] Yet, air defense leaders routinely describe the ADAFCO as a "HIMAD thing" (High to Medium-Range Air Defense) and assume a decentralized, crew-level authority for targets flying below the coordinating altitude.[35] Ironically, the ADA branch's capstone SHORAD doctrine never mentions coordinating altitude, underscoring how the ADA community relies on a concept absent from its manuals.[36]

The decentralized-control myth persists. *Air Defense Artillery Journal* commentary from 2024 summarizes the community's informal rule of thumb: "The United States Army is generally comfortable with High to Medium Air Defense operating under centralized control while Short Range Air Defense operates under decentralized control."[37] This statement, however, conflicts with joint doctrine, which emphasizes that responsibility for engaging manned aircraft typically resides with the SADC or higher, especially for SHORAD forces—while authority to engage is usually only delegated lower for threats like cruise missiles and UASs.[38]

Patriot-centric view of ADAFCO employment. As two field grade officers explain, "They don't have Air Defense Artillery Fire Control Officers (ADAFCOs) that can bridge the gap between the Army and Air Force because they don't have Patriot battalions under their command."[39] Supported by gapped Army structure, this perspective reinforces the myth that only HIMAD formations require ADAFCOs, leaving SHORAD task forces—those most closely collocated with maneuver units—without the very liaison designed to knit surface-to-air fires into the joint architecture.

Institutional pushback without a doctrinal basis. Even at the branch's highest intellectual level, the misunderstanding endures. A senior doctrine ADA officer at the Fires Center of Excellence recently nonconcurred with a proposal to assign ADAFCOs to every division; along with several other objections, he insisting that VACR-certified Stinger teams can identify hostile aircraft.[40] None of the objections cited an authoritative source, and each contradicted joint and Army doctrine, which mandate ADAFCO integration and centralized engagement authority for manned air threats.[41]

Contrast that resistance with the U.S. Marine Corps, which is accelerating its own ADAFCO capability in anticipation of fielding its maneuver SHORAD (M-SHORAD) equivalent.[42] In 2024, the Marines hosted the Army's ADAFCO course at Camp Pendleton, California—"a Marine Corps first."[43] Marine leaders called the skillset "critical in the coming years" and intended to make the course a recurring event.[44]

The Marine Corps invests in ADAFCO proficiency for M-SHORAD integration, while the Army's air defense leaders passively dismiss the idea. This underscores how doctrinal misguidance is now shaping policy. The official rejection perpetuates a leadership

Soldiers from Bravo Battery, 5th Battalion, 4th Air Defense Artillery Regiment, 52nd Air Defense Artillery Brigade, and 4th Squadron, 2nd Cavalry Regiment, line up for safeties to clear the weapon systems aboard multiple Stryker A1 variants near Osku, Hungary, on 19 June 2025. (Photo by Sgt. 1st Class Jacob Kohrs, U.S. Army)

paradigm that leaves maneuver commanders without expert air defense counsel even as peer services recognize the need and act on it.

Failure to create permissive engagement conditions. When SHORAD crews assume unilateral authority, they bypass the joint kill chain that validates airspace clearance and identification. Effective tactical air defense hinges on establishing missile engagement zones (MEZ) through the AADC for desired effects and synchronizing them with schemes of maneuver during the supported unit's targeting cycle, not by defaulting to the ACA's low-altitude corridors.[45] Joint Publication 3-52, *Joint Airspace Control*, reinforces that MEZs are an air defense tool, distinct from air corridors, and ideal for "protection of maneuver units in the forward area."[46]

These misconceptions reveal how doctrine and professional education gaps produce ill-equipped leaders to translate air defense theory into compliant, integrated practice. Until ADA's professional military education and field manuals explicitly teach the difference between coordinating measures and engagement authority, and institutionalize ADAFCO employment down to divisions, modernization efforts will continue to be shaped by officers who misunderstand the very architecture they are meant to improve.

Recommendation: Institutionalize Maneuver-Centric ADA Competencies to Support Force Structure and Modernization

To enhance the effectiveness of future force structure and modernization efforts, the Army should establish an additional skill identifier (ASI) for air defenders who possess validated maneuver-centric competencies—such as graduation from the Maneuver Captains Career Course or a Maneuver Center of Excellence accredited "Battle Forge"-like certification—rather than relying solely on the ADA area of concentration.[47] This ASI would formally distinguish maneuver-qualified ADA officers and should be used to prioritize assignments to emerging formations and modernization initiatives designed to support maneuver units in contested environments.

Modernization projects like M-SHORAD require ADA personnel who can operate fluidly within combined arms teams. Just as the airborne community

mandates institutional jumpmaster certification to facilitate airborne operations—beyond simply being a paratrooper—the Army must adopt a similarly discerning standard when placing air defenders in roles that directly influence maneuver unit survivability and lethality.

The ADAFCO model provides a proven precedent: only air defenders who complete institutional certification are eligible due to the complexity and doctrinal precision required to manage joint airspace and manned threat engagements. Assignments that influence the force structure of maneuver-supporting ADA roles must reflect the same rigor. Failure to do so risks placing underprepared personnel into critical billets, undermining the modernization objectives designed to ensure overmatch in multidomain operations.

By codifying maneuver integration as an institutional skill and linking it to a formal ASI, the Army can ensure that modernization is matched by appropriate human capital, reinforcing doctrinal fidelity and operational effectiveness.

Uninformed Advice and Misaligned Modernization

No one expects maneuver commanders to master the nuances of air defense integration, but Army air defense professionals must—or else defer when the topic exceeds their competence. The service's recent modernization trajectory shows what happens when that expectation is unmet. Tactical air defense gaps are being defined and resourced by leaders who remain disconnected from maneuver culture, resulting in solutions that look logical on PowerPoint but fail in the combined arms arena.

The root cause is structural. Since ADA brigades were lifted out of corps formations, most air defenders have spent their careers under theater-oriented headquarters where the daily rhythm is base defense, not fire and maneuver.[48] Isolated from the Army's warfighting culture, they have insufficient touchpoints with maneuver commanders and little incentive to experiment with mobility, modularity, or tactical integration. The consequence is a capability development cycle driven by asset-centric thinking—protect the thing in place—rather than maneuver-centric effects—enable the force to seize key terrain.

The Army's capability statement accurately frames a core requirement: "Brigade Combat Teams lack the ability to detect, identify, and engage threat UAS, rotary wing, and fixed wing aircraft while conducting combined arms maneuver, leaving forces vulnerable to surveillance and attack from air threats."[49] Yet, the solutions intended to meet this demand—most notably M-SHORAD and its Sgt. Stout variant—fail to deliver against that full spectrum. Sgt. Stout does not defeat the proliferating range of UASs nor does it meaningfully extend standoff against rotary- or fixed-wing threats with respect to its legacy predecessor, the Avenger. These shortfalls undermine critical elements of combined arms planning, where tempo, protection, and fires depend on the ability to contest the air domain. The gap between the Army's stated need and what is being fielded reflects poor tactical guidance—shaped by air defenders who lack the maneuver understanding required to design integrated, adaptive solutions for the battlefield. As noted below, the formal capability statements that underpin M-SHORAD confirm the pattern.

Capability statement 1: Platform inflexibility. The requirement calls for a SHORAD platform that supports every BCT, but the chosen design—Sgt. Stout on a Stryker chassis—fits doctrinally only inside a Stryker BCT.[50] Other brigade types must field a visually distinct vehicle in their formations, increasing survivability risks from enemy targeting. A modular launcher package for tactical vehicles in infantry BCTs or Bradley hulls in armored BCTs would preserve camouflage and maintenance commonality.

Capability statement 2: Sensors without a growth path. The statement demands onboard sensors for aerial surveillance yet omits the ability to process and fuse track data for future radar-guided interceptors.[51] Absent that functionality, the force is locked into electro-optical cueing when the threat now requires digital hand-offs to weapons with longer reach and harsher kinematics.

Capability statement 3: Legacy interceptors masquerading as leap-ahead. By centering the solution on line-of-sight Stinger and Hellfire missiles, the Army gains no new defeat mechanism against next-generation drones and loitering munitions, saturation attacks, or standoff air threats.[52] Without a road map to integrate radar-guided missiles for increased engagement range, the fleet will struggle to overmatch anything beyond low and close flying Group 3 UASs in the near-future battlespace.

Capability statement 4: Direct-fire drone defeat is still analog. The requirement envisions gunners defeating Groups 1–2 drones with surface guns but offers no advanced target acquisition suite.[53] Without this capability, gunners use digital interfaces for basic control but manually estimate lead to engage drones with suppressive barrage fire—yielding inconsistent results, increased risk of fratricide from stray rounds, and higher ammunition consumption.

Collectively, these shortfalls reaffirm how a maneuver-disconnected ADA culture drafts requirements that look adequate in isolation yet fail the adaptability and lethality tests demanded by combined arms warfare. Worse, many requirement documents still conflate movement (changing location) with maneuver (gaining relative advantage with fires), implying that ADA units must "maneuver" like tanks instead of orchestrating fires to unlock maneuver for others.[54]

When modernization guidance is drafted by officers who equate VACR with combat identification, treat ADAFCOs as a Patriot luxury, or regard coordinating altitude as a hand-railing AMD engagement authority, the resulting force design carries those misconceptions forward. The Army is therefore fielding DIVAD battalions without the liaison billets joint doctrine demands, radars that can't extend standoff, and launchers locked to a single missile family—all because an ADA culture shaped the underlying requirements, estranged from the formations it protects.

Reembedding ADA units inside corps formations, establishing habitual relationships, and complying with ADAFCO standards are prerequisite steps to breaking this cycle. Only then will air defense advisers possess the contextual understanding to offer grounded, maneuver-relevant counsel, and only then will modernization efforts yield systems that deliver the effects commanders expect on tomorrow's battlefield.

Maneuver Captains Career Course students rehearse for their individual company-level operations brief 22 June 2023 at the Western Hemisphere Institute for Security Cooperation, Fort Benning, Georgia. (Photo by Milton Mariani Rodriguez)

The Limitations of Sgt. Stout

Sgt. Stout, formally known as M-SHORAD and the Army's primary SHORAD enabler, was designed to protect maneuvering units from fixed-wing, rotary-wing, and medium-sized UASs.[55] However, its limited payload capacity—carrying only four Stinger missiles—significantly constrains its operational effectiveness. Unlike the Avenger, which still fields and carries eight Stinger missiles, Sgt. Stout's payload reduction diminishes its engagement capacity.[56]

Additionally, Sgt. Stout's reliance on line-of-sight missiles presents another challenge. The system's detection capability does not significantly increase its standoff range or target acquisition efficiency. In comparison, the Army plans to equip the system with a second Avenger-modified Stinger pod starting in 2026.[57] This modification only matches the intercept capability of the legacy Avenger system without addressing fundamental limitations in flexibility or range.

Sgt. Stout's original concept included the integration of Longbow Hellfire missiles alongside Stingers. The Hellfire payload was limited to two at a time, resulting in a total interceptor payload of six missiles—two Hellfire and four Stinger—compared to the Avenger's

eight Stinger missiles.[58] However, the Hellfire, including the Sgt. Stout's "Precision Incarnate" variant, relied on missile-organic seekers and radar cueing, similar to the Avenger's "Slew-to-Cue" capability for Stinger.[59] This offered only a marginal tactical advantage over Stingers while reducing the overall missile payload. The opportunity cost of the Hellfire component was not worth the effort, as it complicated logistical support and offered only a limited improvement in engagement capability. These drawbacks were evident even before safety concerns led the Army to halt Hellfire fielding in 2024.[60] The result was a system that remained fundamentally constrained in its ability to counter the evolving threat.

The Counter-UAS Missile and the Need for a Modular Approach

The Coyote missile, developed by Raytheon, is a versatile interceptor designed to counter UAS, including more minor drone threats that have become prevalent on modern battlefields.[61] Notably, Coyote was in production before the Army formally defined the requirement for Sgt. Stout, demonstrating that concerns regarding the full spectrum of UAS threats were already recognized.[62] However, this capability being omitted from Sgt. Stout's development reflects a failure to address a broader scope of aerial threats despite the opportunity to do so. This omission reinforces the theme that maneuver-ignorant air defense advisors influenced capability decisions, resulting in a system that failed to address the full range of aerial threats.[63] This misalignment further underscores the need to integrate all air defense formations within the broader Army structure to ensure informed, maneuver-centric capability development.

The multimission Avenger was a proposal from Boeing as early as 2010 to modernize the existing Avenger system, offering a cost-effective and efficient means of addressing future threats.[64] By leveraging the Avenger's proven mobility and firepower, Boeing sought to enhance its capability through modularity, enabling the integration of various interceptors and sensors tailored to evolving battlefield conditions. This modernization effort was intended to provide a more adaptable and responsive air defense solution without requiring a complete system overhaul.

A modular approach to air defense such as the multimission Avenger allows the Army to adapt more effectively to unforeseen threats. The Avenger system that has historically provided mobile, SHORAD capability was previously examined in "Balancing Air and Missile Defense to Better Support Maneuver."[65] That analysis highlighted the gap left by the Army's prioritization of static engagement over highly mobile air defense assets. The multimission Avenger concept improves upon its predecessor by integrating interchangeable payload pods, allowing for greater flexibility against diverse threats.[66]

A system featuring interchangeable pods would enable the Army to tailor its payload based on mission requirements. In contrast to a modular system, the Army currently must field Sgt. Stout for one category of threats while relying on a separate Coyote-firing platform for the broader UAS spectrum.[67] This bifurcated approach requires additional crews, vehicles, training, and financial resources, increasing operational complexity.

A modular system would consolidate these capabilities, reducing logistical burdens while enhancing flexibility in combat scenarios. For example, swapping a dual Stinger for a Coyote missile pod would allow a single platform to counter rotary-wing, fixed-wing, and all groups of UAS. Future configurations could incorporate radar-guided missiles capable of intercepting cruise missiles and other advanced air threats with much better standoff.

By integrating modular architecture, the Army can ensure that its air defense capabilities remain agile and responsive to the rapidly changing battlefield.

Advanced Target Acquisition Capability

Smart Shooter, an example of advanced target acquisition capability, is a sophisticated fire control system designed to enhance rifle accuracy against aerial and ground targets.[68] This technology utilizes complex trace algorithms, artificial intelligence, and image-processing to improve target acquisition, tracking, and firing accuracy.[69] Its flagship product, SMASH 2000, enables users to lock onto targets, track their movement, and fire at the optimal moment for maximum accuracy.[70]

The Army has already purchased and issued SMASH fire control devices to tactical units for limited fielding.[71] This advanced capability enables a rifleman

“This shift in capability would transform how air defense platforms engage aerial threats, providing a faster, more efficient, and cost-effective solution to countering the growing drone threat.”

to effectively engage small, fast-moving aerial threats like drones. By using a computerized optic, the system calculates the precise lead time required to strike a moving target. This capability represents a substantial leap in counter-UAS effectiveness.

Beyond its use in dismounted operations, integrating this advanced target acquisition concept into SHORAD systems would provide significant advantages. When applied to the Avenger’s .50 caliber coaxial machine gun and Sgt. Stout’s 30 mm automated cannon, this technology would enable these platforms to engage drones and other aerial threats with unprecedented accuracy, efficiency, and speed.

Currently, gunners must semimanually track and engage drones using a barrage of fire, mainly relying on their skill, with only basic dashboard visual aids available. This approach often results in excessive ammunition expenditure and inconsistent effectiveness. When describing the Sgt. Stout direct fire system against UASs, one knowledgeable lieutenant states that “it takes a lot of skill with judging flight path and a lot more luck.”[72]

With advanced target acquisition capability, the Avenger and Sgt. Stout could fire missiles against more significant air threats and seamlessly pivot to rapid, one-shot defeat of clustered and swarm UASs. These systems could quickly neutralize multiple drones with minimal ammunition expenditure and less fratricide risk to adjacent units by ensuring precise targeting and engagement at the optimal moment. This shift in capability would transform how air defense platforms engage aerial threats, providing a faster, more efficient, and cost-effective solution to countering the growing drone threat.

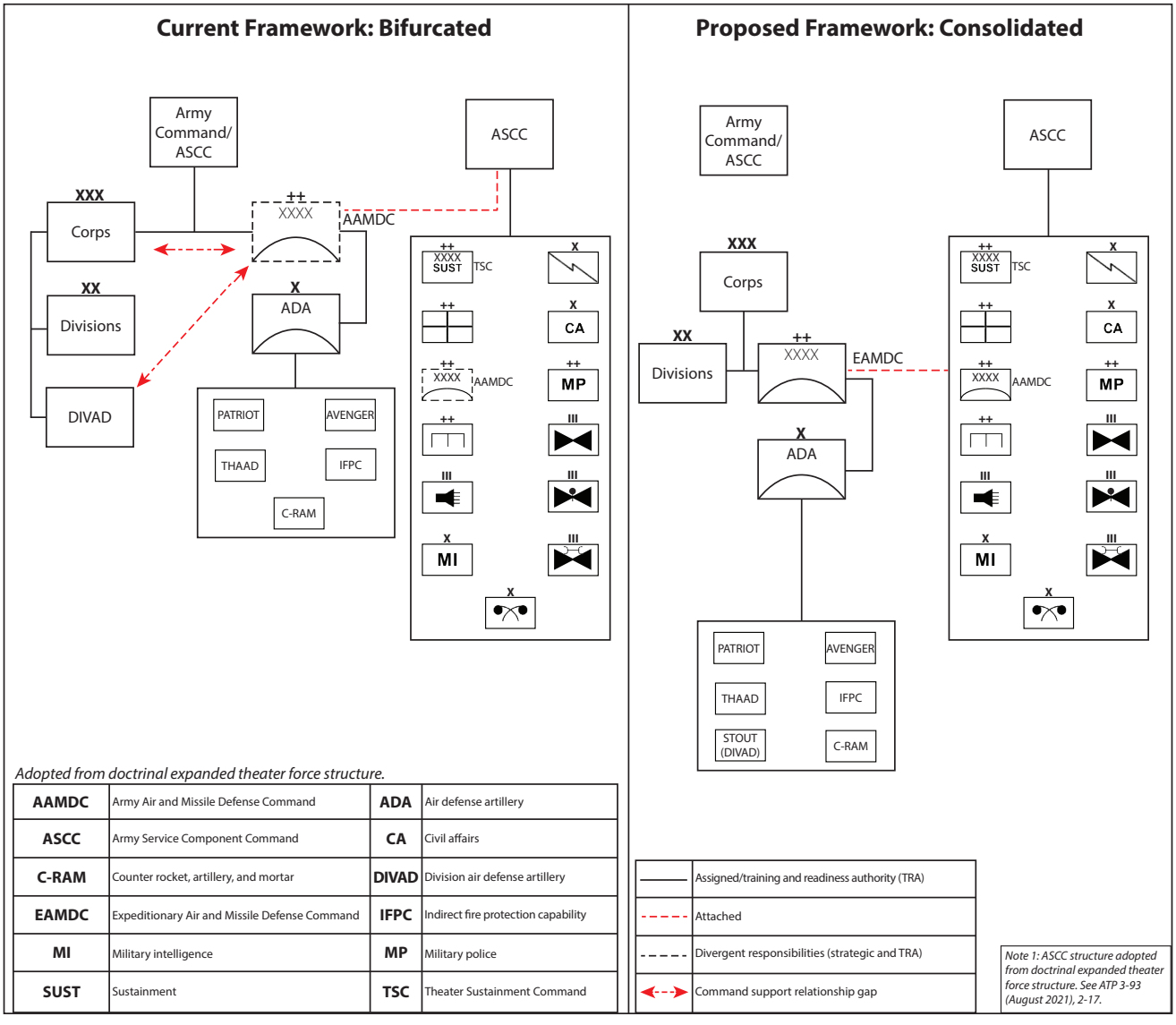
Restructuring Air Defense Command

The lack of multiechelon training with adjacent Army formations has hindered the development of integrated competencies within air defense. Specifically, ADA brigades do not participate in combat training center (CTC) rotations—events that, according to Army Forces Command, give units “a crucible experience … in a complex and highly realistic DATE [Decisive Action Training Environment] under the most adverse conditions possible.”[73] Instead of a true CTC crucible, the branch relies on “Roving Sands,” an exercise run by the 32nd AAMDC that advertises it as “the opportunity to execute individual and collective tasks within the LSCO framework” for air defense formations.[74]

From 1989 to 2005, Roving Sands was hailed as “the premier Air and Missile Defense exercise in the world”; yet, the modern construct unfolds inside an ADA-only bubble.[75] While Roving Sands strives to re-create the stressors of large-scale combat operations (LSCO), it lacks maneuver brigades, division and corps staff, and the robust observer-controller enterprise that makes a CTC rotation the Army’s gold standard. Ironically, the tactical scenario places a training ADA brigade under the simulated command of a corps headquarters.[76] Nevertheless, air defenders rehearse tasks for one another rather than with an actual combined arms team they are meant to shield, reinforcing an institutional echo chamber instead of building integration fluency.

Embedding ADA brigades in CTC rotations would collapse this insularity. Corps headquarters—already seasoned in synchronizing joint fires and overseeing dozens of CTC participants yearly—are better suited than standalone AAMDCs to hold Training and Readiness Authority (TRA) for these functions. Integrating ADA into the CTC scenario would give maneuver commanders repeated exposure to the capabilities and limitations of their protective umbrella, while granting air defense leaders the repetitions required to blend fires, logistics, and survivability at the tempo of decisive action.

The current posture places all six ADA brigades under three active AAMDCs, with one disproportionately managing four.[77] Additionally, the recently introduced



Adopted from doctrinal expanded theater force structure.

AAMDC	Army Air and Missile Defense Command	**ADA**	Air defense artillery
ASCC	Army Service Component Command	**CA**	Civil affairs
C-RAM	Counter rocket, artillery, and mortar	**DIVAD**	Division air defense artillery
EAMDC	Expeditionary Air and Missile Defense Command	**IFPC**	Indirect fire protection capability
MI	Military intelligence	**MP**	Military police
SUST	Sustainment	**TSC**	Theater Sustainment Command

(Figure by author)

Figure. ADA Force Structure: Current versus Proposed

DIVAD formations are assigned within corps headquarters but lack oversight from an AAMDC, leaving them without specialized air defense expertise.[78] This misalignment creates inefficiencies.

To modernize air defense command structures, the Army should adopt an approach similar to sustainment commands, which effectively manage logistics at both the theater and corps levels (see figure). Each campaign area has a theater sustainment command responsible for overseeing large-scale sustainment. Each corps, in turn, has an expeditionary sustainment command that deploys and integrates with theater sustainment commands while providing direct logistical support to maneuver forces. This model ensures that sustainment efforts are incorporated at all levels. Air defense should follow a similar structure, with AAMDCs functioning as two-star theater-level headquarters, while newly established expeditionary AMD commands (EAMDCs) provide corps-level air defense integration and execution.

EAMDCs are a proposed concept designed to bridge the gap between strategic and operational air defense planning. Unlike AAMDCs, which focus on theater-level missile defense, EAMDCs would serve

as corps-level one-star headquarters, ensuring that air defense capabilities are effectively integrated through the operations of their respective corps. This structure would provide direct oversight of ADA units at all levels while maintaining alignment with the Army's broader operational framework.

As ADA units realign under EAMDCs across the three corps in Army Forces Command, the active AAMDCs would remain aligned under a theater Army Service component command, focusing on strategic missile defense. Meanwhile, EAMDCs would integrate with corps headquarters, providing a dedicated command structure for air defense forces' tactical and operational employment. This restructuring balances the ADA brigade distribution, assigning two brigades to each EAMDC and ensuring proper oversight for DIVAD formations within the corps framework.[79] Aligning air defense forces across all echelons enhances operational flexibility and readiness.

The Army's current air defense force structure limits its ability to integrate seamlessly with maneuver forces. In contrast, EAMDCs would

- enhance coordination and planning of air defense operations,
- improve integration between separate ADA brigades and DIVAD formations, and
- streamline professional development and cross-functional training.

Currently, AAMDCs operate at the theater level, overseeing strategic missile defense operations while also exercising TRA over ADA brigades.[80] However, these brigades are isolated from the corps structure, creating a disconnect between their operational employment and their training oversight.

The current model ties strategic responsibilities with TRA functions, limiting flexibility in developing ADA formations. ADA brigades are structured to support theater-level air defense but are not inherently aligned with Army corps. This separation results in challenges such as

- **Lack of integration with maneuver forces.** The lack of integration with maneuver forces severely degrades the air defense community's ability to speak the Army's operational language, limiting its effectiveness in combined arms.[81] Air defenders lose proficiency in doctrinal terminology, symbology, and frameworks without routine interaction, weakening their ability to articulate air defense considerations within the Army's decision-making processes.

  This isolation stifles critical thinking on evolving air threat challenges, leading to a narrow focus on strategic-level solutions while neglecting the echelons where maneuver forces operate. As a result, the air defense community remains an insular force, unable to effectively contribute to the Army's broader problem-solving efforts in multidomain operations.
- **Training, readiness, and developmental gaps.** The segregation of air defense units from corps formations isolates air defenders within their community and limits exposure to joint and combined arms exercises (e.g., CTCs). This insular training environment prevents external observation and critique, reinforcing a self-referential approach to warfighting that contradicts the Army's principles of integration and multidomain preparedness.

  While technical air defense competencies may remain intact, the broader impact on soldier skills, tactical comprehension, and warfighting adaptability is severe. Air defenders struggle to develop the integration mindset necessary to operate effectively alongside traditional formations without regular engagement in maneuver-centric exercises. This stifles their warrior spirit, weakens their ability to communicate concerns in operational terms, and leaves them professionally out of place in combined arms discussions. Consequently, those raised in ADA brigade environments become ill-equipped to translate their expertise into solutions that inform and enhance the wider Army warfighting community.

As a proposed concept, EAMDCs would decouple theater-level responsibilities from TRA, allowing AAMDCs to focus exclusively on strategic missile defense. In contrast, EAMDCs would facilitate TRA from within a corps headquarters. This shift would streamline training oversight, doctrinal development, and resource allocation, ensuring ADA units are better prepared for multitiered missions.

The introduction of EAMDCs would not alter the nature of ADA units supporting theater-level operations, such as Patriot formations, which remain aligned with AAMDCs. Typically, Army corps already serve as the deployment-pushing headquarters for ADA units performing these missions. However, integration

into the corps would provide a dedicated three-star headquarters as an advocate for ADA units, ensuring streamlined operational resources inherent to the corps, such as robust logistics, intelligence capabilities, and command support.

An Army corps employs divisions, multifunctional brigades, and functional brigades (e.g., ADA) to achieve objectives on land.[82] While it is organized as a tactical formation, the corps may become a joint or multinational headquarters for conducting operations.[83] This grants the corps the competency to provide TRA over ADA units, which have missions that fluctuate among theater, operational, and tactical levels.

By aligning ADA formations with corps-level commands, the Army ensures that air defense capabilities remain fully integrated with maneuver forces, enhancing overall effectiveness and responsiveness. The proximity of ADA units to tactical formations within a corps headquarters would facilitate the cross-pollination of expertise and enhance shared understanding between the air defense and maneuver communities. This integration would improve professional development, doctrinal alignment, and operational effectiveness, and promote a more traditional warrior culture, ensuring air defense formations are better prepared to support the dynamic requirements of LSCO.

By restructuring air defense to include EAMDCs at the corps level, the Army would improve its ability to integrate air defense assets directly into maneuver warfare concepts, ensuring a more responsive and adaptable approach to emerging air threats and modernization.

The Way Forward: A Unified Vision for Air Defense Modernization

As the Army transitions into modern LSCO, a comprehensive and modular air defense solution must converge multiple defeat mechanisms across the fewest number of platforms. Future capability statements should reflect the following priorities:

- **A modular approach.** Design systems with interchangeable launcher pods and adaptable chassis integration for M-SHORAD enablers to match supported BCT platforms, enhancing survivability and operational cohesion.
- **Advanced target acquisition.** Employ AI-driven fire control and image-processing technologies to improve precision for direct fire systems while incorporating radar-guided missile options for greater engagement flexibility and range.
- **Enhance counter-UAS effectiveness.** Develop AI-enabled track discrimination capabilities using flight pattern analysis to reduce false alarms, accurately identify air-breathing threats, and improve response in cluttered airspace.
- **Institutionalize corps-level integration.** Establish EAMDCs to streamline ADA command structures, reinforce maneuver integration, and cultivate crossfunctional relationships essential to a unified warfighting culture.

Conclusion

The evolution of air threats demands a corresponding transformation in air defense strategy. The presence of capability statements that poorly address emerging air threats at the tactical level reveals a troubling trend: non-maneuver-savvy air defenders are influencing the Army's air defense strategy to support maneuver.

If the Army is to succeed in contested environments, it must ensure that its tactical ADA solutions are informed by those who understand the demands of maneuver operations and can drive capability development that supports the fight at all levels: strategic, operational, and tactical.

In contrast, by embracing modularity, integrating emerging technologies, and restructuring command elements, the Army can significantly enhance its air defense capabilities to better defend the Nation's interests now and into the future. ■

Notes

Epigraph. Lionel Giles, trans., "Attack by Stratagem," chap. 3 in *Sun Tzu on the Art of War* (Allandale Online Publishing, 1910), accessed 30 June 2025, https://www.gutenberg.org/files/132/132-h/132-h.htm.

1. Witold Materak, "The Evolution of Air Threats in Future Conflicts," *Safety & Defense* 9, no. 1 (September 2023), https://doi.org/10.37105/sd.196.

2. "Between 2016 and 2020, researchers documented 440 cases of non-state actors using weaponized UAVs. Groups like the Houthis and Hezbollah have demonstrated sophisticated drone attack capabilities against state actors." Lam Tran, "YL Blog # 90 – Leveling the Battlefield: AI-Enabled Technology in the Hands of Non-State Actors," *Young Leaders Blog*, Pacific Forum, 28 November 2024, https://pacforum.org/publications/yl-blog-90-leveling-the-battlefield-ai-enabled-technology-in-the-hands-of-non-state-actors/.

3. "The Army's inventory of antiaircraft weapons is badly in need of updating. As small drones proliferate rapidly on the modern battlefield, the service does not have enough of the right systems to defend against them." Peter Mitchell and Benjamin Phocas, "Closing the Army's Tactical Air Defense Gap," Modern War Institute at West Point, 14 June 2024, https://mwi.westpoint.edu/closing-the-armys-tactical-air-defense-gap/.

4. "Short-range air defense artillery units were historically embedded in Army divisions, providing them with an organic capability to protect their critical assets against fixed-wing and rotary-wing aircraft. However, in the early 2000s, these ADA [air defense artillery] units were divested from the Army to meet force demands deemed more critical at that time … Thus, the short-range ADA force post-2005 was reduced to two battalions of active component Avenger and counter-rocket, artillery and mortar batteries and seven National Guard Avenger battalions; none of which are organic divisional elements. Defense against air threats in maneuver forces is currently limited to that provided by organic weapons and maneuver personnel." Randall McIntire, "The Return of Army Short-Range Air Defense in a Changing Environment," *Fires* (November-December 2017): 5, https://tradocfcoeccafcoepfwprod.blob.core.usgovcloudapi.net/fires-bulletin-archive/2017/nov-dec/nov-dec.pdf.

5. Mike McEunn and Pete Bier, "Preparation for Roving Sands 22 – Back to the Future," *Air Defense Artillery Journal*, no. 1 (2022): 34–37, https://www.dvidshub.net/publication/issues/64918. The authors further revealed a misunderstanding of key concepts by equating "movement and maneuver" with regaining convoy operation skills, conflating logistical movement with tactical maneuver.

6. Army Doctrine Publication (ADP) 3-19, *Fires* (U.S. Government Publishing Office [GPO], July 2019), v.

7. Ian Murren, "Air Defenders are Force Protectors: Rediscovering and Returning to Short Range Air Defense Historical Force Protection Role," *Air Defense Artillery Journal*, no. 1 (2023): 34–39, https://www.dvidshub.net/publication/issues/67760. Murren demonstrates a doctrinal misunderstanding by misclassifying air defense operations under the protection warfighting function while misattributing the use of ADA direct fire weapons against ground threats as part of the fires warfighting function. He states that short-range air defense (SHORAD) cannons—described as having "the three highs" (high caliber, high velocity, high rate of fire)—should be used within the fires function to destroy enemy ground targets. However, this misrepresents doctrinal roles. According to ADP 3-19, *Fires* (U.S. GPO, July 2019), 1-1, direct fire systems are not categorized under the fires function, which encompasses only surface-to-surface fires, surface-to-air fires, air-to-surface fires, and nonlethal effects. This confusion further reflects the broader issue of air defenders applying technical capabilities without proper alignment to doctrinal employment frameworks. Paul Spikes and Pete Bier, "Air and Missile Defense Modernization Well-Suited for Future LSCO Operations," *Air Defense Artillery Journal*, no. 3 (2021): 43, https://www.dvidshub.net/publication/issues/61816. Spikes and Bier misrepresent Patriot's role in support of maneuver by conflating tactical maneuver with mobility, stating that its lack of a "shoot-on-the-move" capability limits its impact on maneuvering forces. However, this interpretation misunderstands doctrinal employment. Fires are defined by their intended effects—not by the platform's mobility—making the argument irrelevant to the system's contribution to shaping and protecting the battlefield.

8. Danny Lee Rumley Jr., "ADA Struggles Within the JAGIC," *Air Defense Artillery Journal*, no. 1 (2021): 25, https://www.dvidshub.net/publication/issues/59025.

9. Patrick Lowry et al., "Defeating the Aerial Threat in Warfighter Exercises," *Air Defense Artillery Journal*, no. 3 (2020): 16, https://www.dvidshub.net/publication/issues/59026.

10. Ian Vega-Cerezo, "Blackjack Warrior Competition 2021," *Air Defense Artillery Journal*, no. 2 (2021): 6, https://www.dvidshub.net/publication/issues/58982.

11. Fires Center of Excellence, "ADA BOLC-B: Individual Student Assessment Plan (ISAP)" (Fires Center of Excellence, December 2022), https://tradocfcoeccafcoepfwprod.blob.core.usgovcloudapi.net/30-ada-bde/bolcb/doc/ISAP.pdf.

12. "There is currently a huge knowledge and experience gap within the ADA community of how to operate within maneuver units in every echelon. Therefore, we don't have enough leaders and Soldiers that could effectively fulfill their role because of the sheer lack of opportunities presented to them." David Lara, "The Future of Air Defense Artillery," *Air Defense Artillery Journal*, no. 2 (2020): 37, https://d34w7g4gy10iej.cloudfront.net/pubs/pdf_59027.pdf.

13. Field Manual (FM) 3-0, *Operations* (U.S. GPO, March 2025), 3. Army doctrine emphasizes targeting as a critical process for synchronizing warfighting functions in support of multidomain operations, with freedom of maneuver as a central objective. It prioritizes key capabilities like fires and intelligence to dismantle enemy systems, enabling positional advantage and integrating joint force depth to protect friendly formations.

14. FM 3-01.44, *Short-Range Air Defense Operations* (U.S. GPO, July 2022), 6-6.

15. Joint Publication (JP) 3-01, *Countering Air and Missile Threats* (U.S. GPO, April 2023), II-15. Doctrine aligns the ADA fire control officer (ADAFCO) requirement with ADA units operating within the area air defense commander's (AADC) designated zone of responsibility. The AADC—usually an Air Force component and not the Army—may, with the joint force commander's approval, subdivide this area into regions (regional air defense commander, or RADC) and sectors (sector air defense commander, or SADC). ADAFCOs provide the critical link between ADA units and joint engagement authorities within these zones, ensuring proper integration and centralized control.

16. "When a threat or unknown aircraft is detected, both the AMD officer and NCO in the JAGIC are notified. These individuals ensure the air defense artillery fire control officer (ADAFCO) is co-located with the SADC or RADC, and is aware of the threat. The ADAFCO is responsible for updating the SADC or RADC, as required." Army Techniques Publication (ATP) 3-91.1/Air Force Tactics, Techniques, and Procedures (AFTTP) 3-2.86, *The Joint Air Ground Integration Center* (U.S. GPO, April 2019), A-13.

17. FM 3-01.44, *Short-Range Air Defense Operations*.

18. FM 3-01.44, *Short-Range Air Defense Operations*, 2-6.

19. JP 3-01, *Countering Air and Missile Threats*, V-12.

20. ATP 3-01.18, *Stinger Team Techniques* (U.S. GPO, August 2017), 2-8.

21. David M. Johnson and Joan Dietrich Silver, *Stinger Team Performance During Engagement Operations in a Chemical Environment: The Effect of Experience*, Research Report 1638 (U.S. Army Research Institute for the Behavioral and Social Sciences, June 1993), 24, https://apps.dtic.mil/sti/tr/pdf/ADA268952.pdf. While the source research dates to the 1990s, the core principles governing the employment and identification limitations of man-portable Stinger teams remain consistent in today's operational environment. For the purposes of this article, the author referenced data from table 13, "Percent Fratricide by Conditions," using only the figures from MOPP0 (mission-oriented protective posture)—standard battle dress uniform without protective gear—to represent the baseline performance environment. Results from MOPP4 were excluded to maintain focus on conditions most representative of typical field operations.

22. Training Circular 3-01.18, *Stinger Team Gunnery Program* (U.S. GPO, October 2017), 2-1–2-5.

23. Email message to author, 24 September 2024, from an Army ADA officer serving as chief of doctrine for the Directorate of Training and Doctrine, Fires Center of Excellence. The officer declined consent for personal attribution (email in author's possession); Rumley, "ADA Struggles Within the JAGIC." Rumley highlights ADAFCO training as one of the premier institutional programs at the ADA Fires Center of Excellence, grouping it alongside Patriot Top Gun and Master Gunner schools. He characterizes these courses as producing expert air defense planners and tacticians, reinforcing ADAFCO as a core competency critical to advanced ADA integration and operational effectiveness.

24. FM 3-01, *U.S. Army Air and Missile Defense Operations* (U.S. GPO, December 2020); FM 3-01.44, *Short-Range Air Defense Operations*; ATP 3-01.15/MCTP 10-10B/NTTP 3-01.8/AFTTP 3-2.31, *Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense* (U.S. GPO, April 2023); ATP 3-01.64, *Avenger Battalion and Battery Techniques* (U.S. GPO, March 2016); ATP 3-01.85, *Patriot Battalion Techniques* (January 2019); ATP 3-01.87, *Patriot Battery Techniques* (U.S. GPO, August 2018); ATP 3-01.94, *Army Air and Missile Defense Command Operations* (U.S. GPO, April 2016).

25. FM 3-04, *Army Aviation* (U.S. GPO, March 2025), 73; FM 3-09, *Fire Support and Field Artillery Operations* (U.S. GPO, August 2024), 6-36; FM 4-0, *Sustainment Operations* (U.S. GPO, August 2024), 103. A significant gap in Army air defense doctrine is its failure to incorporate standard military graphics, tactical tasks, and concept sketches—tools consistently used in other combat support fields like aviation, artillery, and sustainment. This absence of shared visual language and doctrinal planning templates impedes integration with maneuver forces and deprives junior air defenders of essential resources for effective mission planning. Bridging this gap is vital to enhancing interoperability and operational clarity.

26. FM 3-98, *Reconnaissance and Security Operations* (U.S. GPO, January 2023), 5-2.

27. FM 3-04, *Army Aviation*.

28. Maj. Michael Nizolak, "Big Sky, Little Bullet? Air Defense Artillery Airspace Coordinating Measures Save Lives," *Air Defense Artillery Journal*, no. 2 (2021): 40, https://www.dvidshub.net/publication/issues/58982. Nizolak's assertion that "Army-managed airspace resides underneath the coordinating altitude and within the Fire Support Coordination Line" illustrates a common misinterpretation within the air defense community. By linking engagement authority to airspace coordination measures, the statement risks misrepresenting how maneuver SHORAD (M-SHORAD) forces integrate into combined arms operations. This reflects a broader trend where ADA professionals incorrectly treat "coordinating altitude" as a determinant of air defense engagement authority. FM 3-52, *Airspace Control* (U.S. GPO, October 2016), para. 3-20. However, FM 3-52 clearly states that coordinating altitude does not confer air defense authorities. This misunderstanding can result in misleading guidance to maneuver commanders and weakens joint integration efforts.

29. JP 3-52, *Joint Airspace Control* (U.S. GPO, May 2010 [obsolete]), II-3, https://www.kadena.af.mil/Portals/40/documents/AFD-130514-110.pdf. The 2022 edition of doctrine retains the same language as the 2010 version, though the latter is referenced in this article for its open-source accessibility. The doctrine clearly states that the AADC is responsible for defensive counterair operations, encompassing both air and missile threats as well as the integration of air and missile defense (AMD) systems. The AADC also determines airspace control requirements to support defensive counterair, including airspace control measures, air defense measures, and procedures for conducting AMD operations within the airspace control system.

30. ATP 3-91.1/AFTTP 3-2.86, *The Joint Air Ground Integration Center*, A-13.

31. JP 3-52, *Joint Airspace Control*, II-2, II-3, III-6, III-7.

32. JP 3-52, *Joint Airspace Control*, II-3.

33. JP 3-52, *Joint Airspace Control*, II-1, II-2. The doctrine further states that "the ACA does not have the authority to approve, disapprove, or deny combat operations."

34. FM 3-52, *Airspace Control*, 3-4.

35. Pete Bier and Garrett O'Leary, "The Case for Multi-National Air Defense Brigades in NATO," *Air Defense Artillery Journal*, no. 1 (2024): 18, https://www.dvidshub.net/publication/issues/71414. The authors extend their high-to-medium-range air defense (HIMAD)-centric view of ADAFCO roles into the multinational domain, asserting that NATO forces lack ADAFCOs capable of bridging Army and Air Force coordination due to the absence of Patriot battalions under their command. This statement further reinforces a narrow interpretation of the ADAFCO role, suggesting its relevance is limited to HIMAD and high-altitude operations, rather than recognizing its broader applicability across SHORAD and joint airspace integration, regardless of altitude.

36. FM 3-01.44, *Short-Range Air Defense Operations*.

37. Bier and O'Leary, "The Case for Multi-National Air Defense Brigades in NATO," 18.

38. JP 3-01, *Countering Air and Missile Threats*, V-12.

39. Bier and O'Leary, "The Case for Multi-National Air Defense Brigades in NATO," 18.

40. Email message to author, 24 September 2024.

41. JP 3-01, *Countering Air and Missile Threats*, II-15.

42. Jennifer Sanchez, "U.S. Marines Host U.S. Army Air Defense Artillery Fire Control Officer Course for the First Time," 3rd Marine Aircraft Wing, 15 August 2024, https://www.3rdmaw.marines.mil/Media-Room/Stories/News-Article-Display/Article/3874866/us-marines-host-us-army-air-defense-artillery-fire-control-officer-course-for-t/.

43. Sanchez, "U.S. Marines Host U.S. Army Air Defense Artillery."

44. Sanchez, "U.S. Marines Host U.S. Army Air Defense Artillery."

45. FM 3-60, *Army Targeting* (U.S. GPO, August 2023), 4-3. Doctrine identifies targeting as the function that "synchronizes desired effects with the scheme of maneuver," accurately capturing how surface-to-air fires should be integrated within a maneuver framework. This reinforces that air defense effects must align with maneuver objectives, not operate independently of them.

46. JP 3-52, *Joint Airspace Control*, III-9.

47. Peter C. Shull, memorandum, "Active Component Maneuver Captains Career Course Policy Memorandum and Individual Student Assessment Plan (ISAP)," 1 October 2019, 3, https://www.benning.army.mil/Infantry/199th/CATD/MCCC/content/pdf/ISAP_AC_MCCC%20Policy%20Memo.pdf; Milton Mariani Rodriguez, "Battle Force Exercise," U.S. Army, 4 June 2021, https://www.army.mil/article/247223/battle_forge_exercise. Battle Forge is a culminating, pass/fail operations order (OPORD) event for Maneuver Captains Career Course students. The exercise begins with a review of U.S. doctrine, then progresses through troop leading procedures training while students develop OPORD products. Students plan and present an OPORD for various organizations—infantry, armor, and Stryker—simulating roles as company commanders in both offensive and defensive scenarios.

48. McEunn and Bier, "Preparation for Roving Sands 22," 34. In discussing preparation for a tactical training exercise, the authors note that "Roving Sands was designed to exercise those once prevalent skills in Air Defense units that had degraded over more than 15 years of steady-state AMD operations on hardened sites." This reflects a recognition that prolonged static deployments eroded essential expeditionary and maneuver-relevant competencies within the ADA force.

49. Headquarters, Department of the Army, *Department of Defense Fiscal Year (FY) 2019 Budget Estimates: Justification Book of Missile Procurement, Army* (Headquarters, Department of the Army, February 2018), 155, https://www.asafm.army.mil/Portals/72/Documents/BudgetMaterial/2019/Base%20Budget/Justification%20Book/Missiles.pdf.

50. FM 3-96, *Brigade Combat Teams* (U.S. GPO, January 2021), 1-1, 1-11. Army doctrine differentiates among infantry, Stryker, and armored brigade combat teams (BCT) to guide planning and tactical integration. It describes the IBCT as an expeditionary formation optimized for dismounted operations in complex terrain; the SBCT as capable of effective operations across most terrain and weather conditions; and the ABCT as a heavy combined arms formation composed of armor and mechanized infantry battalions. These distinctions are essential for aligning air defense support with the operational needs and mobility profiles of each BCT type.

51. Andrew Feickert, *U.S. Army Short-Range Air Defense Force Structure and Selected Programs: Background and Issues for Congress* (Congressional Research Service [CRS], July 2020), 9, https://www.congress.gov/crs_external_products/R/PDF/R46463/R46463.2.pdf.

52. Feickert, *U.S. Army Short-Range Air Defense*.

53. Feickert, *U.S. Army Short-Range Air Defense*.

54. Feickert, *U.S. Army Short-Range Air Defense*.

55. Office of the Director, Operational Test and Evaluation (DOT&E), "Army Programs: Initial Maneuver Short-Range Air Defense," in *FY20 Annual Report* (DOT&E, January 2021), 85, https://www.dote.osd.mil/Portals/97/pub/reports/FY2020/army/2020im-shorad.pdf.

56. Jen Judson, "Interim Short-Range Air Defense Solution to be Stryker-Based," Defense News, 1 March 2018, https://www.defensenews.com/land/2018/03/01/interim-short-range-air-defense-solution-will-be-stryker-based/. The author highlights the Army's active efforts to field Avenger systems and establish new formations, citing Lt. Gen. James Dickinson's 2018 statement as head of Army Space and Missile Defense Command. Dickinson reported that the Army was ahead of schedule in delivering two Avenger battalion-equipping sets to Europe in support of the European Deterrence Initiative, with plans to establish an active component Avenger battalion the following year, including the necessary personnel and infrastructure.

57. Ashley Roque, "Army 'Prohibited' Soldiers from Using Hellfire with M-SHORAD on Strykers Due to Safety Concerns," Breaking Defense, 18 June 2024, https://breakingdefense.com/2024/06/army-prohibited-soldiers-from-using-longbow-hellfire-with-m-shorad-on-strykers-due-to-safety-concerns/. Roque explains that the current plan is to retrofit existing M-SHORAD platforms by replacing the Hellfire launcher with a second Stinger pod, effectively doubling the Stinger loadout to eight rounds per vehicle. However, implementation depends on procuring additional Stinger Vehicle Universal Launchers, which is included in the fiscal year 2025 budget request. According to then–Brig. Gen. Frank Lozano's office, if the plan proceeds as expected, upgrades will begin in late fiscal year 2026.

58. Andrew Feickert, *U.S. Army's Initial Maneuver, Short-Range Air Defense (IM-SHORAD) System*, CRS Insight (CRS, July 2018), 2, https://www.congress.gov/crs-product/IN10931.

59. "Why Does the US M SHORAD Stryker Use Both Stinger and Hellfire Missiles?," posted 3 January 2024 by Defense News, YouTube, 4:10, https://www.youtube.com/watch?v=CpPgYIciilw; Boeing, "The Boeing Company Awarded Avenger Slew-To-Cue Upgrade Contract," news release, 25 March 1998, https://boeing.mediaroom.com/1998-03-25-The-Boeing-Company-Awarded-Avenger-Slew-To-Cue-Upgrade-Contract. The Slew-to-Cue system, introduced as a Boeing modification kit roughly a decade after the Avenger's initial fielding, exemplifies the Army's historical use of incremental upgrades to enhance system agility and adaptability in response to evolving threat environments. This approach allowed for targeted capability improvements without requiring full system replacement.

60. "The reason? After greenlighting M-SHORAD production, the service discovered that sticking the higher-tech weapon on the side of the vehicle created wear and tear on the missile, leading to 'potential' safety concerns, Bush said." Roque, "Army 'Prohibited' Soldiers."

61. Raytheon, "Meet the US Army's LIDS: A sure shot against drones," news release, 8 February 2024, https://www.rtx.com/raytheon/news/2024/02/08/meet-lids-a-sure-shot-against-drones. The Low, Slow, Small, Unmanned Aircraft Integrated Defeat System is a layered defense solution designed to counter small to medium-sized unmanned aircraft systems (Groups 1–3 UAS). It integrates both kinetic effects, such as the Coyote interceptor missile, and nonkinetic effects like electronic warfare and jamming, to detect, track, identify, and neutralize drone threats across multiple domains.

62. Raytheon, "Meet the US Army's LIDS." In 2016, Raytheon started developing Coyote in response to a joint urgent operational needs statement. Army Futures Command, "M-SHORAD Units Arrive to 5-4th ADA," *Air Defense Artillery Journal*, no. 1

(2021): 11, https://www.dvidshub.net/publication/issues/59025. In 2021, Army Futures Command characterized the fielding of M-SHORAD (now Sgt. Stout) as a solution to defend maneuvering forces against unmanned aircraft systems, rotary-wing, and fixed-wing threats. However, this statement lacked critical caveats regarding its limited effectiveness against Group 1 and 2 UASs. This omission contributed to unrealistic expectations among maneuver units, especially given the widespread proliferation of low-cost, small drones that remain a significant battlefield threat today.

63. Joshua Urness, "Learning to Speak Maneuver," *Fires* (July-August 2018): 7–9, https://tradocfcoeccafcoepfwprod.blob.core.usgovcloudapi.net/fires-bulletin-archive/2018/jul-aug/jul-aug.pdf. As early as 2018, experienced ADA officers were already identifying a core barrier to successful integration with maneuver forces: an inability within the ADA community to even "speak the language" of the broader Army. One officer likened the experience of joining a Patriot unit to a nonmechanic trying to follow "car talk"—eyes glazing over from a foreign vocabulary and culture. This analogy underscores a deeper institutional disconnect: ADA personnel, having spent years detached from maneuver fundamentals, often lacked fluency in the doctrine, terminology, and culture of their supported formations. Brig. Gen. Randall McIntire's SHORAD vision signaled a pivotal shift back toward maneuver integration, but the foundational challenge of communicative and conceptual fluency persists. Without institutionalized preparation to bridge this language gap—through education, doctrinal inclusion, and immersion—air defenders will continue to operate as technical specialists isolated from the maneuver ecosystem they are meant to support. This gap remains a critical vulnerability in the Army's tactical air defense strategy and must be addressed as urgently as materiel shortfalls.

64. Association of the United States Army, "Boeing Has Expanded Avenger Capabilities That Provide Adaptive Force Protection Solution," Army Recognition Group, 18 October 2014, https://www.armyrecognition.com/news/army-news/army-news-2014/boeing-avenger-ausa-2014-press-release-18-october-2014-uk.

65. Vincent Wiggins, "Balancing Air and Missile Defense to Better Support Maneuver," *Military Review* 95, no. 6 (November/December 2015): 55–63, https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20151231_art011.pdf.

66. Jen Judson, "'80s Flashback: Boeing Soups up Old Avenger for Short-Range Air Defense Gap," Defense News, 14 March 2017, https://www.defensenews.com/digital-show-dailies/global-force-symposium/2017/03/14/80s-flashback-boeing-soups-up-old-avenger-for-short-range-air-defense-gap/.

67. DOT&E, "Initial Maneuver Short-Range Air Defense," 85.

68. "Smart-Shooter," SmartShooter Precise Technological Solutions, accessed 27 June 2025, https://www.smart-shooter.com/.

69. Josh Luckenbaugh, "Army Purchases Fire Control System to Counter Small Drones," *National Defense*, 2 December 2022, https://www.nationaldefensemagazine.org/articles/2022/12/2/army-purchases-fire-control-system-to-counter-small-drones.

70. "SMASH 3000: Fire Control System for Small Arms," SmartShooter Precise Technological Solutions, accessed 27 June 2025, https://www.smart-shooter.com/wp-content/uploads/2024/03/SMASH-3000.pdf.

71. Sam Skove, "Army Aims to Equip a Division with Hand-Held Counter-Drone Gear," Defense One, 18 March 2024, https://www.defenseone.com/technology/2024/03/army-seeking-divisions-worth-hand-held-counter-drone-equipment-fy25-budget/395030/.

72. Stephen Hansmann (first lieutenant, U.S. Army), email to author, 26 March 2025. Hansmann, a Sgt. Stout platoon leader, highlights significant limitations of the M-SHORAD's 30 mm cannon when engaging drones such as the Outlaw. Based on operational experience, successful engagements are rare—estimated at only a 10 percent kill rate—and typically require the drone to fly slowly and directly at the vehicle. Accuracy is hampered by issues with optics and potential zeroing discrepancies. The absence of 30 mm airburst munitions, not expected until FY 2028, forces gunners to expend large volumes of ammunition with limited effect, rendering the 30 mm and M240 less effective against small, fast-moving UASs than other available options. "How to Fire Anti Aircraft Gun | M2 Browning & Zu-23," posted 21 May 2025 by AiTelly, YouTube, 12:24, https://www.youtube.com/watch?v=FGsCBlbtd-Mc. This video illustrates the use of barrage fire tactics to engage aerial threats using direct fire weapon systems—an outdated approach where shooters saturate airspace based on predicted flight paths rather than precision tracking. The inclusion of the Avenger's .50 caliber machine gun highlights how legacy systems still reflect this archaic methodology. In contrast, modern AMD strategy emphasizes advanced target acquisition technologies—such as AI-assisted fire control, radar cueing, and image-processing sensors—that enable precision engagement, reduce ammunition waste, and enhance lethality in complex threat environments. The video underscores the doctrinal and technological gap between historical engagement techniques and contemporary AMD capabilities discussed in the article.

73. U.S. Army Forces Command (FORSCOM), "Army Combat Training Centers," STAND-TO!, 22 January 2019, https://www.army.mil/standto/archive/2019/01/22/.

74. Judson Gillet et al. "Training the Shield Arm: How U.S. Army Air Defense Forces Are Embracing Field Manual 3-0 and Preparing for Large-Scale Ground Combat," *Military Review* 100, no. 3 (May-June 2020), https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/May-June-2020/Gillett-Training-the-Shield/.

75. McEunn and Bier, "Preparation for Roving Sands 22," 34.

76. Gillet et al. "Training the Shield Arm."

77. AMD Integration Division, *Army Air and Missile Defense 2028* (U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, March 2019), 21, https://www.smdc.army.mil/Portals/38/Documents/Publications/Publications/SMDC_0120_AMD-BOOK_Finalv2.pdf.

78. "FORSCOM Major Subordinate Commands (Including Corps, Divisions, and Brigade Combat Teams [BCTs])," FORSCOM, accessed 27 June 2025, https://www.forscom.army.mil/About/. FORSCOM does not assign any ADA brigades or higher echelon commands within its major subordinate corps, where division air defense units are located. This structural gap illustrates how most ADA forces remain isolated from traditional maneuver formations, while others lack direct linkage to a branch-specific higher headquarters, undermining both integration and institutional support across the operational force.

79. Gillett et al., "Training the Shield Arm." The idea of aligning ADA commands within a corps structure is not a novel concept but a refinement of previous practice. During the 1990s, the Army routinely aligned ADA brigades with corps-level headquarters. By 1996, for example, the 108th ADA Brigade supported XVIII

Airborne Corps, the 69th with V Corps, the 35th with I Corps, and the 31st with III Corps. Only the 11th ADA Brigade was reserved for echelons-above-corps missions. This historical structure provided corps commanders with dedicated air defense capabilities to protect key battlefield assets against an increasingly advanced and widespread air threat.

80. "The AAMDC projects its ADA forces to theater to support the [joint force commander] priorities based on METT-TC [mission, enemy, terrain and weather, troops and support available, time available, civil considerations]. This includes all aspects of mobilization and pre-deployment operations, deployment and entry operations, employment and sustainment, and redeployment, as well as the responsibility for training and certifying its task organized forces." FM 3-01, *U.S. Army Air and Missile Defense Operations*, 5-4; Glenn A. Henke, "Spinning Plates: Air Defense Brigade Staffs and the Theater Fight," *Air Defense Artillery Journal*, no. 2 (2021): 20–23, https://www.dvidshub.net/publication/issues/58982. Henke clearly outlines the three primary roles historically performed by Army AMD commands in theater: deputy area air defense commander, theater army air and missile defense coordinator, and senior army ADA commander—serving as the training and readiness authority for ADA forces. These functions are formally defined in ATP 3-01.94, *Army Air and Missile Defense Command Operations*, and represent the institutional framework through which Army AMD commands integrate, coordinate, and oversee theater-level AMD operations.

81. Urness, "Learning to Speak Maneuver," 7–9.

82. FM 3-94, *Armies, Corps, and Division Operations* (U.S. GPO, July 2021), 4-2, 4-9.

83. FM 3-94, *Armies, Corps, and Division Operations*, 4-1.

Ten Questions from the 2025 Kermit Roosevelt Lecture

In May 2025, Gen. James Rainey represented the U.S. chief of staff of the Army at the annual Kermit Roosevelt Lecture in the United Kingdom, an event held since 1947 to honor the close relationship between the U.S. Army and British Army.

In a series of three lectures, Rainey provided a candid assessment of the challenges confronting the military profession in a rapidly evolving security environment. Framing his address through ten critical questions, Rainey charged the audience to think deeply and openly debate these pressing issues while cautioning against prematurely drawing conclusions from current conflicts in Ukraine and the Middle East. Rather than offering solutions, he emphasized the need to critically engage with these questions as both armies grapple with difficult decisions on where to invest limited resources and accept risk on the future of their armies.

We encourage military professionals to use these questions as the inspiration for future *Military Review* articles and professional military education monographs and papers.

To read the full transcript of Rainey's lecture, please visit https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2025-OLE/Kermit-Roosevelt-Lecture/.

1. Based on our observation of current conflicts, what is and is not changing in the character of war?
2. How do we leverage technology to move toward data-centric warfare?
3. How do we maneuver under constant observation and in constant contact by contesting the adversary's ability to understand?
4. How do we capitalize on and counter technology that eliminates the need to choose between precision or massed fire?
5. What is the appropriate balance between maneuver to fire and fire to maneuver at the tactical level and operational level?
6. How do we account for and close the widening gap between the ability to protect and ability to sense and strike?
7. How do we preserve the ability to take and hold ground through close combat on a confusing, casualty-filled, and horrific battlefield?
8. How do we reduce risk with autonomous unmanned systems and optimize human capability for the things only people can do?
9. If adaptability is going to be an essential skill for both institutions and leaders, how do we build leaders and units with that skill and characteristic?
10. Accepting all of the above questions requires the skill, experience, and leadership of military professionals. How do we preserve the profession of arms and prevent our Army from becoming an occupation?

Spotting the Machine in the Margins

A Non-Tech Guide for Army Professional Military Education Instructors to Detect Artificial Intelligence-Assisted Writing

Lt. Col. Patrick Naughton, U.S. Army Reserve

As artificial intelligence (AI) tools become increasingly prevalent in academic settings, instructors within the Army professional military education (PME) must develop new strategies to uphold academic integrity and foster intellectual growth. In the absence of AI-detecting software, this article identifies ten key indicators that may suggest AI-generated writing is present in student essays, along with two new ways to possibly evaluate student individual development. Understanding these indicators can help PME faculty assess written work more critically and safeguard the unassisted and individual development of agile, adaptive leaders prepared for the complexities of future conflict.

AI tools, most notably large language civilian models like ChatGPT, are transforming how students approach writing.[1] While these technologies offer potential benefits when used responsibly to generate ideas, brainstorm, clarify research questions, and improve one's understanding of complex concepts, their misuse threatens the intellectual integrity of the Army's PME system.

"AI or die" is the latest mantra being tossed around in technology circles.[2] A battle cry that rings especially true for military professionals. AI can be invaluable in analyzing large datasets and throughout all steps of the military decision-making process, which ultimately seeks to better develop and inform the commander's visualization of the operational environment. Not embracing the possibilities found within AI would be a monumental folly on our part.

Comparatively, Army PME is critical in developing leaders capable of independent, creative, and critical thinking while operating in uncertain and complex environments. This skill is often developed and assessed in PME through original essays produced by students rooted in their study and understanding of the course materials and their own independent professional development. By recognizing the distinct characteristics of uncited AI-generated writing, faculty can protect the unassisted and individual developmental intent of PME while still encouraging the use and understanding of AI as a force multiplier.

As AI-generated text becomes increasingly difficult to distinguish from good human writing, PME instructors must adopt a nuanced and deliberate approach to detecting misuse. The following ten indicators provide

A student works on a computer 6 December 2018 at the Command and General Staff School, Fort Leavenworth, Kansas. (Photo courtesy of Army University Public Affairs)

a practical framework to support this effort without using AI-detection software.[3] Note that all are predicated on instructors knowing their curriculum in detail, and, more importantly, knowing their students and having a set of writing samples to compare their iterative written work against throughout a course. Some of the following indicators are less relevant without this knowledge and background.

1. Lack of Drafting and Revision Evidence

Effective writing is the product of reflection, revision, and engagement with feedback. AI-generated papers are frequently submitted in a single, polished form without evidence of developmental stages. This is particularly notable when instructors request outlines, peer reviews, or multistep writing submissions as part of the curriculum.

An instructor must take note of their students' writing style when viewing these presubmissions. Coupled with other writing samples such as emails, journal entries, or discussion posts, it will give a solid indication of a student's writing ability. If the final essay differs significantly from these samples, this is an indication that the text is AI generated. If students are not good writers, they will also not be good editors, which will manifest itself in a poorly revised AI-generated product.

2. Uncharacteristic Shifts in Style or Vocabulary

A sudden elevation in vocabulary, syntax, or complexity—especially when inconsistent with previous submissions—may suggest the use of external assistance. Significant divergence in grammar or technical language can be a warning sign, particularly in courses that track students writing across multiple assignments.

Generally, the overall work will appear out of character when compared to their previous writing samples. For example, if the student never uses em dashes

in other submissions and then their final essay contains "—" after "—" in every paragraph, this is another strong indicator of AI-generated text. Do note, however, large language civilian models will learn one's writing style. Meaning, the more a student uses their AI account, the harder this shift will be to detect.

3. Overly Polished but Generic Tone

AI-generated writing often appears grammatically flawless yet devoid of the individual perspective, personal, or professional voice expected of a human being. The language may resemble a formal journal article or encyclopedia entry rather than a student essay rooted in personal and professional insight and context.

Each student has a personal background rooted in their upbringing and professional experience. A soldier well-versed in maneuver units versus sustainment will use different jargon and doctrinal terms to describe the operational environment. This is similar to someone raised on the east coast versus someone raised on the west. An author's unique way of expressing themselves will manifest in their tone, syntax, and choice of words. If this suddenly disappears in a completed essay, it either means they had a strong proofreader or AI wrote the piece. Listening to their paper via the Microsoft Word "Read Aloud" function can help identify a change in tone. Additionally, large language models are being perfected to answer prompts like "make this narrative sound more human and less AI." This, along with an AI persona's digital characters programmed to mimic human personality traits and behaviors, will eventually render this indicator moot.[4]

4. Inconsistent Depth of Analysis

Surface-level engagement with doctrinal or conceptual material is a common trait in AI-generated essays. Additionally, at times, this analysis is almost overly comprehensive, as if AI is scanning too many doctrinal concepts, both outdated and current. While the writing may appear well-structured, it frequently lacks original analysis or synthesis.

Large language civilian models can access our doctrine; however, they cannot apply practical application and experience to it. Only a human can take their years of real-world experience and translate it into a deep assessment of doctrinal concepts. The absence of this depth of scrutiny is indicative of AI-generated text.

5. Absence of Contextual or Experiential Relevance

Authentic PME writing reflects the student's operational experiences, classroom discussions, and understanding of contemporary military challenges. Unless explicitly prompted otherwise, AI-generated content typically omits references to unit-level experience, recent training environments, or professional insights aligned with the Army Operating Concept.

As noted in number three, "Overly Polished but Generic Tone," the lack of any expressed individual human-level experience, whether personal or professional, is telling and suggests the use of AI-generated text.

6. Incorrect or Fabricated Citations

AI-generated essays may contain citations that are either fabricated or incorrectly applied. Instructors reviewing such papers may encounter doctrinal misapplications or references to nonexistent sources (a.k.a. ghost citations). These errors are particularly noticeable in discussions involving doctrinal or historical publications.

Large language models pull their data from any source it can find online, whether primary or secondary, it cannot differentiate between the two. Sometimes it colligates several sources into one "ghost" citation. Additionally, it does not gauge the accuracy or legitimacy of the source, which often results in suspect citations to say the least. Lastly, PME encourages the use of sources contained within the curriculum. Papers that rely primarily on outside sources were probably produced by AI.

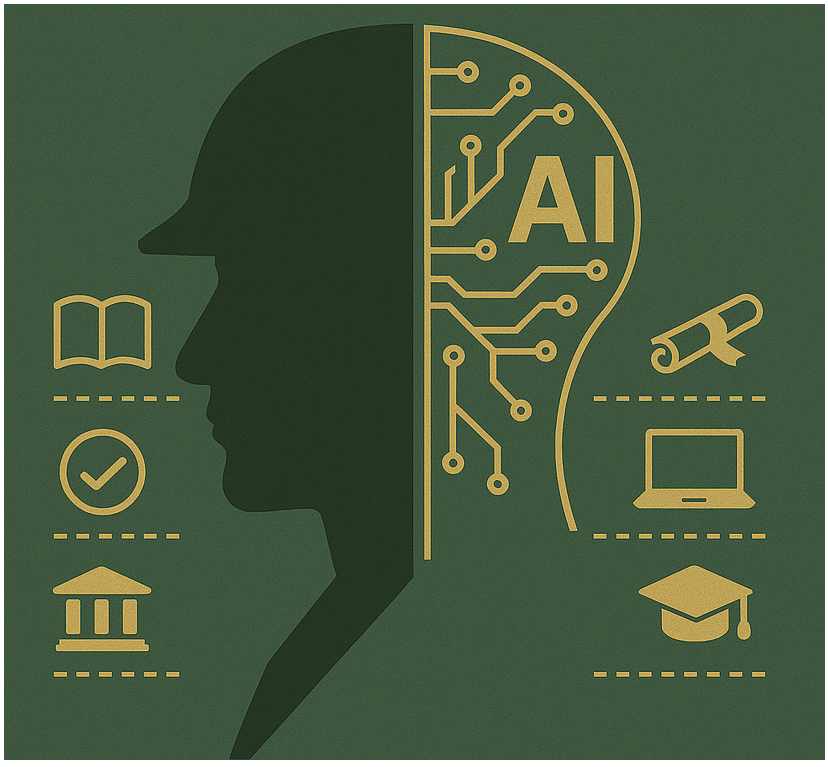
Often, instructors just glance over endnotes and bibliographies; now, they must examine these areas intently to identify any sources that clearly do not refer to what it references in the text, pull heavily from outside the curriculum, or are clear fabrications. For example, two New York lawyers were sanctioned for submitting a legal brief compiled by AI that included six fictitious case citations. Their incredulous response, "We made a good faith mistake in failing to believe that a piece of technology could be making up cases out of whole cloth."[5]

7. Confidently Delivered but Factually Flawed Content

AI writing systems are trained to produce plausible-sounding text but can introduce errors with

authoritative confidence. Essays may contain fabricated operations, misquoted doctrine, or ahistorical claims that, while convincing at first glance, cannot withstand doctrinal or historical scrutiny.

Derived from previously submitted papers, a common running joke within the halls of the Command and General Staff School is how a year ago the historical records suddenly credited the Iraqi army with defeating coalition forces on the beaches of Kuwait during the First Gulf War, thereby winning the conflict. AI-generated platforms have since corrected this error, providing a perfect example of how AI can latch on to historical errors that are then regurgitated as fact.



(AI image by author)

8. Formulaic Structure and Repetitive Transitions

Language models often rely on predictable templates. Repetitive transition phrases such as "In conclusion," "It is important to note," or "This illustrates …" may appear frequently. Additionally, a measured count of adjectives may now appear in each paragraph. Paragraphs will often follow a rigid structure that feels mechanical and lacks the dynamic organization typically found in well-developed student writing.

As discussed in number two, "Uncharacteristic Shifts in Style or Vocabulary," if a student has previously struggled with structure, transition sentences, and previously used adjectives sparingly but their work is now suddenly saturated with them, it is probably another indicator that they used AI-generated text.

9. Misalignment with Prompt Details

AI-generated responses may answer the general topic of a writing prompt while failing to address specific requirements such as comparison of operations, critical evaluation of a doctrinal shift, or integration of course readings. Such misalignment suggests a lack of genuine engagement with the material.

Large language models rely on a succession of prompts to produce a quality essay (persona, task, context, format, and then continuous refinement is a common order). Students unfamiliar with this will simply copy and paste the essay question and then submit the initial response. Since plagiarism and now the use of AI can be linked to students facing a looming deadline, often the first response is as far as students will go in their use of AI, which is telling. However, this indicator will be invisible for those students who use a succession of refinement prompts to produce their essay. However, note that repeated prompts can elevate some of the other indicators such as ghost citations, a shift in vocabulary, and the dearth of a human voice.

10. Irrelevant or Out-of-Place Content

AI models sometimes include content that, while grammatically correct, is tangential or irrelevant. For example, an essay on mission command may unexpectedly include unrelated philosophical digressions or discussions of historical events not tied to the argument or learning objectives.

This directly links to number nine, "Misalignment with Prompt Details," unguided AI essays will often contain "fluff" unrelated to the topic, especially when a prompt demands a specific page or word count. While

instructors are used to seeing this in human-drafted work, AI "fluff" will be confidently written and will trick the reader regarding its relevance. As it takes a trained eye to notice when filler is being inserted to reach a set count, so it goes for this AI-generated indicator as well.

The use of large language civilian models to write an essay is difficult to prove, even with AI-detection software, and offers little to substantiate an allegation. Additionally, Army PME does not prohibit using AI to draft a paper if properly cited per individually established policies.[6] This leaves the instructor as the final judge on the unassisted and individual developmental intent of PME while still encouraging the use and understanding of AI as a force multiplier.

One option presents itself to an instructor when they believe an uncited AI-generated paper has been submitted as the student's original work. A "debrief" can occur where the student is asked a series of pointed questions about their essay. If the student genuinely developed the piece, they then should be able to defend and describe their thought process in assembling the work. If they are unable to do so, the instructor can initiate an integrity check on the student; directly asking them if they produced this work solely using a large language civilian model with zero credit given to the source. As a result of this inquiry, the instructor can then extend an opportunity to submit the assessment again, written this time without AI assistance. An instructor can help students understand the value of developing leaders of character capable of independent, creative, and critical thinking by holding a student accountable and incentivizing integrity with an opportunity to correct their mistakes.

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Large language models used to develop written work will only continue to improve. Eventually, it will be impossible to detect their use in written assessments. Academia, and in turn PME, must accept this reality and determine new ways to evaluate a student's individual development that uphold academic integrity while also still building agile and adaptive leaders who can think critically for themselves in stressful environments. There are two ways in which PME can adjust to this new certainty.

First, relying on written essays to evaluate student learning outcomes is obsolete. Instructors should be less interested in "catching" students using AI in a prohibited manner and more interested in crafting assessments that force students to use it productively. The focus should shift toward how a student can take a large dataset (the science of warfare), enter it into AI, guide it through a series of prompts to achieve a desired outcome, and then assess that output for clarity, accuracy, and usability. Finally, the student takes that output and inserts the art of warfare into the final product based on their years of knowledge and experience. This becomes especially important in the military decision-making process when attempting to better develop and inform the commander's visualization of the operational environment in real time.

Second, robust written essays with future deadlines must be replaced by shorter written assignments and oral boards to truly test a student's comprehension. Students must still be able to communicate in writing; however, this skill can be developed and assessed via shorter, timed on-the-spot written assessments. Additionally, absorption and grasp of the curriculum can be further evaluated via oral examination boards (either in person or virtually). Both techniques can accurately gauge the student's understanding of the material and seek to place them in replicated stressful environments where immediate, succinct, and articulate responses, either in writing or verbally, can mean the difference between life and death on the battlefield. Ultimately, that is a goal of PME, which can no longer be assessed through traditional essay-writing requirements due to the rise of large language models.

As AI tools become more widespread within academic environments, it is imperative that Army PME instructors adapt their methods to preserve academic integrity and promote authentic, unassisted, and individual intellectual development. In the absence of reliable

AI-detection software, this article outlined ten practical indicators that may signal the presence of AI-generated content in student writing and two new ways to evaluate student individual development. Familiarity with these indicators enables faculty to evaluate written submissions more critically, thereby reinforcing the cultivation of agile, adaptive leaders capable of navigating the complexities of future operational environments. ■

The author is appreciative of the feedback from multiple Command and General Staff School instructors in the drafting of this article: Mr. Dirk Blackdeer, Lt. Col. Charles Burkardt, Mr. Joseph Curtis, Mr. Thomas Goldner, Lt. Col. Scott Grimsey, Mr. Brian Hathaway, Lt. Col. Christopher Layton, Lt. Col. Nathan Lokker, Mr. Michael Mathews, Dr. Richard McConnell, Dr. Vincent Particini, Dr. Ross Pollack, Lt. Col. Andrew Scott, and Lt. Col. Andrew Whitford.

Notes

1. Academia, like professional military education (PME), is struggling to understand how large language models are changing the research and academic landscape as well as how it should be regulated. For some examples, see "How Much Research Is Being Written by Large Language Models," Stanford University Human-Centered Artificial Intelligence, 13 May 2024, https://hai.stanford.edu/news/how-much-research-being-written-large-language-models; and Jonathan Shaw, "Artificial Intelligence in the Academy," *Harvard Magazine*, 3 May 2024, https://www.harvardmagazine.com/2024/05/harvard-and-ai.

2. "AI or Die" is a popular mantra in tech circles seen across traditional and social media platforms that tout the use of AI, most notable a popular podcast uses the phrase as its name: "AI or Die Podcast," hosted by Rehgan Avon, AlignAI, 1 July 2025, https://www.getalignai.com/podcast.

3. Response to "Can you provide ten ways in which an instructor can tell that a student used AI to write their paper?," ChatGPT-4o, OpenAI, 30 June 2025. Interestingly, the author asked ChatGPT for ten indicators. The results provided formed the foundation to build upon for this article. The rest was realized through instructor intuition and experience. AI is a fascinating technology that tells on itself if prompted.

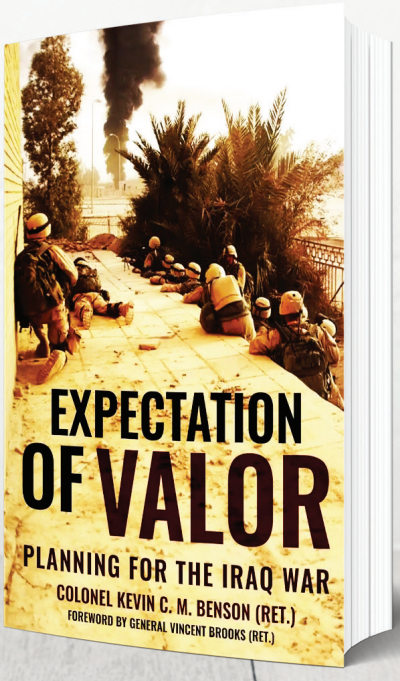
4. Response to "Can you build me an AI Persona?," ChatGPT-4o, OpenAI, 3 July 2025. If you ask AI to build you a persona, it responds asking for a purpose and role, desired personality traits, what knowledge and expertise it needs, any ethical constraints, and what its format and use should be. It will then generate a persona and give you a full profile with a name or role, backstory, a certain dialogue style and tone, and a knowledge base, all of which is guided by your set rules and limits.

5. Sara Merken, "New York Lawyers Sanctioned for Using Fake ChatGPT Cases in Legal Brief," Reuters, 26 June 2023, https://www.reuters.com/legal/new-york-lawyers-sanctioned-using-fake-chatgpt-cases-legal-brief-2023-06-22/.

6. It is important that students' reference and follow their individual PME institution policies on the use of large language models to draft their written assignments.

Expectation of Valor

Planning for the Iraq War



Kevin C. M. Benson, Casemate, 2024, 272 pages

Dr. William Shane Story

Expectation of Valor: Planning for the Iraq War has an underlying theme that Kevin Benson never fully grasps. After wrestling with the problem for days, I finally realized that it reminded me of an old movie. In *Cool Hand Luke* (1967), Paul Newman plays the title character, a petty criminal serving time on a Florida prison's chain gang. He repeatedly escapes, is recaptured, and punished. After capturing Luke yet again, a brutal prison captain beats him with a truncheon, sending Luke tumbling into a ditch. In a southern drawl, the captain then explains to the other prisoners, "What we've got here is … failure to communicate. Some men you just can't reach."[1] For all his experience and military education, the Iraq campaign left Benson endlessly frustrated with communication failures at all levels—institutionally, interpersonally, and doctrinally. It was as if policy and strategy were talking past one another; knowing that the cost was being paid in blood and treasure was a never-ending beating.

Expectation of Valor is not a history of the invasion. Instead, it is Benson's effort to reckon with a past that he still cannot comprehend, even as he sets out to refute criticism that the Army did not plan Phase IV (Stabilization) of the campaign, the aftermath of the invasion. Benson produced *Expectation of Valor* by transposing notes he wrote from June 2002 to June 2003 while serving as the chief of plans (C-5) in the Coalition Forces Land Component Command (CFLCC) in Kuwait. He used contemporaneous emails and briefings to expand on details. There is little indication of secondary research. Benson makes it difficult for readers to understand how his experiences fit into a larger narrative of the war because he does not mention any well-known events as signposts, such as the Thunder Runs into Baghdad on 5 and 7 April 2003. The result is a deeply personal but narrow perspective, one that emphasizes everything that Benson wrote in his daily journal about Phase IV planning. Prospective readers need to already have a good understanding of the planning, execution, and aftermath of the invasion and the role the CFLCC headquarters played in the campaign to fully grasp *Expectation of Valor*'s significance and limitations.

Those who do pick up Benson's narrative will learn a few more details about frustrations in the planning process, the difficulties surrounding deployment schedules, and extensive travel for planning conferences. So-called "snowflakes"—endless requests for arcane information and pseudo guidance framed as vague questions from the secretary of defense—consumed

incredible amounts of staff work and were the bane of Benson's existence. As a planner, his focus was not on tactics or battles being waged in the moment, but on coordinating solutions for operational-level problems, especially the flow of forces, Phase IV, redeploying forces, and building the Phase IV coalition.

Because *Expectation of Valor* is such a personalized account, every page reflects how Benson sees himself and how he perceives his relationship to others. A 1977 graduate of the U.S. Military Academy, Benson is self-confident, proud of being a School for Advanced Military Studies (SAMS) planner, and disappointed that he was not selected for brigade command. After general officers, Benson assumes SAMS graduates are the smartest people in the room. He considers himself one of Gen. Tommy Franks's approved performers while also acknowledging Franks's inexplicable habit of blackballing colonels on his staff—not to mention members of the Joint Chiefs of Staff—on whose effectiveness and support his own command's success depends. Lt. Gen. David McKiernan commanded CFLCC during the invasion of Iraq, but Benson struggled to coordinate planning concerns with McKiernan at critical moments. He also felt flummoxed by Terry Moran, a contracted special assistant to McKiernan who played an informal but outsized role in the command group.

If Benson thought strategic communications were difficult, Secretary of Defense Donald Rumsfeld made them impossible by refusing to know things he did not want to know, especially anything for which he might be held accountable. Rumsfeld's leadership style consisted of hypercritical questioning and deliberate inscrutability. It all amounted to command by confusion. Benson experienced this before the invasion when the secretary of defense tore up the war plan's extremely tight deployment schedule, seriously jeopardizing war preparations. Benson was aghast that Rumsfeld had so little regard for the physical challenges of mobilizing, training, and deploying forces thousands of miles for war.[2] Rumsfeld, for his part, complained on 20 January 2003 that

> I have been very unhappy in recent weeks and months" [because the mobilization requests] have not been disaggregated, have not taken into full account the sensitivities involved. … People in the Reserves and Guard have jobs … they prefer not to get jerked around and called up two or three or four months before they're needed and then found they're not needed and sent back home with a "sorry about that."[3]

Months after the war, Rumsfeld gave a different explanation for micromanaging the force flow. He claimed, "The fact that it [I] took the deployment process and disaggregated it to support the diplomacy was never understood out there, and I didn't want to say that's what we were doing so we sat here and took the hit."[4] Rumsfeld offered yet another explanation in his autobiography, claiming that he had discarded the deployment schedule to better coordinate "military and diplomatic pressure" on Iraq.[5] How one improves coordination by sowing confusion is a mystery. One Rumsfeld advisor saw political calculation in his every move, "a very classic Rumsfeld" technique "to avoid leaving his fingerprints on decisions."[6]

Abundant evidence bears out the assessment, and Rumsfeld's civilian subordinates followed his example. On 19 May 2003, Benson briefed Walter Slocombe, the under secretary of defense for policy, on CFLCC's efforts to reassemble the regular Iraqi army to relieve coalition forces of security responsibilities. This was all the more important due to heavy pressure from Washington and Central Command to withdraw American troops from Iraq within just a few months. When Benson finished reviewing the challenges the command was working to overcome, he asked whether CFLCC "was still acting in accord with policy?" Slocombe simply answered "Got it, thanks for the briefing Colonel," and again declined to answer when Benson repeated the question.[7] Through the rest of May and into June, Benson marveled at the strategic contradiction: Ambassador L. Paul Bremer had "banned Ba'athists from returning to the government and disbanded the Iraqi Army, and … General Franks wanted us to get 3ID [3rd Infantry Division] out of theater by the end of June." The only thing left undecided was whether anyone was going to secure Iraq.[8] It was of a piece with a pattern set by video-teleconferences with the secretary of defense in which "we

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talked around topics" because the secretary hated being confronted with issues he could not sidestep.[9]

Benson offers important firsthand observations to historians of the Iraq war. The most obvious is that the war did not end with the fall of the regime in April 2003. That corrects a mistake made in the Army's first history of Operation Iraqi Freedom, which defined Saddam Hussein's fall as a decisive victory and therefore the end of the war.[10] As Benson noted with a hint of sarcasm on 19 April, "War is over in the US/UK, but the campaign is not over" because fighting was continuing, the enemy was evolving, and the coalition had still not completed most of its critical tasks or secured Baghdad or the country.[11] He also took a skeptical view of a rapid study of the campaign completed by Joint Forces Command, believing that "quick" looks "tended to form opinions based on the euphoria or gloom of the moment."[12]

A second issue, relatively minor, concerns intelligence analysis. The most comprehensive Army history of the Iraq war, one initiated by Gen. Raymond Odierno when he was the chief of staff of the Army, faults American forces in Iraq in the spring and summer of 2003 for being so focused on templating conventional enemy forces that they could not adjust to the unconventional threats coalition forces faced after the regime collapsed. According to this history, "They were not used to gathering information on the tribal and other informal networks that were emerging in the aftermath of regime collapse" and hence were stuck in the past, searching endlessly for Saddam's Republican Guard divisions long after they had disappeared from the battlefield.[13] Benson hardly mentions intelligence assessments of Iraq's conventional forces during the invasion, but he details the rapid accumulation of other threats and the burgeoning political environment and factionalism that consumed Iraq after Saddam's fall. He was only passing along what was being reported in intelligence channels, so it is clear intelligence analysts were scrambling to accumulate and make sense of new data sources—discerning new political and enemy networks—as rapidly as possible. Benson asks, for example, whether the first suicide bomber in Baghdad on 11 April is "a harbinger of things to come."[14] Everything that follows in Benson's account confirms that it was, and intelligence assessments were not blind to what was happening.

Readers should draw an additional lesson from *Expectation of Valor* on the practice of writing. The Harding Project is a U.S. Army chief of staff initiative to reinvigorate professional military writing, and this book demonstrates why that effort is needed. The manuscript suffers from editorial shortcomings that detract from its value. Page after page includes the confirmation that the author was "keeping people informed" about planning updates, but what begins as a marker of diligence soon feels redundant. Likewise, *Expectation of Valor* states a score of times that post-Saddam Iraq "continued to simmer" even as conditions clearly evolved. Finally, pages 194–195 list sixteen bullet points, the last eight of which simply duplicate the first eight—an error the editor should have caught.[15] Readers can learn a great deal from Benson's account, but the editorial team owed the author and his audience a more rigorous review. Proofreading, reading aloud, and eliminating repetition are fundamental principles of good writing and good editing.

Although one is fiction and the other nonfiction, *Cool Hand Luke* and *Expectation of Valor* both follow the narrative arc known as the hero's journey. Luke begins as a drunk, petty criminal and a veteran with a Silver Star who counters callous cruelty with defiance to the end. Luke's refusal to submit to institutional brutality becomes his final, transcendent act. Benson's struggle is not with sadistic prison guards, but with an institution paralyzed by ambiguity, contradictions, and silence. Benson planned, warned, and informed—only to watch those efforts brushed aside or lost in a fog of strategic incoherence. If Benson expected battlefield valor to give meaning to the campaign—or to redeem its planning—what he found instead was a descent into improvisation, indecision, and mounting disorder. The hero's journey does not always lead home. ■

Notes

1. "Failure to Communicate," *Cool Hand Luke*, directed by Stuart Rosenberg (Warner Bros., 1967).

2. Kevin C. M. Benson, *Expectation of Valor: Planning for the Iraq War* (Casemate, 2024), 5.

3. Donald Rumsfeld, remarks to the Reserve Officers Association 2003 Mid-Winter Conference and 18th Annual Military Exposition, Washington, DC, 20 January 2003, https://www.hsdl.org/c/view?docid=1874.

4. Bob Woodward, *Plan of Attack* (Simon & Schuster, 2004), 233.

5. Donald Rumsfeld, *Known and Unknown: A Memoir* (Penguin, 2012), 439.

6. Bradley Graham, *By His Own Rules: The Ambitions, Success, and Ultimate Failures of Donald Rumsfeld* (Public Affairs, 2009), 437.

7. Benson, *Expectation of Valor*, 200.

8. Benson, *Expectation of Valor*, 213.

9. Benson, *Expectation of Valor*, 135.

10. Gregory Fontenot, David Tohn, and E. J. Degen, *On Point: The U.S. Army in Operation Iraqi Freedom* (Combat Studies Institute Press, 2004). The last pages of *On Point* acknowledged the war was not over, but this hardly countered the dominant theme established throughout *On Point* that the war was over.

11. Benson, *Expectation of Valor*, 150.

12. Benson, *Expectation of Valor*, 228.

13. Joel Rayburn and Frank Sobchak, eds., *The U.S. Army in the Iraq War*, vol. 1, *Invasion, Insurgency, Civil War, 2003–2006* (Army War College Press, 2019), 179.

14. Benson, *Expectation of Valor*, 134.

15. Benson, *Expectation of Valor*, 194–95.

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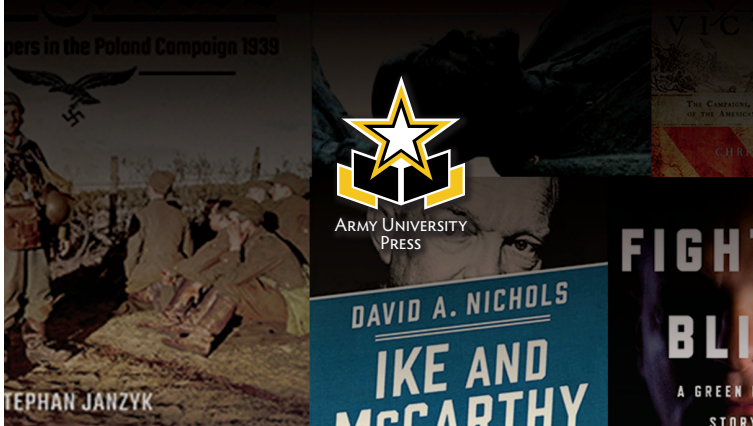

Farewell

Lt. Gen. Milford H. "Beags" Beagle Jr.

Images provided by Maj. Ryan Murphy via the CAC PAO

All of us at Army University Press extend our heartfelt thanks to Lt. Gen. Milford H. "Beags" Beagle Jr. for his leadership, vision, and lasting impact on Fort Leavenworth and the Army as a whole. His care for soldiers, families, and the civilian workforce has left a positive mark that will be felt for years to come.

We are especially grateful for his support of our mission to foster professional dialogue across the force. As Combined Arms Center commander (October 2022–September 2025), Lt. Gen. Beagle authored eight thought-provoking articles for *Military Review*, each sparking meaningful discussion within the Army and beyond. These pieces have been shared globally—some even translated for use by other militaries—underscoring his influence and commitment to making all of us more knowledgeable and more capable leaders.

On behalf of the entire AUP team, thank you, "Beags," for your generosity with your time, ideas, and energy. We congratulate you on a remarkable career and wish you and your family every success and happiness in the next chapter.

—Director, AUP

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