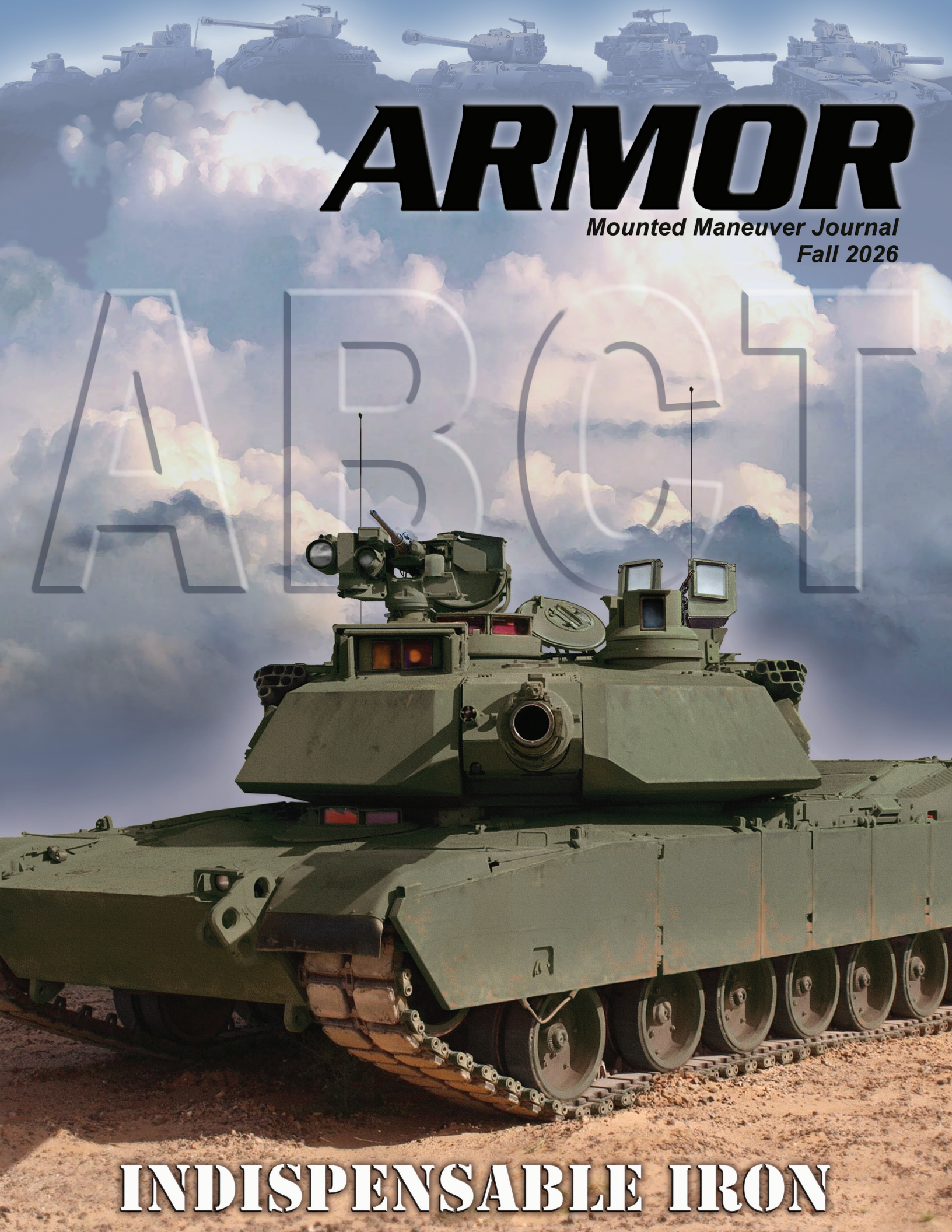




ARMOR

Mounted Maneuver Journal
Fall 2026

ARCT

INDISPENSABLE IRON

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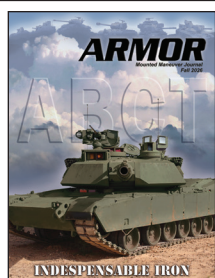
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FRONT COVER:

The cover art was created by Jody Harmon and draws inspiration from the article, "Indispensable Iron: The Value Proposition of the ABCT in LSCO" by COL Bonnema, MAJ Hatfield, and CSM Swayer.

BACK COVER:

U.S. Army Soldiers assigned to 3rd ABCT, 4th ID camouflage and conceal an M1A2 Abrams tank in the wood line during Iron Wolf 22. (U.S. Army photo by SGT Lianne Hirano)



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CHIEF OF ARMOR'S HATCH

Efforts at the Edge

It is an honor to serve our Armor and Cavalry force and join the ranks of the Armor School here at Fort Benning as the 56th Chief of Armor. I wanted to start by thanking BG Chad Chalfont on behalf of the force for driving significant progress the past two years. His impact focusing on the Armored Force Fundamentals, training standards, updating our doctrine, and modernizing the fleet were felt not just here at the Armor School, but across our U.S. Army.

Our vision here at the U.S. Army Armor School remains to be the premier institution for developing adaptive and lethal Armor and Cavalry Soldiers capable of fighting and winning in any environment. We are leaders of choice on a complex and transparent battlefield, masters of our fundamentals, skilled in executing mounted warfare, and experts at combining arms across all echelons and domains. Nested with the Maneuver Center of Excellence's vision, our priority is providing the best training and education on your first days in the U.S. Army, and again each time you return, to arm you for the next phase of your career. Your time matters and we are committed to constantly evaluating and adapting our programs of instruction to ensure you are ready to fight in a lethal combined arms team now and in the future.

As we continue to solidify gains made in focusing on our fundamentals over the past two years, efforts to increase lethality and readiness are accelerating across the Armor Force in our divisions and brigades. I wanted to take a moment to share some of the critical efforts to adapt our formations, platoons, and personnel. As this goes to print, the first platoons of the M1E3 Abrams early prototypes and the XM30 prototypes are undergoing final safety release testing. Crews of 19Ks and 19Cs in the 1CD are in the simulators

now and begin executing a full training cycle this fall on the platforms in preparation for NTC in the spring of 2027. The M1E3 and XM30 provide the digital backbone to integrate the lethality and protection upgrades necessary to fight and survive on the modern battlefield. Feedback from our crews will drive continuous improvements to these platforms prior to fielding them across the larger force. More importantly, they are codifying crew duties, battle drills, gunnery tables, and other changes for our doctrine and technical manuals.

Over the past year, CTC rotations for armored brigades averaged between 40 to 85 small and medium unmanned aerial systems (UAS) integrated into our platoons and companies. Employment of lethal first person view (FPV) drones and loitering munitions in our cavalry squadrons and combined arms battalions increased our ability to sense and strike at the distances we know are necessary to win against our peer adversaries. 2/1CD and 2/3ID recently completed rotations to the National Training Center, testing different formation designs in terms of equipment, company/troop size, and new armored strike platoons that integrated UAS and ground robotics. In Hohenfels, 3/1CD fought at the JMRC this summer with a Ukrainian UAS Battalion informing how we will man, equip, organize, and control larger numbers of unmanned systems in our formation.

For our current fleet, modifications continue for the Abrams currently in 3ID and 1CD to be able to mount active protection systems and upgrade our vehicle communications systems to pass data across the formation. Similarly, 3/4ID continues to drive integration of our armored fleet into the Next Generation Command and Control (NGC2) initiative during Project



BG Kevin D. Bradley
56th Chief of Armor

Capstone Convergence 6 and through a series of events over the course of the past year. Finally, rapid efforts to improve a brigade's organic protection capabilities continue with modifications to the Abrams commander's weapons stations to sense, track, and engage UAS as well as the initial production of an airburst 25mm round, the XM1288 Badger, for the Bradley.

These are but a small sample of the incredible work by Armor leaders at echelon to integrate new technology and lessons into our formations, doctrine, organizations, and training. The goal of these efforts is to ensure our Armored combined arms teams retain overmatch when the call comes – no matter who, where, or when. The U.S. Army has always relied on the Armor Branch to provide adaptable leaders who are masters at combining arms and experts in the fundamentals of our profession – that need remains! As always, the lines of communication are open. Please continue to send your articles and ideas - your voices matter as we continue to build lethal combined arms teams. Honored to serve with you.

Forge the Thunderbolt!

FROM THE GUNNER'S SEAT

The Armored Vanguard Evolution at the Contested Edge

The character of warfare is evolving at an unprecedented pace. We see it every day in both the tactical and operational lessons learned from modern conflicts: a battlefield saturated with sensors, autonomous systems, data proliferation and long-range precision fires. In this highly transparent environment, it is natural to ask hard questions about the future of our mechanized ground maneuver forces and close combat forces at large.

Are we too heavy and resource intensive? Do we need to be lighter, faster, and more strategically mobile? The honest answer is yes in many ways. Our platforms must and are evolving. The U.S. Army is making significant efforts to develop next-generation combat vehicles that increase survivability, operational agility, and reduce sustainment requirements while retaining tactical mobility and improving lethality.

However, as warfighting professionals, we face the eternal challenge of transformation and modernization: remaining prepared to win the fight now while preparing for the fight of the future. For the near future, our Abrams tanks and Bradley Fighting Vehicles (BFVs) remain the absolute backbone of our ground combat power. We are making massive strides to modernize and transform these platforms by integrating active protection systems, advanced network capabilities, and next-generation sensors. Right now, they remain the most survivable, lethal ground combat vehicles we currently have, and they belong exactly where they have always been on the contested edge of the battlefield.

Our primary mission has not changed, nor will it. We exist to close with and destroy the enemy to deter other

nations by demonstrating the most professional, well-trained and lethal force in the world. But how we accomplish that enduring task must fundamentally change. Technology dictates that we must think differently about how we close that final tactical mile.

I challenge every leader reading this to look critically at your formations and consider how you will solve this problem. Ask yourselves: Are we training to mask our physical and electromagnetic (EM) signatures long enough to maneuver into a position of advantage? How do we protect ourselves and supported forces from enemy unmanned systems, sense and strike munitions, and EM effects (layered protection)? How do we integrate our own emergent capabilities to increase lethality at standoff before engaging with our legacy weapon systems?

We can no longer rely solely on heavy armor plating to absorb every hit in a transparent world. Instead, we must rely on our mastery of the Combined Arms Team and our ability to out-think the adversary. When we combine our heavy platforms with electronic warfare, fires, and organic drones, we present the enemy with multiple, simultaneous dilemmas.

This tactical evolution rests squarely on the shoulders of our noncommissioned officers (NCOs). Officers may design the concept of the operation, but it is our NCOs who translate concepts into raw combat power. It is our sergeants, platoon sergeants, Master Gunners, and first sergeants who must enforce strict discipline and ensure we are grounded in our fundamentals. NCOs must be the ones testing, breaking, and mastering new technologies, ensuring that things like unmanned systems are treated as vital combat



CSM Ryan W. Roush
Command Sergeant Major
U.S. Army Armor School

equipment. Beyond tactical mastery, as NCOs, we must be the unapologetic champions for our branch. We must instill pride in our Armor and Cavalry heritage, mentor the next generation of warfighters, and confidently demonstrate the devastating combat power we bring to the combined arms fight. To put it simply: NCOs write the standard operating procedures (SOPs) that win the first fight, and they maintain the culture that sustains our branch.

We will continue to modernize, and our future formations will undoubtedly become faster and lighter. But until that day, we will maximize the immense combat power we possess right now. I challenge our NCOs and leaders to push the boundaries of how we fight. Take our current platforms, integrate every new technology you can get your hands on, and develop innovative solutions, tactics, techniques and procedures that will keep Armor on the front edge of the battlefield. And finally, we must share those ideas throughout the Armor community in forums such as the **ARMOR** magazine, so that they can be discussed, evaluated, and implemented where applicable.

Forge the Thunderbolt!
Treat 'em Rough!

Master Gunner School Prerequisites Meeting the Standard

*"Your Master Gunner is your advisor for all things gunnery and the combat employment of your fleet. Your Master Gunner serves as your advisor for crew management, gunnery training, and certification records. Your Master Gunner advises you on the combat employment and capabilities of all organic weapon systems, ammunition, identification of enemy vehicles, and their combat capabilities and vulnerabilities."*¹

By 1SG Douglas M. Smith and 1SG
Michael D. Stephens

A certified Master Gunner is the focal point of a unit's lethality. They are top-tier subject matter experts responsible for training crews to engage and destroy adversaries through overwhelming firepower and shock. However, becoming a Master Gunner is a significant effort that begins well before a candidate enters the schoolhouse. Recent trends at the Master Gunner School reveal three key operational truths: careful candidate selection, candidate experience, and rigorous unit-level preparation are the most reliable indicators of a student's success.

Master Gunner School teaches platform lethality at a mastery level, with a focus on fire control and turret systems. The fast-paced learning environment is demanding, and the curriculum does not aim to remediate basic or advanced crew skills. These foundational competencies must be solidly established at the unit level before a candidate arrives at Master Gunner School. This emphasizes the criticality of Master Gunner School prerequisites. These requirements are not just administrative hurdles; they are the essential baseline of platform experience and knowledge.

When a unit sends an unprepared candidate who requires a waiver, it almost always results in a lost training seat and a missed opportunity to build lethality in their formation.



Abrams Master Gunner School cadre and leaders have assessed that students who meet the course prerequisites have a much higher success rate than those who require administrative waivers, such as tank commander time and Gunnery Table VI.

Once a candidate meets the baseline prerequisites, the next step is assessing their academic readiness. This is where the Master Gunner Pre-Assessment Course (MGPAC) becomes a

critical component of success. Students who successfully complete a MGPAC at their home station prior to Master Gunner School attendance will have a 50% higher probability of graduating from Master Gunner School on the first attempt.

A candidate's success is not guaranteed merely by attending training during an MGPAC. A well-executed unit MGPAC must mirror the academic rigor and strict attention to detail expected

at the schoolhouse; MGPAC cannot be treated as a simple administrative hurdle. Unit leaders should use this rigorous environment to identify and assess candidates who already possess advanced study habits.

There are many attributes that a successful Master Gunner student must possess. Some of these attributes include experience as a vehicle commander, experience conducting live-fire qualifications in accordance with platform-specific doctrine, and training and certification through vehicle crew evaluator programs and MGPAC. The two most vital attributes of a successful Master Gunner student, however, are effective time management and a willingness to actively participate in study groups. Master Gunner students who arrive at school with these collaborative habits invariably thrive during the course. Units can access the necessary materials and standards to execute their MGPACs at the Master

Gunner Pre-Assessment Course page on Microsoft Teams.²

Because a candidate's performance during MGPAC is a strong indicator of future success, it should be the primary driver behind a unit's Master Gunner candidate order of merit list (OML). By combining strict adherence to prerequisites and MGPAC evaluations, units can build a robust, forward-looking OML. Student reservations requested through the Office of the Chief of Armor (OCA) and actioned in the Army Training Requirements and Resources System (ATRRS) should follow the unit's OML to ensure that the correct and most well-prepared candidate is being chosen to attend Master Gunner School, maximizing a unit's return-on-investment and reducing the requirement for administrative waivers.

Ultimately, building lethality across our Armor Branch is a shared responsibility. Lethality is a team effort between leaders and their Master Gunners.

Master Gunners possess a deep understanding of the fire control and turret systems of their respective platforms at the mastery level, augmenting leaders' tactical expertise. By enforcing fundamental course prerequisites, utilizing the MGPAC to evaluate study habits and sharpen skills, and creating performance-based OMLs, we prepare our Soldiers to excel in Master Gunner School and on the battlefield.

Forge the Thunderbolt!

NOTES

1 Greg Brobst, "Who Is Your Master Gunner and What Do They Do for You?" **ARMOR** Magazine (Spring 2025): 6.

2 <https://www.google.com/url?q=https%3A%2F%2Fteams.microsoft.us%2F%2Fteam%2F19%253Adod%253A2e2d34f6291c41b09cb1dd4e3c35083f%2540thread.tacv2%2Fconversations%3FgroupId%3D26e1616f-f0d9-4446-8039-7a11920dc6a2%26tenantId%3Dfae6d70f-954b-4811-92b6-0530d6f84c43>

Figure 1. A hat with the Master Gunner patch sits on the head of U.S. Army SSG Christopher Montoya, Master Gunner for 2nd Battalion, 34th Armored Regiment, 1st Armored Brigade Combat Team. (U.S. Army photo by SGT Tara Fajardo Arteaga)



Bringing the “Guard” Back to the Troop

by MAJ Conlan Kastanias

As the modern battlefield grows increasingly transparent and lethal, our Cavalry formations are adapting at a breakneck pace. This adaptation requires not just new technology, but a modernization of the doctrine that guides our scout and cavalry units. To keep pace with the realities of large-scale combat operations (LSCO), the recently updated Army Techniques Publication (ATP) 3-20.96, *Cavalry Squadron*, reintroduces a seemingly nuanced—but important—change: the explicit inclusion of the guard as a troop-level task.

Since Modular Redesign, our doctrine has resisted the idea that a cavalry troop could conduct a guard operation—largely due to the loss of combat power at the troop level, especially within the Infantry and Stryker brigade combat teams (IBCTs and SBCTs). The previous version of ATP 3-20.96, along with current versions of Field Manual (FM) 3-98, *Reconnaissance and Security Operations*, and FM 3-90, *Tactics*, excluded the troop from the list of echelons that typically execute this mission—even while acknowledging that company teams can do so (see FM 3-90, chapter 13).

This has created a widening gap between what is written in our manuals and how we actually fight. Today, brigade and squadron commanders are already tasking cavalry troops to execute guards. Rather than telling the

force what they “cannot” do, the newly released ATP 3-20.96 bridges this gap by laying out the parameters of how they can, when they should, and what they must plan for to ensure success.

The New Doctrine: Guard in ATP 3-20.96

To be clear, the nature and tasks of a guard have not changed. A guard remains an aggressive security operation designed to protect the main body by fighting to gain time, preventing enemy ground observation and direct fire against the protected force. Because of the combat power required to achieve these critical tasks—specifically to destroy, defeat, disrupt, or fix lead enemy elements—a guard has traditionally been viewed as a squadron-and-above operation. However, the newly released ATP 3-20.96 introduces a vital nuance:

“The Cavalry squadron may task its subordinate troops to guard when the mission variables allow. Usually, a guard is conducted at the squadron echelon (and above) due to the combat power required to accomplish the critical tasks. However, if the commander assesses that the mission variables greatly favor a subordinate unit, a guard may be feasible and acceptable for a subordinate to execute. When a

subordinate troop is tasked to guard, that troop usually requires augmentation.”

Why This Matters: Tactical Clarity and Operational Reality

This doctrinal shift is not merely academic; it has immediate, real-world implications for how we train, communicate, and fight.

Tactical Clarity vs. “Screens with Caveats”

A guard is inherently different from a screen. A screen is designed to provide early warning and operates over a wide front with minimal combat power. A guard, by contrast, requires sufficiently consolidated combat power to physically destroy and defeat enemy reconnaissance forces and to delay, fix, or disrupt the lead elements of the enemy’s main body. These missions require fundamentally different organization and application of combat power in space.

Previously, when a commander needed a troop to execute a guard-like mission, they were often forced to assign a “screen” and then write extensive caveats to force the screen to behave like a guard. This created confusion, muddled the commander’s intent, and



introduced self-inflicted risk to the mission. By formally recognizing the troop-level guard, commanders can now issue clear, concise mission statements without confusing workarounds.

Reconciling Doctrine with the Force

Our units are already doing this. Feedback from the field is clear: troops are routinely being tasked to guard at Combat Training Centers, Warfighter Exercises, and other training events. Doctrine must serve as a living, breathing guide to enable commanders, not a set of artificial constraints. Providing the “how-to” for troop-level guards ensures that junior leaders have the planning frameworks, risk-mitigation tools, and augmentation guidelines they need to survive and win.

The Way Forward: From Echelons to Mission Variables

The update to ATP 3-20.96 is only the first step. Moving forward, the Cavalry Branch doctrine development team is

pursuing a two-pronged approach to fully integrate and codify this change.

First, we will codify this change in the upcoming revision of FM 3-98. Instead of rigidly restricting security missions based strictly on a unit’s echelon, our future capstone doctrine will refocus “who does what” based on a proper analysis of the mission variables. If a commander’s analysis of the threat, terrain, and available assets indicates that a subordinate unit has the relative combat power (whether organic or through augmentation) to achieve the guard’s critical tasks, that mission becomes a viable, acceptable option.

Second, we must provide our junior leaders with the tactical blueprints to succeed. While FM 3-98 will establish the capstone framework, the next iteration of ATP 3-20.97, *Cavalry Troop*, will deliver the actual “how-to.” This troop-level manual will outline the precise tactics, techniques, and procedures (TTPs) required for a cavalry troop to plan, prepare, and execute a guard operation, specifically

addressing troop-level task organization, coordinate-point drills, and the integration of augmented assets.

Conclusion

Doctrine is the foundation of our lethality, but only if it remains grounded in the realities of the modern battlefield. The explicit inclusion of the guard task at the troop level brings needed tactical clarity, legitimizes successful field practices, and empowers our junior leaders to fight and win.

As we continue to draft the future of security doctrine in FM 3-98, we need your feedback. Challenge these new frameworks, test them in your local training areas, and let us know what works. Together, we will keep the Armor and Cavalry Branch the most lethal and adaptive force on the battlefield.

Forge the Thunderbolt!

Figure 1. U.S. Soldiers, assigned to the 2nd Brigade, 1st Cavalry Division, prepare for a company-wide movement in their Bradley Fighting Vehicle, during Decisive Action Rotation 17-04 at the National Training Center in Fort Irwin, Calif., Feb 19, 2017. (U.S. Army photo by SPC JD Sacharok)



NATIONAL TRAINING CENTER

Observations on Warfighting as the COG

by COL Ian J. Lauer

The purpose of this article is to lay out just some of what I consider the most significant observations I have made over my year as the Commander of Operations Group (COG) at the National Training Center (NTC). Some may be a bit more controversial than others, but I offer them earnestly desiring to keep the Armor community, and an inclusive audience that supports it, engaged in the dialogue of our profession. I genuinely hope to receive an angry email after this is published from someone telling me where I am wrong. Likewise, I hope to revisit this article in a year and cringe at everything that I got wrong. Even so, we must drive the discourse guided by our core principles as armored warfighters, to close with and destroy the enemy in the most decisive and lethal platforms in the world – and this is my earnest attempt to continue that dialogue. I present my thoughts with the humility of a leader who has made all the mistakes I describe below; as one who has been Theodore Roosevelt's "man in the arena".¹

Let me start with the notions of trends reversal, identifying the fundamentals, and lessons learned – all attempts to achieve that unattainable goal of

arriving at the NTC having done all the things you were supposed to do to beat the opposing force (OPFOR). A common refrain among U.S. Army leadership is "Why are we not learning lessons?" or "What are the fundamental skills that will enable success?"

I argue that the pursuit of trends reversal is a fool's errand, because trends exist as a byproduct of learning rather than a symptom of failure. We observe common mistakes and pitfalls (i.e. trends) as the predictable result of accelerated collective learning. As an observer-coach (OC) at various echelons, I embrace the fact that humans and teams err in measurable and consistent ways. Regardless of the level of readiness a unit comes to NTC, the scenario will force them to fight as a brigade, maintain tempo, and transition in persistent contact. The exercise will induce friction and strife, and their level of preparedness determines how those elements will manifest and at what echelon predominantly.

No unit can achieve optimal proficiency in all tasks, particularly when readiness conditions are temporal and personnel transient. I have included observations and data below that adhere to the Pareto Principle of enabling a unit to achieve something akin to 80%

mission success with proficiency in 20% of the tasks.² I assess that learning what it means to fight as a brigade, developing maneuver proficiencies, using intelligence to tell a story, and fighting with fires all contribute significantly to the overall performance.

The most important message I can send to the force is that the number one predictor of success at NTC is the effectiveness of home-station training. Assessing lethality as a function of kill ratios and mission accomplishment, units that objectively arrive at a T2 readiness level (mission essential task (MET) proficiency) are approximately 26% more lethal. That measurement does not account for additional capabilities with which a unit may be enabled. Objectively, the brigades with the highest measured lethality have disproportionately been standard, non-technology enhanced brigades, because they just happened to have executed the most thorough home-station training programs. Clearly there is a risk of falsely attributing correlation and causation, and the experiment is still on-going with every rotation to NTC. As Sir Francis Bacon



stated in 1620, "...for where the cause is not known, the effect cannot be produced".³ I present for the community of warfighters the hypothesis that practiced fundamentals at home-station are the cause of increased lethality at NTC and suggest that continued testing of the fundamentals in this article will demonstrably contribute to proficiency at the brigade-level and below.

"They Are Not Fighting as a Brigade..."

Such is the commonly heard lament of many senior trainers, anxious to see their teams succeeding but clear-eyed in the recognition of deficiencies. As the game master for the scenario, I interpret their frustration in a very positive light. Failing to fight the brigade means that we are collectively doing so much correctly that the brigade's actions become manifest. When we can achieve the moment where we can see the expression of a brigade decision and a commander's intent, I argue we are in a state of collective "flow" for the brigade.⁴ So what does fighting as a brigade look like in practice?

Fighting a brigade means that you are exercising four fundamental functions routinely and managing the transitions between them: arraying forces, deploying to a position of relative advantage, delivering effects, and exploiting, consolidating, and reorganizing. Everything starts with the enemy in the center because if not for the adversary, we are all just camping with guns in the desert.

First, we array forces against a threat. Like a fighter in the ring, we orient against our opponent and emplace units in a manner to protect ourselves and posture for delivery of an offensive blow. At this point, we are prepared for anything but optimized for nothing. For units at a lower state of training readiness, this is often where the brigade fight ends because it takes battalion and brigade-level processes to set conditions and be ready to deploy to a position of advantage relative to the enemy.

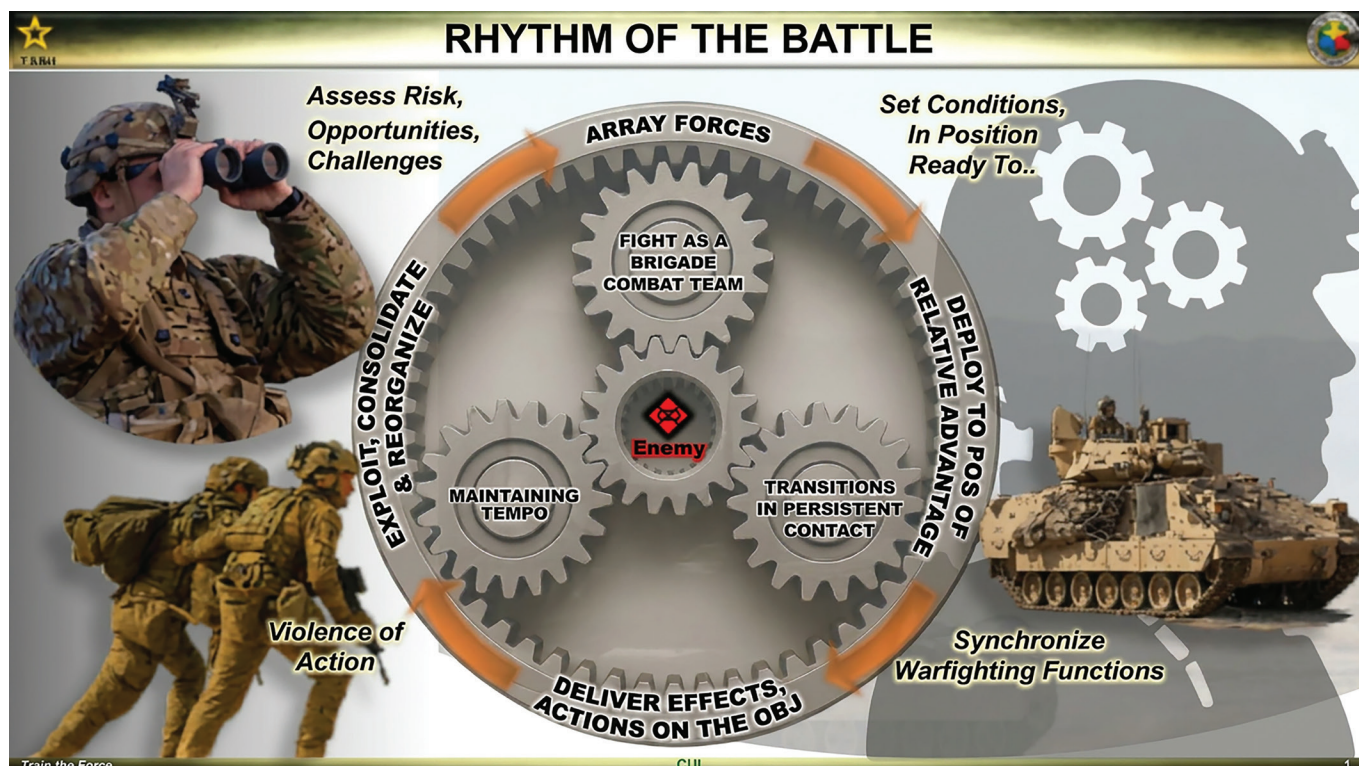
Define how your brigade arrays forces in a standard brigade formation. For movement to contact, the formation should be arrayed to enable the broadest set of options, perhaps two up, one back. For an attack, enable the formation to array against terrain or

an enemy to deliver massed effects while assuming contingency risk, such as having the cavalry squadron with a specific/localized security mission, maneuver massed on one axis of attack.

As a brigade, we are always executing an area defense, but that does not preclude building depth and incorporating bold maneuver. Maybe retain a battalion-sized counterattacking force, giving yourself multiple golden pickets along an enemy avenue of approach, and actually plan and build alternate, subsequent, and supplementary battle positions. Especially for armored brigades...do not be an anchor. You have tracks and wheels for a reason.

When we are deployed to a position of advantage, we are optimized to deliver effects against a specific enemy condition or state. Placing a formation into a position of advantage and delivering effects translates to a few tangible maneuver competencies. At Fort Irwin, nearly 80% of the maneuver avenues used by rotational training units are company sized. In other words, the first maneuver element that is going to develop direct fire contact for the brigade is the maneuver company. Consequently, the company attack

Figure 1. Rhythm of the Battle chart showing how the enemy remains central to the overall sequence.



(Conduct an Attack (Armor or Mechanized Infantry Company/Team): 17-CO-1094) has an outsized influence on the brigade and subordinate battalions' ability to secure the key terrain necessary to deliver massed combined arms effects on an objective. Often, a brigade or battalion will direct a company to execute a discrete operation with the assumption of success and a corresponding degree of command guidance, only to find a company that is no longer combat effective. I argue that this is not apathy or negligence, but an invalid assumption of knowledge.

A brigade that is fighting the enemy they have and not the one they want approaches planning with a contingency mindset, prepared to divorce themselves from the plan to which they have invested. They are ready to make bold adjustments. Often, a brigade will find itself on the right side of an engagement, delivering effects and bringing combat power to bear with decisive actions on the objective. Again, however, the chess match against a free-thinking adversary continues and the brigade must plan the follow-through to exploit, consolidate, and or reorganize for persistent contact.

Building Trust in The Maneuver Company

Maneuver companies that have not trained a company attack generally fail against a veteran OPFOR, and as a result, brigades are unable to gain the position of relative advantage that the commander visualized. However, a maneuver company is a uniquely challenging formation to maneuver. It is the first formation wherein a commander no longer can see their formation and instead must understand-visualize-describe-direct-decide-assess (UVD3A) mostly through reporting and common graphics. It is also where commanders generally integrate combined arms for the first time. Trained companies are more likely to transition movement techniques at a probable line of contact (PLOC), execute maneuver with mutually supporting elements, control direct fires using shared graphics and basic

direct fire planning, employ mortar fires to either suppress or displace an enemy, and exercise weapons control status changes that sustain effective suppression.

If I were to design a training event within 90 days of an NTC rotation, it would place a heavy emphasis on a company maneuver situational training exercise (STX) that was progressive from discrete tasks to full integration with live-fire validation. Commanders should develop certification exercises that are driven by assessed needs rather than application of training strategies. A robust training would include a map exercise to validate company maneuver planning proficiency; demonstrating doctrinal use of graphic control measures, direct fire planning consistent weapons capabilities and limitations, and mortar integration (not delegated to a fire supporter). Next, include a scenario designed to train movement techniques and formation transitions, with 5-10 kilometers of tactical movement. Be sure to assess performance based on time requirements and progressively integrate OPFOR with PLOC. Then, include multiple iterations of a company attack lane (under varied conditions) against a free-thinking OPFOR. This will force a company commander to manage the convergence of forces on an objective. Finally, training should culminate in a company combined arms live-fire exercise (CALFEX). This is not the premier element of company certification, but a validation of a company's ability to exercise the previous tasks under live-fire conditions. I assess there are two indispensable benefits of live-fire: learning fire control and distribution with measurable feedback on lethality; and providing a formation with the intangible experiences of live-fire to include the sights, sounds, and smells of combat. It is a valuable investment in creating sense-memory for when we eventually find ourselves there.

Start With the RED PEN!

Integration of the intelligence warfighting function (IWFF) is one of the most significant deficiencies that I consistently observe at the brigade

level. It is not that brigades fail to address and consider intelligence in function, but there is a misalignment with how a brigade's understanding of the enemy is depicted in products and the real-time commander's visualization of the enemy at all echelons. At the risk of over-simplifying the issue, I reduce the IWFF's purpose at the brigade-level to basic storytelling. Is there an informed voice that is synthesizing the vast array of information on the enemy into meaningful recommendations that enable a commander to make decisions? If not, there are two contributing factors, first is the tension within the IWFF to provide situational understanding versus targeting information, second is the effectiveness of the S2 in telling the enemy's side of the story. I argue that addressing these two elements would go a long way towards understanding the center gear in the rhythm of the battle - our enemy.

There is an absurdity that exists in the common intelligence picture (CIP). As we aggregate our CIP at echelon, we achieve greater fidelity. However, once we disaggregate that CIP to the lowest level, we lose fidelity at the point where it is of greatest value. This seems to be both a function of transport and practical integration into digital systems that can keep pace with the tactical fight. Realistically, I see this as a human problem of cognitive loading since we ask tactical leaders to execute an extraordinary number of tasks associated with ground combat. Embedded in this contradiction is the fragmentation of effort and purpose within the IWFF between targeting and building situational understanding. With our current operational concept, I argue that the brigade is that inflection point where analytical efforts are best applied towards sustaining situational understanding with our CIP rather than enabling precision fires.

That is not to say we should not sense and destroy the enemy in depth and with all the precision afforded us. However, we must demystify and simplify targeting at the brigade level. When the brigade arrays forces, the focus of targeting must be on denying enemy options and constraining their course of action (COA). Whether



Figure 2. U.S. Soldiers assigned to 3rd Battalion, 67th Armored Regiment, 2nd Armored Brigade Combat Team, 3rd Infantry Division conducts reconnaissance operations in a M1 Abrams main battle tank during Rotation 23-05 at the National Training Center, Fort Irwin, Calif. (U.S. Army photo by SGT Quincy Adams)

offensively or defensively postured, the security zone is paramount to brigade targeting, as that area designated by the commander to provide early warning and disruption, prevent surprise, and provide time and space for shaping. The commander's guidance for targeting should first focus on achieving effects against high-value targets (HVTs) that the enemy requires to successfully complete their mission. For a brigade, this may reasonably be targeting large formations with massed battalion fires rather than a precision strike. Brigade targeting at this stage constrains the adversary to a fixed number of COAs against which we can execute contingencies. When the brigade has confidently identified the enemy COA and committed to a corresponding friendly COA, it must position itself advantageously.⁵

Correspondingly, brigade targeting should prioritize high-payoff targets defined as specific HVT whose loss to the enemy will directly and significantly contribute to friendly success. This may be something as specific as

anti-tank (AT) systems in a designated space, or as broad as identified battle positions. Brigade targeting is a process whereby we focus and prioritize our limited sensors; request collection support; and align a delivery agent to defeat so that we can first deny enemy options and then enable our COA.

We as commanders must also renegotiate placement and access for our brigade S2s. When at the brigade combined arms rehearsal, which brigade player is where and what role will they play? I can clearly identify the brigade S3 and executive officer (XO), regardless of their briefing role, just by their energy and the deference to which their instructions are acknowledged. However I struggle to identify the brigade S2, and it is time to ask the uncomfortable question, why? I argue that at the brigade level, we are comfortable viewing the brigade S2 as a manager of systems and processes but not as "the voice of the enemy". A voice that is nearly absent from our operations outside of very structured routines, processes, and products.

Consequently, we commonly see multiple layers of intelligence experts, but either through placement or ineffectiveness, they are unable to influence the commander's running visualization of the battlefield.

The process of brigade targeting described above does not preclude building the enemy picture, unless we divert focus and resources away from our fundamental tasks of gaining situational understanding. Building the enemy estimate can be considered within the context of the four fundamental functions of the rhythm of the battle; array, position, deliver, and exploit/consolidate/reorganize. Before we can array forces, a brigade commander must answer two questions: what is the enemy doing (i.e. their mission) and what does the enemy think we are doing? A brigade commander needs this information to know if the enemy is posturing for offensive or defensive operations. This informs the brigade commander's assessment of initiative; who is reacting to whom? There is something of a

dance as opposing forces get their bearings and adjust off one another. Who has what key terrain? Are they applying an operational framework and where are they assuming risk? These are all questions that our IWFF must answer to enable the brigade to be in position and ready to deploy.

As I alluded to earlier, any advantage is fleeting and compromised quickly. We salvage our position by understanding what the enemy knows or thinks they know. The enemy's reconnaissance and security efforts can provide insight into what they are thinking, and without someone thinking and speaking for them, many of the most clearly telegraphed intentions are lost. Any action to achieve a position of advantage is met with a corresponding reaction, as the enemy both guards against the friendly decisive operation and works to regain the initiative. The failure of the enemy to react at all may indicate your position is not really that advantageous.

Finally, who is watching for indicators of enemy culmination or transition to another form of maneuver? At each

step, brigades routinely fail to consider these questions as we naturally become saturated with reporting and information. I assess that with blue feed technology, active reporting, and a bias towards what we know, we become myopically focused on friendly positions and strengths relative to terrain we see. Understanding the enemy is inevitably lost in the noise.

Fires Integration Is a Growth Industry for the Brigade

Fires integration is where I assess the most potential for development. Cannon fires effectiveness contrasts significantly between rotations but averages out at 34% of total kills, however it difficult to measure any impact that our fires have on compelling our enemy to move and make decisions prematurely. At NTC, we typically see cannon target location errors averaging at 281 meters (primarily a product of target decay), volume of fires inadequate for the intended target (average of battery four firing order), unrealistic expectations of supporting

division fires (averaging 60% of fires), and late or missed triggers for pre-planned fires. Previously, I would have argued that the proximate cause was that our guidance for fires was too broad and imprecise, resulting in a dilution of effective fires. I argued that we needed to clarify and constrain essential fires support tasks and align the fire support system accordingly. I assess these are still relevant, but it was based off the presumption that we were deliberately fighting with fires from planning through execution, which is not accurate.

The fire support system works whether it has guidance or not. Like an open electrical circuit, current is flowing along the path of least resistance. A brigade can choose to do nothing, and subordinate units will still generate calls for fire, and the guns will deliver. We are, of course, better than that. I have not observed a brigade that failed to provide guidance for fires, or a brigade commander that has failed to deliver a guidance for fires in some form. However, planning products must translate into fighting products, and it is in the fighting with fires that

Figure 3. A U.S. Soldier assigned to the 3rd Infantry Division stands in the commander's hatch of an M2 Bradley Fighting Vehicle during the Division's rotation to the National Training Center at Fort Irwin, Calif., June 6, 2026. (U.S. Army photo by SGT Austin Robertson)



we fail. The observations referenced above are products of either a poor fire support plan or the poor execution of a plan. In both cases, brigades failed to boldly adjust from a fire support plan or continue to synchronize the fire support system to fight as conditions changed. As the fire support plan becomes invalid, as all plans eventually do, the fire support system acts like the open electrical circuit unless acted upon by an external agent. The solution rests in defining roles and rehearsing the integrated authorities of the fire support coordinator (FSCOORD), fire support officer (FSO), and fires battalion XO or S3.

The brigades that fought most effectively with fires clearly designated a product that they expected the stakeholders to follow and aligned resources to enable that fight. They structured their formations to prioritize cannon fires as the brigade's asset versus a shared resource. A brigade commander must consider if a decision to decentralize fires is based on a deliberate assessment or if it is the by-product of an overwhelmed brigade staff. The FSCOORD must be the fighting agent, rather than managing the fire support system or simply serving as a highly qualified advisor. Effective brigades have a FSCOORD who directs fires on behalf of, or in close coordination with, the brigade commander. He is in every practical sense, fighting with fires. He employs the fire support officer and his fire battalion field grades to ensure the efficacy of the system. They are closing and opening the circuits, rewiring and rerouting the electrical current as necessary to keep aligned with the FSCOORD guidance.

Brigades that effectively fight with fires have deliberately trained their resources to fight as described. The days of every maneuver company commander having their own fire support team are long past. Fighting with direct support (DS) fires means husbanding those sophisticated and dedicated observer platforms for critical actions. Sometimes that means task organization of fire support teams (FISTs) to the company level. I argue, however, that it is rare that the brigade does not need to retain some enhanced fire support to first accomplish

anticipated essential fire support tasks, then realign to emergent needs. Likewise, FSCOORDS must pursue a sufficient volume of fires to achieve effects against dispersed armored formations in an environment with a high likelihood of enemy radar acquisition. On both accounts, a battalion one, open-sheafed, is far more effective than a battery three (consider roughly 900 meters of dispersed effects as opposed to 300 meters). At NTC, we habitually observe units struggling to achieve the rotational average of a battery four in their firing orders. A home-station training plan that achieves artillery Table XIII proficiency is far more likely to fight using battalion firing orders.

Control That Which You CAN Control... Home-Station Preparation

Fighting a brigade is hard and requires practice. Everything described above seems easy, but I acknowledge with humility that it is not. My ability to observe and discuss these issues is simply a function of my unique placement. We can discuss trends, write about observations, and debate doctrine...but proficiency is only gained through execution. That is the fundamental reason we need opportunities like a rotation to NTC. Our focus remains to provide room to learn and opportunities to adjust enabled by data collection and lethality metrics. Regardless, the most important predictor of unit success is value of home-station training; training that I argue must be tailored to improve key areas of maneuver proficiency, intelligence integration, and fires lethality.

As I reflect on opportunities missed in my own home-station train-up, they generally revolve around the failure to execute low-cost, training-rich events in favor of a traditional training strategy. As a brigade commander, I would invest much more in map exercises and tactical decision-making exercises. Understand what your company commanders know and do not know so that you have an accurate risk estimate when you direct tactical tasks.

Execute iterative training events that

are not constrained by live-fire restrictions or ammunition consumption and then coach. Repetition breeds competence and competence feeds confidence. When conducting command post exercises, engage with the S2 directly and give them the freedom to speculate, analyze, and be wrong. Explore why an assessment was correct or off. Direct how you expect the CIP to feed company commanders in terms of format and level of fidelity.

Finally, develop a terms of reference product and define expectations for your fire support coordinator and their team. Explore options for task organization of fire supporters, maneuver expectations for firing batteries, and maximizing system capabilities (achieving digital sensor to shooter, managing databases to avoid target decay or duplication).

I challenge every brigade commander coming to NTC to leave it all on the table and play to win with an inflated sense of humility because nothing dilutes the medicine of learning more than pride. Make bold decisions, take big chances, be wrong, fail spectacularly, reflect and learn, and finally...do it better next time.

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The Executive Officer as the Integrator of Tempo in Multi-Domain Operations

by MAJ Daniel Eerhart

Upon learning the acronym SCAT (surprise, concentration, audacity, and tempo) in the Basic Officer Leader Course (BOLC), young lieutenants proceed to spend weeks in a field environment applying the characteristics of offensive operations.¹ The Armor Branch defines itself by the ability to achieve success through speed, firepower, and shock. However, high-speed mounted maneuver exists in a state of perpetual tension with the nature of war itself. The desire to maximize tempo, or the relative speed and rhythm of military operations over time with respect to the enemy, is constantly in competition with friction, or the gap between theoretical expectations in war and what actually occurs in practice.^{2,3}

Operational tempo goes beyond the raw speed of a maneuver formation and encompasses the ability to maintain a rhythm that denies the enemy time to react or reorganize. Maximizing striking power and speed expands the commander's decision options and enables offensive forces to get deep into hostile formations before reserves can react. Carl von Clausewitz observed that war has a paradoxical trinity composed of primordial violence, the logic of government, and the play of probabilities and chance.⁴ It is within the realm of chance that the con-

cept of friction impacts operations.

The choice to use mounted maneuver forces magnifies friction, despite technological integration designed to overcome it. While tanks provide mobility unmatched by any other ground combat platform, they also create intense logistical burdens. As any executive officer (XO) in an armored brigade combat team (ABCT) can attest, the high consumption rate of Class III (fuel), Class V (ammo), and Class IX (repair parts) can bring an impressive organization to its knees. The ability to apply concentrated striking power relies upon the ability of a designated logistical coordinator to anticipate and fix problems.

Armored organizations confront a unique paradox: as the commander maximizes tempo through mechanization, they simultaneously increase the potential for mechanical failure, supply depletion, and logistical dislocation. Fortunately, at the company level, the XO serves as the structural answer to the armored paradox, with the responsibility to reduce battlefield friction and enable rapid operational tempo through proactive maintenance and logistics. As the U.S. Army transforms, the XO's fundamental purpose remains constant, even as its manifestation evolves.

U.S. Army photo by PFC Jason Klaer

How the XO Fights

At the company level, the commander represents the art of command, creatively and intuitively applying leadership to exploit tactical opportunities. The XO, in contrast, represents the science of control. For the mounted maneuver force, the science of control involves regulating forces and warfighting functions to accomplish the mission in accordance with the commander's intent. The XO manages sustainment, maintenance, and information flow to maximize the company's combat power.

Before operations, the XO helps create the commander's sustainment plan, completing paragraph 4 of the operations order and ensuring the platoons have adequate amounts of each class of supply. By understanding the operation, the XO can plan logistics package (LOGPAC) routes, resupply methods, and recovery routes. The XO serves as the company's voice, ensuring the forward support company and battalion staff can meet operational sustainment requirements.

During operations, the XO earns their worth by reducing the number of items the commander must personally track. By shouldering the burden of responding to continuously evolving support requirements, the commander can

focus on maneuvering. The XO manages the continuous flow of information required to maintain situational awareness, enabling the commander to lead. By understanding when, how, and where to deploy maintenance, recovery, or resupply assets, the XO positions themselves to support the battle and prevent mechanical attrition from leading to column paralysis or turning vehicles into sitting ducks.

After operations, the ability to regenerate combat power faster than the enemy can respond maintains tempo. A decisive victory places increased strain on combat power, and the XO facilitates reorganization immediately after contact. Reorganization is a race against time in which the XO coordinates the refuel, rearm, and repair cycles needed for the company to transition from one objective to the next. The XO is responsible for that contingent and triggers resupply before combat power falls to critically low levels. The XO is responsible for replacing downed vehicles and equipment to ensure the enemy force remains unable to seize the initiative in battle.

Two Tempos – Two Outcomes

The 2003 United States invasion of Iraq and the 2022 Russian invasion of Ukraine both relied upon large-scale armored formations. However, the U.S. Army's ability to sustain the high-tempo penetration into Baghdad validated the characteristics of offensive operations. The Russian invasion failed to replicate the American combined-arms maneuver. Unanticipated enemy resistance, poor planning assumptions, and ineffective communications all forced the Russian force to reach its culminating point early.⁵ While numerous factors contributed to their loss of momentum, severe logistical failures and the inability to manage friction at lower levels magnified their problems.

The success of the 2003 "Thunder Run" was predicated on what GEN Tommy Franks described as a "new strategic and operational paradigm": rapid maneuver to create momentum and put forces deep into enemy territory before the enemy could react.⁶ This audacity, as outlined in the characteristics of the offense, was only possible because the U.S. Army had

integrated the science of control at the lowest tactical levels.

While moving along Highway 8 to Baghdad, tanks were using 56 gallons of JP8 fuel per hour and 30 gallons per hour maneuvering inside the city.⁷ With a 504-gallon capacity, company-level XOs and 1SGs managed the massive logistical tether to keep crews in the fight.⁸ Momentum for the entire task force depended on effective company-level leaders. Rather than relying on massive, slow-moving stockpiles, XOs managed a lean supply chain that prioritized the rapid delivery of Class III, which was considered paramount to the speed of the advance.⁹

The use of Blue Force Tracker technology allowed XOs to maintain real-time situational awareness and communicate demand patterns on the move.¹⁰ By sending accurate and timely tactical reports, the XOs ensured that armored columns maintaining a steady 15 kilometers per hour tempo could continue forward despite heavy combat through urban centers.¹¹ While sustainment elements struggled to keep up with aggressively maneuvering forces, logistics elements continued to advance to maintain tempo.

Figure 1. PVT Pragyan Poudel, assigned to Alpha Company, 2nd Battalion, 70th Armor Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division supporting the 4th Infantry Division, installs a new sprocket onto an M1 Abrams tank during maintenance, at Nowa Deba Training Area, Poland, May 11, 2023. (U.S. Army photo by PFC Jason Klaer)



In contrast, the 2022 Russian invasion demonstrated that failing to manage friction leads to the total collapse of momentum. Russian armored columns frequently chose to send forces through severely restricted terrain where there was no realistic hope for making progress.¹² The need for vehicle recovery outpaced the availability of recovery assets. Russian tanks were frequently stuck in deep mud and were ineffective in combat due to a lack of dedicated company leaders to oversee recovery operations.¹³

Russian forces relied upon pre-positioned logistics before the invasion and did not plan to keep sustainment elements moving forward with the advancing battalion tactical groups (BTGs).¹⁴ With sustainment planning at the battalion level, Russian forces were unable to attempt to overcome their challenges. With centralized sustainment planning, company-sized elements and below were unable to adapt to changing logistical requirements due to threats from asymmetric tactics.

Ultimately, the 2003 Iraq invasion demonstrated that proactive logistics management has a significant enabling effect on the mounted maneuver forces' ability to maintain tempo. In contrast, the 2022 Russian invasion of Ukraine demonstrated that the absence of forward friction management exacerbates early miscalculations and cascades into operational defeat.

Technology Changes, Responsibility Does Not

As battlefield technologies evolve at an unprecedented speed, the need for the XO will continue to grow. Recent conflicts in Gaza, Sudan, Nagorno-Karabakh, and Ukraine demonstrate that for the modern mounted maneuver force, drones pose the single greatest tactical threat on the battlefield.¹⁵ In Ukraine, squads and fire teams are employing drones, significantly increasing the risk of massing armored formations. With drones accounting for 70-80% of casualties on the battlefield, XOs must think creatively to improve survivability.¹⁶ Electronic warfare, counter-unmanned aerial system

(CUAS) weapons, vehicle hardening, signature management, and decoys are all being used on the Ukrainian battlefield and are similarly within the XO's domain.

Company XOs are more than logisticians; they are the masters of tempo and friction. At the height of the Iraq and Afghanistan counterinsurgency fight, XOs took responsibility for company intelligence support teams (COIST), who were responsible for identifying improvised explosive device (IED) patterns, fusing patrols with actionable intelligence, and understanding the local populace.¹⁷ By managing information flows, commanders can focus on the art of command despite high operational tempos.

In addition to mastering combat and maneuver technologies, the XO must understand the U.S. Army's emerging sustainment priorities. Autonomous and precision logistics platforms will accelerate resupply opportunities. The introduction of these new technologies will inevitably create new points of friction, and it will fall on the XO to manage the essentially unpredictable nature of war. What will they do if an autonomous delivery vehicle gets stuck in the mud? Is it worth deploying recovery assets if there are no humans aboard? If a drone delivering ammunition gets stuck in a tree, is it worth recovering? Technology will change how the science of control manifests in large-scale combat operations, and the ability to proactively manage friction will enable success beyond the company level.

The nature of friction continues to change. Tempo is no longer just movement speed; it is the ability to operate within the enemy's decision loop, where the most important things the XO does may no longer be related to managing classes of supply. The ability to survive despite constant observation and rapid decision-making makes the XO's role decisive in multi-domain operations. As the U.S. Army prepares for future operations, it will be more common for XOs to synchronize LOG-PAC movements with CUAS windows or direct the placement of counter-imagery decoys. Tempo will evolve beyond the physical and be most relevant in the cognitive domain.

Practice Makes Permanent, Generating a DOTMLPF-P Recommendation

If modern mounted maneuver commanders want their organizations to survive long enough to defeat the enemy, there must be a way to equip XOs with the skills to reduce friction. The Armor Branch understands that practice makes permanent, as demonstrated by the countless hours crews spend giving fire commands while on the Advanced Gunnery Training System (AGTS). Successful completion of the Table II (simulations) qualification through AGTS training modules is a live-fire prerequisite for crews before Table IV through VI qualifications.¹⁸ Despite recognizing the need for practice, there is no training program or assessment for lieutenants selected as XOs. The lack of institutionalized transition from platoon leader to XO indicates a DOTMLPF-P (doctrine, organization, training, materiel, leadership, and education, personnel, and facilities) gap.

Army Technical Publication (ATP) 3-90.1, *Armor and Mechanized Infantry Company Team*, defines the XO as the company team's second-in-command, primary sustainment planner, and coordinator.¹⁹ However, modern global conflicts show that the XO will inherit greater responsibility than articulated in current doctrine. Future revisions to ATP 3-90.1 and related maneuver publications should redefine the XO as:

The Executive Officer is the company team's second-in-command and the commander's primary integrator for sustainment, survivability, and signature management in contested environments. The Executive Officer synchronizes logistics, recovery, deception, and electromagnetic discipline to preserve combat power and maintain decision advantage.

Revised doctrine must be matched by deliberate training. To replicate the interactive training experience that tank crews receive through AGTS training, the Armor Branch should consider developing a secure, .mil-domain Adaptive XO Decision Laboratory. The Adaptive XO Decision Laboratory would

serve as an equivalent to the AGTS for friction management. Through AI-enabled, scenario-based simulations, XO's would receive the opportunity to experience tactical sustainment forecasting, recovery planning, and maintenance prioritization. As the user successfully navigates tactical problems, the difficulty will increase until it replicates a large-scale combat operation scenario. Scenarios will replicate the complex realities of multi-domain operations, with degraded communications, electromagnetic environments, and drone surveillance, forcing XO's to balance their roles under compressed decision timelines.

The Command and General Staff College has begun integrating AI into wargame exercises to increase training outcomes.²⁰ The Johns Hopkins Applied Physics Laboratory and the Air Force Decision Advantage Sprint exercises have similarly integrated AI into wargaming.²¹ However, for a lieutenant with relatively little military experience, there is no formalized training curriculum or leader development program to ensure they succeed in their critical role. Consideration should also be given to whether the company headquarters requires additional capability to support signature management and electromagnetic discipline in contested environments.

By centralizing platform development, the Office of the Chief of Armor will be able to aggregate data on the decisions maneuver officers make and develop data-driven curriculum changes at the lieutenant and captain levels. The Armor Branch can modify professional education based on gaps identified in the performance of numerous XO's across the U.S. Army. Units gain more effective lieutenants, junior officers perform better, and the Armor Branch gains data-driven insights into training and education.

As armored formations increasingly face battlefield risk due to technological expansion, decision timelines will shorten, and the mental burden on company-level XO's will increase. The Russians learned in Ukraine that the ability to rapidly reduce friction and increase operational tempo is decisive in large-scale combat operations. By training XO's in their responsibilities to

the same extent as crews in gunnery, the Armor Branch can ensure it continues to live up to its motto as the combat branch of decision.

Conclusion

As young maneuver officers continue to learn about SCAT, they will spend weeks honing their ability to lead platoons effectively. Once their platoon leader time is up, many will begin drinking from the fire hose that is life as a company XO. Without any formalized training program, these young officers will be relied upon by their commanders to reduce friction and enable tempo.

As mounted maneuver leaders, on-the-job training is insufficient to prevent our own version of Russia's logistical catastrophe in Ukraine. Drones, open-source intelligence, and autonomous vehicles continuously increase the opportunities for friction within operations, and yet the XO remains a linchpin for success.

Ultimately, the XO represents the science of control while the commander focuses on the art of command. Preparing our company-grade officers for the harsh realities of war requires the foresight to understand that it will be young lieutenants who have never deployed that will make decisive decisions in the next conflict. With tempo migrating into the cognitive domain, the Armor Branch must deliberately prepare its XO's to preserve decision advantage under persistent observation.

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Planning During Execution

Survival of Your Plan After First Contact

By LTC John Barrington

In *Frankenstein*, Mary Shelley states that, “Nothing is so painful to the human mind as a great and sudden change.”¹ And yet, our doctrine and experiences tell us that changes to our operating environment remain inevitable. How many times does a plan shift after the unit arrives on the ground and leaders must adjust the plan during execution? Dependent on the relative familiarity of the unit with the operation or location and the level of change since the last iteration, leaders may experience this more routinely than they prefer. It remains the bane of both those who planned and those who execute the task. Over the past years in pre-key development (KD) and KD assignments at the division, brigade, and battalion levels, I found a few fundamentals that applied to all three staff levels and directly tied to experiences from command. I am sure that these fundamentals do not constitute the whole answer to a plan surviving first contact. However, while learning from amazing leaders, my operations cells considered these fundamentals when adjusting operations and found success in many forums. Where

we failed, we learned and adjusted our approach.

Chapter 6, Decision Making During Execution, in Field Manual (FM) 5-0, *Planning and Orders Production*, published in November of 2024 states, “Continuous assessment is essential during execution. Assessment helps commanders visualize probable outcomes and determine whether they need to change the plan to accomplish the mission, take advantage of opportunities, or react to unexpected threats. Monitoring is the continuous observation of those conditions relevant to the current operation (ADP 5-0). It allows commanders and staffs to improve their understanding of the situation. Evaluating is using indicators to judge progress toward desired conditions and determining why the current degree of progress exists (ADP 5-0). It allows commanders to identify the variances, their significance, and if a decision is required to alter the plan.”² It goes further to state that adjustments are not only natural but necessary, “Executing, adjusting, or abandoning the original operation is part of decision making in execution. By fighting the enemy and not the plan,



U.S. Army photo by SSG Steven M. Colvin

Decision Types		Actions
Execution Decision	Minor variances from the plan. Operation proceeding according to plan. Variances are within acceptable limits.	Execute planned actions. Commander or designee decides which planned actions best meet the situation and directs their execution. Staff issues fragmentary order. Staff completes follow-up actions.
	Anticipated situation. Operation encountering variances within the limits for one or more branches or sequels anticipated in the plan.	Execute a branch or sequel. Commander or staff review branch or sequel plan. Commander receives assessments and recommendations for modifications to the plan, determines the time available to refine it, and either issues guidance for further actions or directs execution of the branch or sequel. Staff issues fragmentary order. Staff completes follow-up actions.
Adjustment Decision	Unanticipated situation - friendly success. Significant, unanticipated positive variances result in opportunities to achieve the end state in ways that differ significantly from the plan.	Make an adjustment decision. Commander recognizes the opportunity or threat and determines time available for decision making. Commander selects a decision-making method. If there is not enough time for a complete military decision-making process, the commander may direct a single course of action or conduct rapid decision-making and synchronization process with select staff members.
	Unanticipated situation - enemy threat. Significant, unanticipated negative variances impede mission accomplishment.	Depending on time available, commanders may issue verbal fragmentary orders to subordinates followed by a written fragmentary order to counter the threat or exploit an opportunity. In rare situations commanders may reframe the problem, change the mission, and develop an entirely new plan to address significant changes in the situation.

Figure 1. A description of the two types of decisions: Execution Decisions and Adjustment Decisions.

commanders balance the tendency to abandon a well-conceived, rehearsed, and synchronized plan too soon against persisting in a failing effort too long. The issued plan provides the base to start from during an operation. The better developed and rehearsed the plan is with situational understanding gained during planning, preparation, and execution, the faster and more effective the identification, dissemination, and execution of necessary adjustments become.”³

Then-Lieutenant Colonel Jeff Barta wrote an article titled “*Commander’s Decisions*” in a National Training Center (NTC) publication, *Leader Development in Contact*. In the article, he describes Figure 1 and focuses on “execution decisions”. He postulates that “Adjustment decisions are doctrinally part of the operations process and necessary to gain the advantage toward winning on the battlefield...planning for decisions through all stages of the operations process, incorporating five common decisions early in planning, and including the DST (Decision Support Template) into fighting products will help a unit succeed.”⁴

If you train repetitions of these

fundamentals such that your team employs them routinely and well, then your organization will better understand how to inform and control adjustment decisions.

Begin With a Well Developed Mission Analysis

Professional development courses discussing the military decision-making process (MDMP) often espouse that mission analysis is the most important step. This frames the critical first fundamental which can increase the speed

and efficiency of adjusting a plan without completely discarding it. Rarely did a plan completely fail to account for all the aspects within mission variables, so what was it that is different? If you conduct a well-developed mission analysis, then you or your staff will be quicker to understand the root cause of the change. Mission analysis precedes course of action development, so as we perceive a need to change the course of action (plan) we should answer this simple question, “What in the environment or mission changed enough to cause you to plan again?” Maybe your unit skipped through a

Figure 2. The eight fundamentals of planning during execution.

Fundamentals of Planning During Execution
• Begin with a well developed Mission Analysis • Understand your authority • Change only what you must and inform up and out • Achieve simultaneity wherever possible • Set FUOPS and CUOPS systems to synchronize • Conduct reconnaissance and security and employ veterans • Distribute adjusted graphics that incorporate bottom-up feedback • Change in operations is not instantaneous or magic

portion of mission analysis to stay on time, the enemy or civil populace reacted to the environment differently than you thought, or the weather changed and your course of action depended on one of those key variables. In concert with Fundamental #3 – “Change only what you must and inform up and out”, the staff can analyze that change’s impact and provide the commander with a recommendation instead of redoing mission analysis of the entire environment. This approach greatly increases the speed of decision and the efficiency of the orders process.

Understand Your Authority

Do you have the authority to change the plan? Are you operating within the commander’s intent, the boundaries given to you, and still within the risk you are authorized to accept? Are these execution decisions included in an authorities matrix or decision support matrix? Plans should include some flexibility for units to execute the task so the unit can fight through adversity without affecting the higher headquarters’ scheme. This means both the subordinate and the higher

headquarters must have a common understanding of the authority to decide. We preach this at all levels; when we tell a Soldier to execute a dangerous action in the throes of combat, we expect them to execute because hesitation can cost lives. During a movement to contact at the NTC, I saw a platoon leader (PL) bound his platoon to the next terrain feature against the orders of the company commander because he thought the tactical situation required him to change the plan. A second PL then bounded his platoon forward because he knew the first platoon would be destroyed without his platoon’s support. Now committed, the company commander radioed the battalion commander his situation. The company’s actions created a large hole in the battalion maneuver and left two other companies exposed without a supporting unit as they bounded across the open plain. As the enemy battalion crested the intervisibility line, they destroyed the first two platoons who had not made their bound to cover in time, destroyed the other two companies of the battalion, and created a seam for the next two following enemy battalions to penetrate the friendly brigade’s support area. The PL’s actions showed either a lack of

discipline with the best of intentions or a failure to communicate with authority. Are there times in your own formation where we misunderstand authority, think we can mitigate the assumed risk, and / or fail to grasp our role within a larger scheme?

Change Only What You Must and Inform Up and Out

After understanding what aspects of the environment or mission have changed and confirming you have authority, you must consider the effects of your change on all the others in your area of influence. Who else knows the changes you plan to make? You most likely briefed this plan, rehearsed it, and synchronized it with external elements. How well do you assess you can do those things again, so you do not waste resources provided to you or desynchronize your higher or adjacent unit’s plan? In no way am I advocating that every time we need to adjust a plan we should stop everything, ask for a time out with the enemy, and re-brief or rehearse the changes. Units should instead understand the effect of the change on those around them, inform higher and adjacent units, and work to

Figure 3. A 3rd Infantry Division M1A2 SEPv3 Abrams main battle tank moves onto a barge made of several bridge segments during a wet-gap crossing exercise in Fort Stewart’s Pineview Lake. (U.S. Army photo by Kevin Larson)



get back on track to accomplish the purpose of the operation. In the armored brigade combat team's sustainment world, effects on logistics when units change the amount of time spent executing an operation or change the number of supplies expended causes ripple effects across the two- up higher headquarters' system for two to three days. Contact with the enemy inevitably causes change in some way, so understanding how to adjust with small changes, synchronize assets, and bring the formation back on track to the remainder of the plan you rehearsed pays significant dividends to the effects of both that small portion of the operation and the remaining activities.

Achieve Simultaneity Wherever Possible

What actions should the unit continue or begin while the leaders develop their next move? Think about this scenario, the unit completes a major action like an attack on a ridgeline objective, but the operations order did not discuss in detail what will occur after the unit fully secures the position. The leader sets clear guidance and wastes no time for subordinates. Whether it is battle drills or priorities of work conducted at the platoon level or a battle drill or a battle rhythm done at the staff level, the subordinates must continue activities in current operations (CUOPS) while the commander and their key personnel plan. The commander also ensures that key leaders own activities. This might be the executive officer (XO) running the transition, consolidation, and reorganization with either the subordinate executive officers or with the senior noncommissioned officers (NCOs). The commander and their subordinate commanders or PLs may focus on determining the next action. When planning an operation, there usually exists critical points of friction. I recommend placing key leaders at those critical points; this could be the first sergeant (1SG) at the main medical collection point, the operations sergeant major at the primary Class IV supplies staging point during a defensive transition to offense, or the tactical command post with the commander and/or operations officer at a passage of lines. As transitions



Figure 4. U.S. Army Soldiers assigned to 1st Battalion, 64th Armored Regiment, 1st Armored Brigade Combat Team, 3rd Infantry Division, supporting Task Force Iron, fire an M829 tank round out of an M1A2 Abrams tank during a multinational company combined arms live-fire exercise at Bemowo Piskie Training Area, Poland, July 15, 2025. (U.S. Army photo by SGT Jacob Suess)

typically induct change into any planning, achieving simultaneity through clear guidance and placing key leaders at points of friction will help the plan survive. Repetitions of these battle drills are key to proficiency and speed.

Set FUOPS and CUOPS Systems to Synchronize

What fighting products or battle rhythm meetings contribute to synchronization between planning and execution? What does your unit use for fighting products and how does it disseminate them in a fully integrated or degraded environment? During a change in the plan, do they help you achieve efficiency and can you achieve the other fundamentals using them? Staff participating in multiple echelons' battle rhythm events must stay apprised of the current situation and what actions the unit plans to execute in the coming days. Each warfighting function participates in both CUOPS functions like a battle update brief or future operations (FUOPS) planning sessions like a targeting working group. These must talk to each other in both the discussions held in meetings and their output products. How are current events updated on running estimates or the fighting products brought into planning sessions? How do the current operations teams hear and understand

the output of planning sessions? A way that we found to help bind these groups is by having a common set of products enter each meeting throughout the day. For instance, the S2's current operations team briefed the same estimate format during the morning battle update brief, within the staff to the commander, the intel sync, the operations (OPS) sync, and the commander's update brief (CUB), between subordinate unit commanders to the unit commander. The S2 ensured that their planning cell updated the estimates of what the threat would execute in the next period to the current operations briefer. In this practice, we got used to seeing the S2's product and could focus on what changed, the S2 CUOPS team heard the S2's thoughts on future events, and the planners heard the current reports. This practice helps warfighting functions synchronize their CUOPS and FUOPS cells internally and the repetition decreases the impact of portions of the staff missing key meetings during the day. As the S3, I used the OPS synch, targeting meetings, and CUB as my primary meetings for synchronizing the staff and subordinate units within the operation. At the company level, these changes occur at a high pace, and commanders have little to no staff. However, a company command post can accomplish many of the same functions to a lesser degree. Company commanders should build a

portion of their command post to battle track both friendly and enemy actions. The 1SG and XO help integrate the reports from current operations with the forecast for future requirements. It helps greatly to focus on what the commander calls their “fighting products”. Some examples might be operations graphics, execution matrix or at least a timeline, a kill chart or threat focused current assessment, information collection synchronization matrix, fires execution matrix, decision support matrix, and a logistics status report (LOGSTAT).

Conduct Reconnaissance and Security and Employ Veterans

What reconnaissance should you conduct to confirm or deny? If we follow the other fundamentals, then our reconnaissance should focus on answering the questions of what has changed in the environment.

What risk to reconnaissance elements are you willing to accept? Leader’s reconnaissance prior to an objective risks losing surprise and committing the entire element early. Is it worth it and how should you mitigate? Please do not say, “if we are compromised, run to the objective to save us.” Any ongoing operation that requires a change will undoubtedly put the unit into a precarious position requiring balance between security and momentum. How are you securing your unit while you plan and implement the changes?

Reconnaissance and security are premises that require little explanation, but what about employing veterans? Some people call a veteran’s contribution “intuition” or maybe the “foresight” to know whether to fight or reposition. In many battles, the veterans amongst the leaders and those intertwining the formation increase the speed of decision and action because they apply the depth of their training and experience. In a few units, we applied this beyond just the battlefield to veterans and experts in maintenance just as much as in warfighting. We had a specialist who knew the wiring of an M88 engine better than any person in the unit and a sergeant who understood fluids

movement more than any other. We used those experts to help us diagnose problems in garrison motor pools and reassigned them to the unit maintenance collection point to impact more vehicles across the formation. What veterans or experts should you send to control the transition or the security while your unit plans?

Issue Guidance Through One Of Three Types of FRAGORDs – Routine, Immediate, and Dynamic

When issuing a fragmentary order (FRAGORD), they usually fall into one of three categories. Units publish Routine FRAGORDs in accordance with their battle rhythm and enclose things from the staff within the acceptable planning horizon established by the commander or operations officer. In garrison at the 1st Infantry Division, the standard at the time was that anything from the division headquarters published within two weeks required the Commanding General’s approval

and that anything within four weeks published by brigades required their brigade commander’s approval. Anything that fell within those planning horizons qualify for the second type of FRAGORD: Immediate. These tasks should include a phone call from the higher headquarters to the subordinate headquarters as a warning order once the operations officer decides who should be tasked.

The staff then develops the FRAGORD and publishes after the commander’s approval. In exercises, anything published by the brigade within 24 hours of execution required this same process. The last type is a Dynamic FRAGORD in which the whole plan needs a significant adjustment. These usually include pulling in the entire planning staff and creating a large adjustment to the plan. Knowing the procedures for publishing the three types of FRAGORDs will increase the speed of information dissemination and efficiency of the operations process for input from the staff. Units can apply this same method to issuing orders on FM or digital mediums. Applying

Figure 5. U.S. Army Soldiers and a Bradley Fighting Vehicle cautiously advance into a bunker area. (U.S. Army photo by CPO Edward Martens)



Fundamental #2 to understand the authority to make decisions must be incorporated into who makes the decision and how the unit disseminates. Does the person manning the computer system and issuing instructions in the “chat” have the authority? Do the subordinates have trust that the instructions to change came from the approval authority?

Distribute Adjusted Graphics That Incorporate Bottom-Up Feedback

How does your unit encourage and control collaboration for refinement of the operation? The process itself may greatly determine how well the unit plans during execution. In many operations, the reconnaissance yields important information which units should then use to adjust their plan within these fundamentals. Do not limit the information collection to reconnaissance units; the infantry company’s report on civilian traffic through the engagement area or the brigade support battalion’s report on trafficability of routes or security of the brigade support area will affect several units and may adjust the plan. Each unit should have a cut off for good ideas and graphic creation prior to line of departure (LD). After LD and as units adjust locations of activities like support by fire, I recommend that company level units and above make graphic changes over the primary and alternate digital systems and redistribute with a receipt acknowledgement by the subordinate units. Changes discussed in chat rooms must transfer to announcements on the current operations floor and to distributed common operating fighting products. Units can reduce the changes to graphics by creating a series of graphic control measures, such as check points, phase lines, and position areas for artillery (PAAs) at the beginning which enable subordinates to shift quickly instead of making new graphics. Units also distribute the amount of change or its shock on planning or coordination by discussing the operations that will happen over the next several days iteratively in battle rhythm meetings.

Change In Operations Is Not Instantaneous or Magic

The farther down the totem pole you are, the slower the information gets to you and the more people that added to the telephone game. However, the proliferation of systems that allow higher headquarters to view the activities of very low-level tactical units often allows a division level or higher to see things at a higher level of clarity than the company commander receiving reports from platoon and section leaders.

Division G3 & G5 shops sometimes make drastic changes to locations of actions or the types of actions units execute within 24 hours of execution. The time it takes to make the adjustment typically eclipses any ability for subordinate units to put into place the proper shaping or supporting effort to achieve the tasks directed. If this is true in your unit’s environment, how does your unit provide subordinates a balance of time to react and the right level of control? A way for units to reduce the number of voices in the helicopter stack from discussing actions by the PL on the ground is for each echelon to focus on the assets they provide to subordinates and the authorities constrained to their headquarters. A division commander once told a group of company commanders to do the things that only they had the authority to do first and delegate from there to subordinates. He learned how to do this well out of necessity because initially he spent most of his day as a battalion commander focused on actions which were the company commanders’ requirements and that the company commanders were stuck doing items that should be done by PLs. Enforcing the discipline within the commands and staffs at echelon to solve the problems that only their echelon can approve, to provide recommendations to higher headquarters on actions at their level, and to provide the assets and synchronization for subordinates to execute will greatly reduce the amount of time multiple echelons spend solving problems that should be solved by a different headquarters.

The survival of your plan after first

contact will require some adjustments, but total loss is preventable through application of these few fundamentals and with practice. Our doctrine outlines the need to make these decisions during execution and divides them into execution and adjustment decisions. The fundamentals of planning during execution I described in this article constitute aggregation of lessons learned on staff at battalion, brigade, and division levels. If you train repetitions of these fundamentals such that your team employs them routinely and well, then your organization will better understand how to inform and control adjustment decisions.

My hope is that the many intelligent and experienced leaders that may read this article will find improved ways to adjust a plan during execution and that you and your team share the results of your discussion so we all improve planning during execution.

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NOTES

1 Mary Shelley, *Frankenstein* (Grapevine, TX: Grapevine Books, 2025), Kindle edition.

2 Department of the Army, Planning and Orders Production, FM 5-0 (Washington, DC: Army Publishing Directorate, 2022 [or 2025]), 3-1.

3 Department of the Army, FM 5-0, 3-2.

4 L. J. Barta, “Commander Decisions,” in *Leader Development in Contact*, ed. National Training Center (Fort Leavenworth, KS: Center for Army Lessons Learned, 2021), 35.

Building Battalion-Level sUAS Proficiency through Scalable sUAS Competitions

by CPT Bliss H. Chinchon and LTC Gary M. Klein

There is little doubt that unmanned aerial systems (UAS) are having and will continue to have a profound impact on military operations. However, the full extent of these impacts has likely not been realized as most observations to date have taken place in relatively static and defensive combat environments. To continue driving this evolution, military practitioners must experiment and build expertise integrating UAS operations into combined arms warfare.

At the battalion-level and below, UAS operations require a combination of technical expertise and tactical acumen, and commanders have an obligation to develop training techniques that drive expertise in both domains. This article documents the 5th Squadron, 4th Cavalry Regiment's (5-4 CAV) first UAS competition, which focused on technical standards and expertise, while the squadron developed its tactical acumen by integrating UAS training objectives into collective training events such as platoon and troop situation and live fire training exercises. There is still much to learn, but the authors hope this article helps other leaders' endeavors to build and integrate UAS expertise into combined arms operations.

To build small UAS (sUAS) training capability at the battalion level and below, 5-4 CAV, 2nd Armored Brigade Combat Team (ABCT), 1st Infantry Division at Fort Riley, Kansas directed a

team of service members to design and execute a squadron sUAS competition using organic assets at the troop level. As part of the initial planning process, the team conducted a leader's reconnaissance at the Kansas State University (KSU) Salina campus to learn about existing academic and commercial UAS programs, standardized test methods, and sUAS evaluation frameworks. Based on this reconnaissance, the team selected the National Institute of Standards and Technology (NIST) testing model as the foundation for a scalable, internally resourced competition.

The purpose of this article is to share the development process, execution, and lessons learned to inform future unit-level competitions and decentralized sUAS training programs. By using the practical framework in this article, units can accelerate the timeline and reduce uncertainty associated with building an effective sUAS training program by refining from this starting point.

The driving force behind the competition was the desire to encourage and focus decentralized sUAS training at the troop and platoon level, coupled with the necessity to build internal training capacity that can mature into more advanced skills. As sUAS employment continues to proliferate across

formations, operator readiness at the lowest echelons has become a decisive enabler.

During initial planning, the commander's intent was to develop a competition that was fair, repeatable, and challenging across varying operator skill levels. The competition was deliberately modeled after the NIST, a recognized external authority, to enable credibility, standardization, and scalability. At its core, the competition aimed to build proficiency with organic sUAS assets, increase familiarity with Black Hornet system capabilities, and foster esprit de corps through healthy competition between troops.

Personnel from KSU Salina provided the squadron with multiple NIST products to support development. The primary reference was *Tests and Scorable Scenarios for Evaluating Drone Capabilities and Remote Pilot Proficiency in Open, Obstructed, and Confined Environments (Levels 1–5)*.¹ In addition, a NIST pamphlet detailing materials required for lane fabrication was used to guide resourcing.² These materials allowed the team to develop replicable components and establish the overarching concept: an open-environment omni-bucket lane paired with a confined-environment obstacle lane, both modified to reflect military relevance.



U.S. Army photo by SGT Joseph Liggio

Specific inspiration was drawn from the Level 3 Open Test Lane and Level 5 Confined Test Lane. A central feature of the Level 3 lane is the omni-bucket configuration which is a four-leg stand supporting five attached two-gallon buckets as seen in Figure 1. Each bucket contains an image used to assess aircraft stability, camera capability, and operator precision.³ Operators must

align the aircraft to view the entire image without obstruction from the bucket edge. The configuration is scalable, allowing for varied altitudes and execution in indoor or outdoor environments. The Level 5 lane applies similar principles in a confined space, increasing the demands on maneuvering and controlling the sUAS.

NIST also provided a recommended scoring methodology and example score sheets, which were adapted for squadron use.⁴ Scoring emphasized proper alignment, correct image identification, and completion within prescribed time limits.

To further align the competition with military tasks, the team developed a few additional components: preventive maintenance checks and services (PMCS), vehicle identification (VID), and a written knowledge examination covering system operation and applicable regulations.

Several constraints unique to the Black Hornet required deliberate consideration. Battery life is limited, camera resolution is low, aircraft stability is sensitive to control inputs, and environmental factors such as lighting, wind, and weather significantly affect performance. These limitations informed both event design and scoring expectations.

Event Development

The competition consisted of four scored events: the basic flight test, confined flight test, PMCS test, and knowledge test. Each team was comprised of two personnel who alternated roles as operator and assistant operator. Both members executed all flight tests, with one operating the sUAS while the other observed and provided safety oversight and directional guidance. Operators were required to face away from the flight area and rely solely on the system display, while assistant operators maintained visual contact with the aircraft.

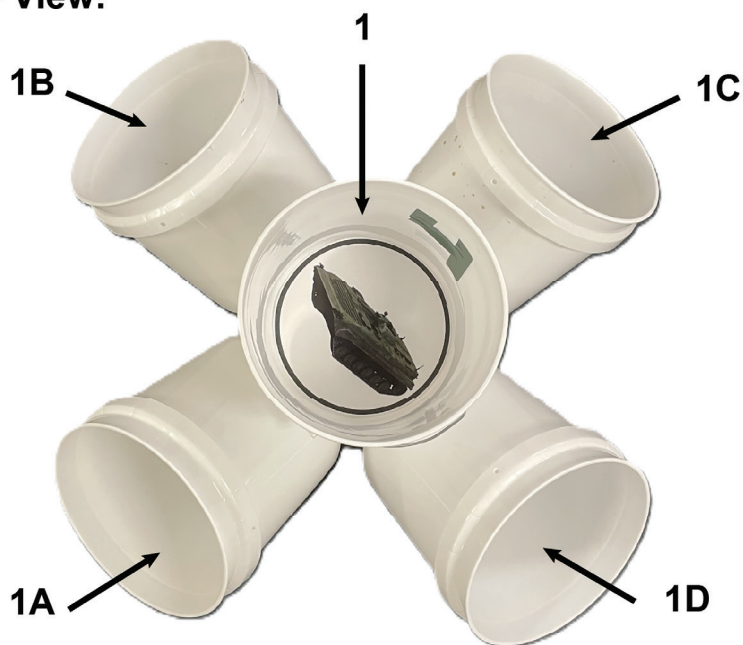
The purpose of the basic flight test was to assess operators' ability to maneuver with precision and conduct VID under controlled conditions. The lane consisted of four omni-bucket stands, four distinct flight paths, and twenty images to identify. Materials for lane construction were resourced through government purchase card (GPC) and Class IV (CLIV) acquisition and assembled using basic hand tools. VID images were sourced from the squadron master gunner's VID materials, digitally modified with a thick circular border, and affixed to the bottom of each bucket.

Figure 1.

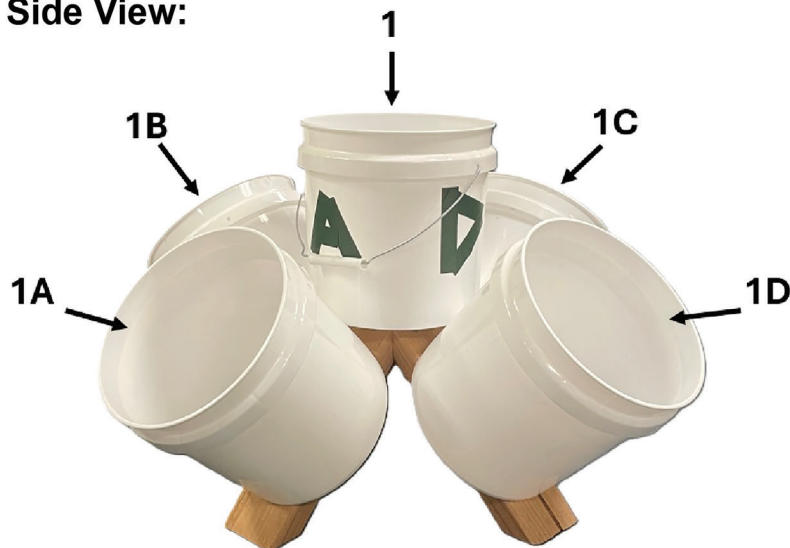
Top Image: Physical omni-bucket stand used during competition execution. *(Photo from author)*

Bottom Image: Omni-bucket stand diagram illustrating bucket orientation and relative positioning for evaluation. *(Photo from author)*

Top View:



Side View:



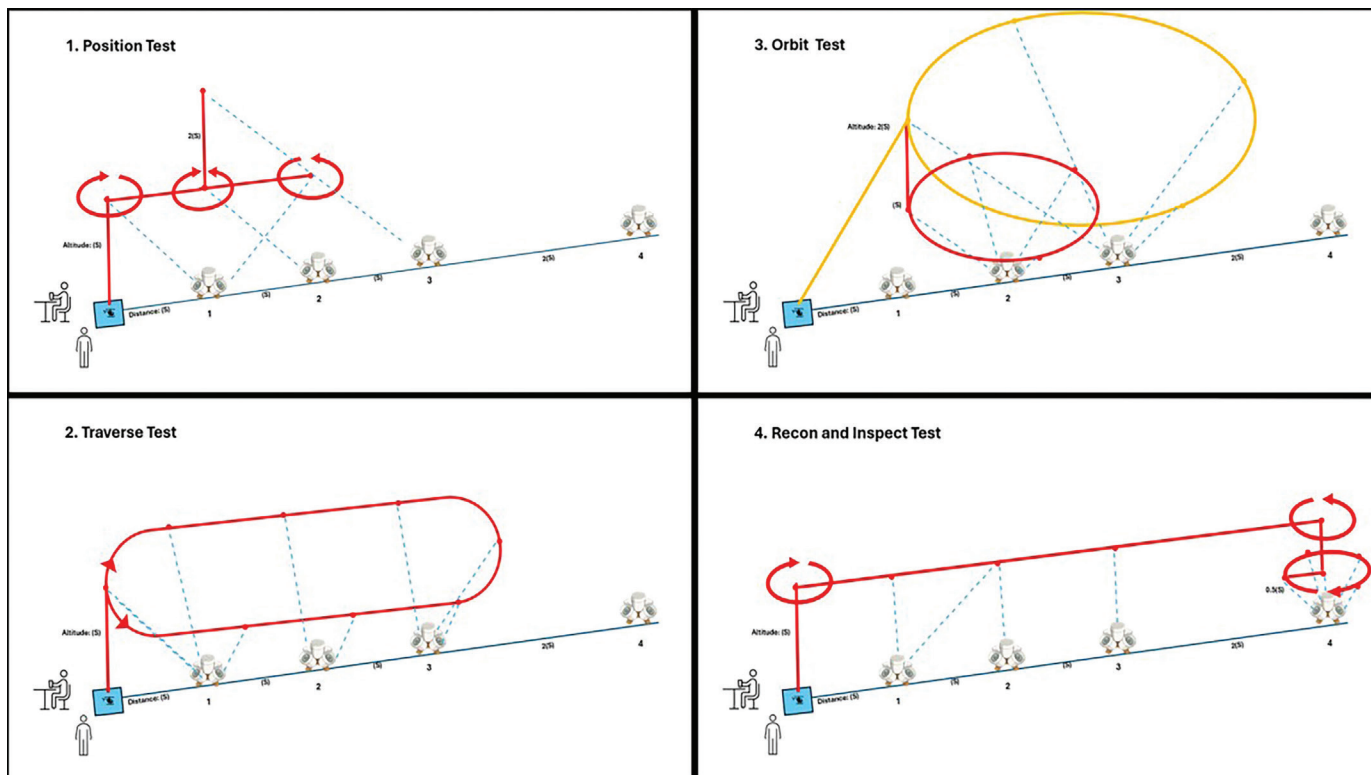


Figure 2. Overview of the four flight paths comprising the basic flight test: Position, Traverse, Orbit, and Recon and Inspect. (Figure by author)

Event difficulty was deliberately calibrated to match Black Hornet capabilities and average operator proficiency, resulting in four flight paths that progressively increased in complexity. Standardized flight terminology such as climb, descend, yaw, pitch, and roll were adopted from NIST to ensure common language.

The four flight paths (Figure 2) included:

- Position Test: Basic hover and orientation control along the lane centerline.
- Traverse Test: Lateral movement parallel to the centerline while identifying images.
- Orbit Test: Circular orbits around bucket stands at varying altitudes.
- Recon and Inspect Test: A condensed combination of straight-line movement and low-altitude inspection.

The confined flight test replicated maneuvering in complex, enclosed environments. Conducted in a small conference room, the lane used tables, chairs, and repurposed cardboard boxes as obstacles as seen in Figure 3. Ten images of friendly and enemy

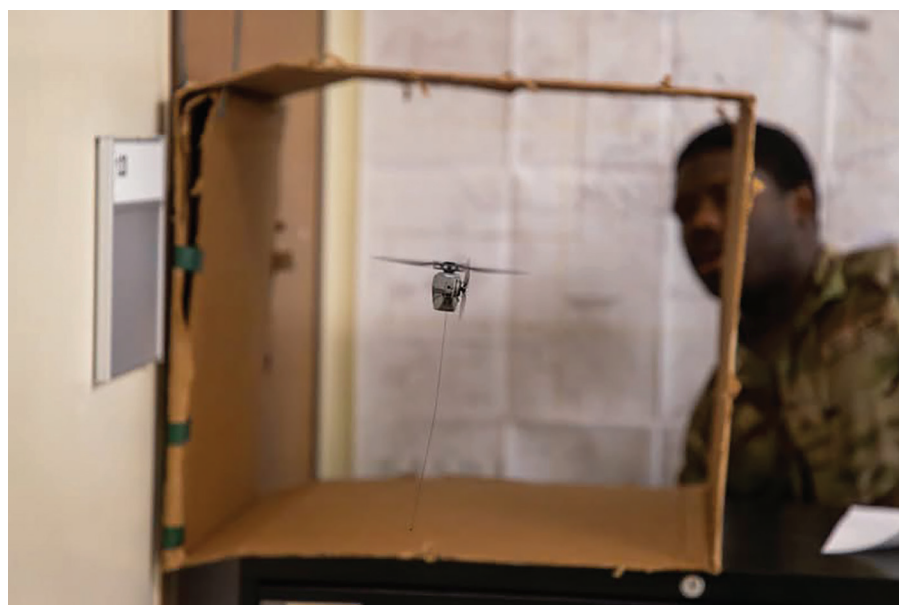
equipment were placed throughout the lane for identification.

Resourcing for the confined flight test was low-cost, but safety planning was critical due to the increased likelihood of aircraft collision. Protection of personnel and equipment drove obstacle placement and evaluator positioning.

The PMCS test was a verbal and hands-on assessment of operator knowledge of system maintenance, nomenclature, and component location. Operators could use and were expected to reference applicable technical manuals to reinforce PMCS standards.

The knowledge test evaluated

Figure 3. Black Hornet sUAS navigating an obstacle during the confined flight test. (U.S. Army photo by 1st Infantry Division Public Affairs Office)⁵



understanding of system capabilities and regulatory requirements. Source material included concepts from Federal Aviation Administration (FAA) Part 107, Fort Riley Range Operations regulations, and Black Hornet technical documentation.⁶ An artificial intelligence tool was used to generate multiple-choice questions from extracted information, which were then reviewed and refined by the team.⁷ The team distributed study materials in advance.

Training, Preparation, & Finalizing Competition Structure

Following event development, the team produced a detailed concept of operations to communicate intent, standardize execution, and manage expectations across the squadron. Open training windows were provided, granting operators access to the omnibus lanes for self-directed practice.

During this period, evaluators were trained and certified through rehearsal runs using a non-competing novice

team. These rehearsals allowed competition designers and evaluators to log completion times, identify friction points, refine scoring, and validate that the competition was executable yet challenging.

During the finalization of the competition structure, the team refined the rules and guidance governing the two flight tests. These rules were designed to ensure fairness, safety, and repeatability across competing teams. Specific rules included a five-minute time limit per flight path, standardized parameters for proper take-off and landing, consequences for improperly executed maneuvers, and procedures for addressing challenges or discrepancies through evaluators and the competition officer in charge (OIC). All rules and guidance were codified in a written document accessible to all teams and were also briefed prior to execution to ensure shared understanding and enforce common standards between troops.

Scoring documents and rubrics for the basic and confined flight tests were modelled after NIST examples, with

deliberate adjustments made to account for modified flight paths, integration of VID tasks, and the average operator skill level within the squadron. The PMCS test and knowledge test were developed specifically for the Black Hornet system and organic equipment available to the troops. The PMCS rubric consisted of all required steps outlined in the Black Hornet technical manual, while the knowledge test served as a baseline assessment of operator understanding of system capabilities, safety, and regulatory considerations. Scoring was weighted to primarily favor execution of the basic flight test as it assessed core flight control, maneuver execution, and VID skills required of all sUAS operators. The PMCS and knowledge tests assigned lower weight as foundational safety and knowledge checks. The confined flight test was also assigned a lesser weight due to its lower assessed warfighting relevancy, while still contributing to overall scoring because of its assessment of advanced technical skills.

Competition design was informed by

Figure 4. Event timeline for the sUAS competition, outlining the sequence of setup and evaluations.

Timeline			
25 JUN 25	Task	Audience	Location
0830	Competition Set Up	Staff	COF
0900	Team Accountability and Standards Briefing	All	COF
0930	Knowledge Test	All	Test Room
1000	PMCS Test	All	COF
1030	Team 1 Basic Flight Test	Team 1	COF
1130	Team 1 Confined Flight Test	Team 1	Conference Room
1130	Team 2 Basic Flight Test	Team 2	COF
1230	Team 1 Complete	Team 1	
1230	Team 2 Confined Flight Test	Team 2	Conference Room
1230	Team 3 Basic Flight Test	Team 3	COF
1330	Team 2 Complete	Team 2	
1330	Team 3 Confined Flight Test	Team 3	Conference Room
1430	Team 3 Complete	Team 3	
1500	Ranking Finalized and Winners Announced	All	COF

the operational limitations of the Black Hornet, particularly battery life, and time constraints were deliberately structured to be achievable for each operator while still imposing decision-making pressure. Flight runs required efficient maneuver execution and deliberate planning, creating a time-induced stressor reflective of operational conditions. Throughput analysis and observed execution times informed the overall competition timeline, and the structure facilitated efficient flow by incorporating multiple stations with trained evaluators.

Execution of Competition

On the day of the competition, the OIC, evaluators, and designated setup and tear-down personnel established all testing lanes and administrative areas. Separate areas were cordoned for each component of the competition to prevent interference between events, and evaluators were assigned specific tests to ensure consistency in scoring. Competing teams arrived no later than the designated report time and were marked present on a previously established roster.

All competitors received a standardized safety brief from the OIC, followed by a detailed brief covering competition flow, timelines as seen in Figure 4, rules, maneuver language, and evaluator expectations for each event. To

reduce ambiguity, the OIC and evaluators demonstrated select maneuver terminology, such as pitch, yaw, roll, and orbit, to ensure operators shared a common understanding of required actions. Upon completion of the briefings, all competitors completed the written knowledge test in a controlled environment, with seating arranged to prevent collaboration. Completed tests were collected and taken to a separate location for scoring.

Following the knowledge test, teams rotated through the PMCS test. Each team was assigned an evaluator and team members completed the PMCS individually while the other member stood clear. This test served both as a scored event and as an equipment verification step prior to flight execution, ensuring systems were operational and properly configured.

The basic flight test followed the PMCS test and represented the most time-intensive portion of the competition. Both operators in a team were required to complete the basic flight test as seen in Figure 5. Each operator required around 30 minutes to execute all flight paths, including administrative transitions, resulting in a total execution time of approximately one hour per team. Upon completion, teams moved directly to the confined flight test while the next team began the basic flight test, allowing multiple lanes to operate concurrently.

The confined flight test was the final flight test and required no more than five minutes of flight time per operator, though administrative time varied. When operators crashed their Black Hornet, the test clock stopped and resumed once the system was recovered and recalibrated. In some instances, crashes caused components to detach, requiring additional maintenance time. Operators who avoided crashes generally completed the test more efficiently, reinforcing the importance of precision and control.

Both flight test rubrics were scored in real time as operators executed each lane and completed score sheets were consolidated into individual packets. At the conclusion of all events, the OIC compiled individual and team scores across all categories to determine overall rankings, the winning team, and top-performing operators.

Several factors impacted throughput and performance during execution. Teams with only one operational Black Hornet experienced delays, as operators could not execute consecutive flight paths without system reset or battery changes. Disparities in operator skill level and system familiarity influenced both completion times and scoring opportunities, particularly during the confined flight test where less experienced operators crashed more frequently and were unable to complete the full flight path. This was due

Figure 5. A Black Hornet sUAS operator navigating the basic flight test inside a troop/company operations facility. (U.S. Army photo by 1st Infantry Division Public Affairs Office)⁸



to repeated crashes that rendered their sUAS systems temporarily non-operational or required longer maintenance and recalibration. In other instances, operators elected to terminate their confined flight test after limited progress on previous runs, recognizing they had insufficient time to advance further with the time remaining. VID knowledge and familiarity with equipment also affected scoring outcomes.

One of the most significant performance differentiators observed during the confined flight test was communication between operators and assistant operators. Teams that communicated clearly and efficiently were more successful at maintaining flight paths, avoiding crashes, and maximizing scoring opportunities. Evaluators noted that poor assistant operator guidance often resulted in missed alignments, increased crashes, and extended execution times.

Environmental conditions further influenced performance. The Black Hornet's limited camera resolution, combined with inconsistent lighting and shaded VID images within the omnibuckets, challenged operator VID. Additionally, not all systems provided the same image quality, whether due to hardware variation or lens cleanliness, which contributed to disparities in operator performance.

Lessons Learned

The use of the NIST model as a baseline for lane construction and scoring proved to be one of the most effective aspects of competition development. The framework was easily adapted to training constraints, timelines, and organic equipment limitations while still providing a standardized and objective structure. Once constructed, the omnibucket lanes and associated scoring rubrics were highly replicable, enabling future competitions to be executed with minimal additional resourcing. During execution, codified rules and evaluator training minimized subjectivity and resulted in consistent, untested scoring across all teams.

The competition also established measurable performance benchmarks for operators and teams, creating clear

training objectives beyond routine sustainment tasks. Operators consistently reported that the events were challenging yet achievable, which increased motivation and reinforced deliberate practice. The competitive environment incentivized improvements in technical proficiency, system familiarity, and crew coordination.

Several areas for improvement were identified. The absence of standardized operator training prior to the competition resulted in uneven baseline understanding of maneuver terminology and control inputs. While mitigated through demonstrations and evaluator guidance, this disparity affected execution efficiency and scoring potential. Future iterations would benefit from baseline maneuver training to establish a shared foundation across operators.

Equipment readiness emerged as another key factor. Battery availability, reliance on a single sUAS system per team, and inconsistent camera cleanliness reduced throughput and limited scoring opportunities. Additionally, limited camera resolution affected VID performance, particularly when imagery was poorly illuminated.

Finally, the competition highlighted both the potential and limitations of expanding to other sUAS platforms. While feasible, larger sUAS require larger airspace and infrastructure demands (if seeking to test indoors) which likely increase planning and logistical demands. The Black Hornet's small size and safety requirements allowed the competition to be executed within a company operation facility (COF). Expansion to larger sUAS platforms, such as the RQ-28, would require a warehouse or aircraft hangar to provide more airspace to safely maneuver.

Future Opportunities

To move beyond assessing basic technical capabilities, the squadron plans to increase the combined arms realism of future sUAS competitions. Future competitions may include outdoor reconnaissance scenarios that more closely mirror tactical employment, incorporate terrain masking, longer flight profiles, and environmental factors.

System degradation can also be introduced by restricting visual observation of the aircraft, simulating global positioning system-denied environments, or requiring operators to rely solely on sensor feedback (e.g. observer, one way attack, and first-person viewer drones). More advanced iterations may include multi-aircraft operations, increased time pressure, or stressors designed to replicate operational decision-making under constrained conditions. Opportunities also exist to integrate sUAS operations into combined arms scenarios, linking aerial reconnaissance with ground maneuver, fires, or aviation elements.

This competition framework can also be institutionalized as a recurring skill certification tool. Battalions or troops may use the competition for annual or semi-annual operator validation, providing leaders with a standardized method to assess proficiency and readiness. Additionally, leaders can use competition results to assess and identify high-performing operators for advanced sUAS training programs or more complex sUAS systems. At the troop or battalion level, the competition can function as a sustainment training indicator, highlighting gaps in training, equipment readiness, and crew coordination.

5-4 CAV's successful execution of this sUAS competition demonstrates the potential for institutionalization and knowledge transfer between the military, academic, and other organizations. Units may formalize procedures through a standing operating procedure (SOP) for quarterly or annual competitions, ensuring continuity despite personnel turnover. This competition model also enables collaboration with adjacent units, higher echelons, or civilian sUAS training institutions to expand training depth and exposure. Over time, this framework can support the development of a scalable, decentralized sUAS training program that continuously advances operator proficiency and tactical employment.

Decentralized sUAS training at the troop and platoon level is no longer optional. Operator proficiency with organic systems is a force multiplier that directly contributes to readiness in large-scale combat operations. The

successful execution of 5-4 CAV's first internal sUAS competition demonstrates how units can take ownership of training, innovate within constraints, and build sustainable proficiency from the ground up. This competition represents a starting point, not an endpoint, for continued refinement and advancement of sUAS training across the U.S. Army.

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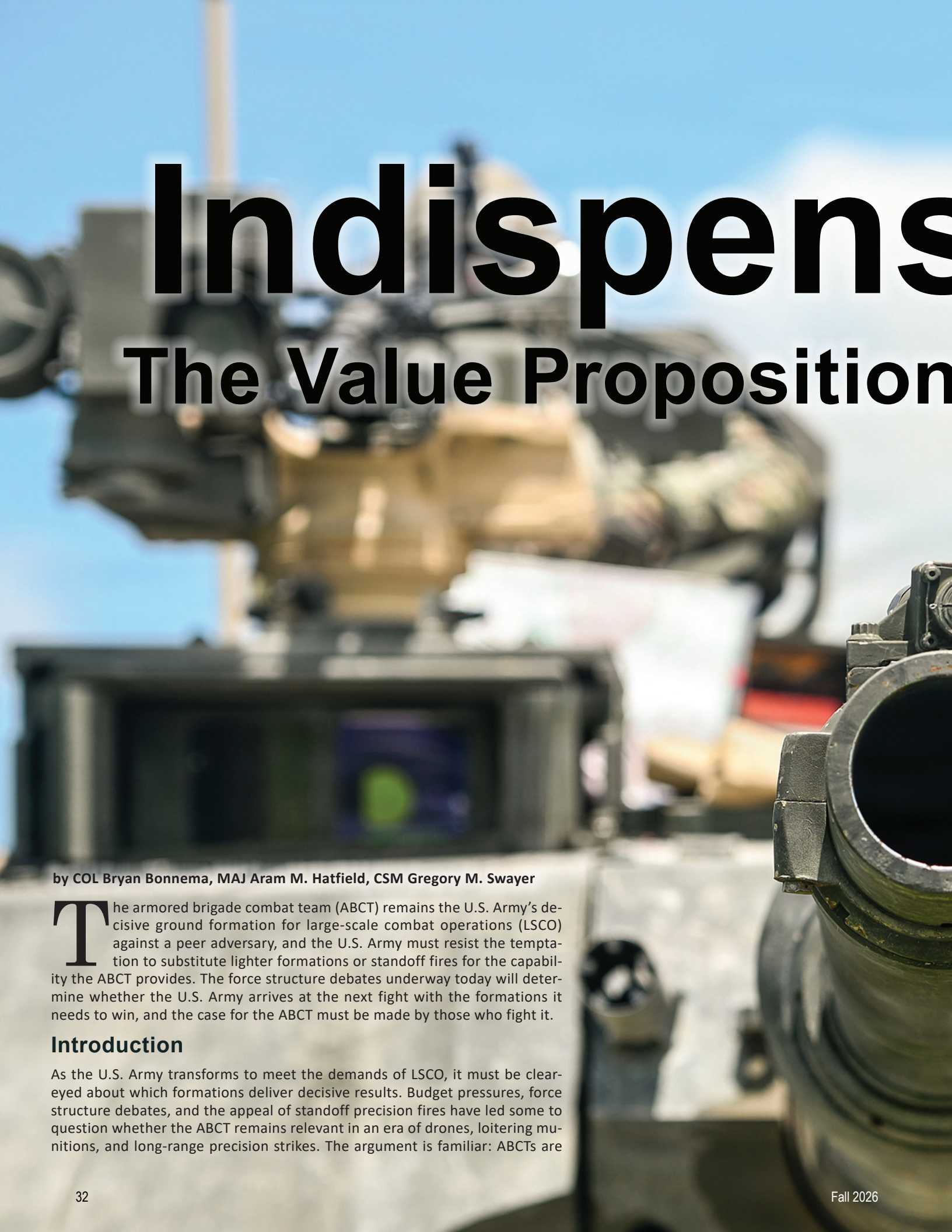
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Figure 6. A First Team Trooper assigned to 1st Battalion, 8th Cavalry Regiment, 2nd Armored Combat Brigade, 1st Cavalry Division, observes the C100 sUAS as it conducts load-bearing testing using concertina wire. (U.S. Army photo by SPC Julian A. Winston)





Indispensable

The Value Proposition

by COL Bryan Bonnema, MAJ Aram M. Hatfield, CSM Gregory M. Swayer

The armored brigade combat team (ABCT) remains the U.S. Army's decisive ground formation for large-scale combat operations (LSCO) against a peer adversary, and the U.S. Army must resist the temptation to substitute lighter formations or standoff fires for the capability the ABCT provides. The force structure debates underway today will determine whether the U.S. Army arrives at the next fight with the formations it needs to win, and the case for the ABCT must be made by those who fight it.

Introduction

As the U.S. Army transforms to meet the demands of LSCO, it must be clear-eyed about which formations deliver decisive results. Budget pressures, force structure debates, and the appeal of standoff precision fires have led some to question whether the ABCT remains relevant in an era of drones, loitering munitions, and long-range precision strikes. The argument is familiar: ABCTs are



able Iron

of the ABCT in LSCO

U.S. Army photo by 1SG Luisito Brooks

too heavy, too expensive, too hard to sustain, and too slow to deploy. Lighter, cheaper formations augmented by precision fires and autonomous systems can achieve the same effects at lower cost.

This argument is wrong. It confuses the ability to strike with the ability to win. Precision fires can degrade an enemy. Only combined arms maneuver can destroy them. Standoff weapons can deny terrain. Only ground forces can seize, retain, and hold it. Lighter formations can deploy faster. Only armored formations can survive the fight that waits on the other end of the deployment.

The ABCT is not a legacy of a bygone era: it is the formation the future demands. No other formation in the U.S. Army's inventory delivers the combination of lethality, survivability, speed, and endurance required during LSCO.

Combined Arms Maneuver

The ABCT is the U.S. Army's premier combined arms maneuver formation. It integrates tanks, infantry fighting vehicles, engineers, reconnaissance, and

sustainment into a single brigade-level formation capable of closing with and destroying the enemy through the synchronized application of fire and maneuver. Field artillery, while no longer organic to the ABCT, typically supports the brigade in a direct support relationship and integrates fully into the combined arms scheme.

LSCO against a peer adversary will ultimately require forces that can close with the enemy and destroy them in close combat. Joint fires and long-range precision munitions can shape the battlefield, degrade enemy systems, and create windows of opportunity. But fires alone cannot collapse an enemy defense, clear an urban area, seize a river crossing, or hold terrain against a determined counterattack. These missions require combined arms maneuver, and the ABCT is the formation purpose-built to execute them.

The integration of arms within the ABCT makes this possible. Reconnaissance finds the enemy and develops the situation. Tanks provide direct fire overmatch and shock effect. Infantry fighting vehicles deliver dismounted infantry to clear complex terrain and protect the flanks. Direct support artillery provides responsive indirect fires. Engineers breach obstacles and

maintain mobility. Sustainment keeps the formation in the fight. The combination of all systems, synchronized in time and space against a degraded enemy, collapses the defense.

History validates this principle. During Operation Desert Storm, VII Corps executed one of the most decisive combined arms maneuver operations in modern warfare. After coalition air power spent 38 days degrading Iraqi forces, VII Corps' armored divisions attacked through the Iraqi defense in depth. At the Battle of 73 Easting on 26 February 1991, CPT H.R. McMaster's Eagle Troop, equipped with M1A1 Abrams tanks and M3 Bradley Fighting Vehicles (BFVs), destroyed an Iraqi brigade-sized defense in 23 minutes, killing more than 30 tanks and 20 other armored vehicles without losing a single American soldier.¹

Critics will note that 73 Easting was fought before the proliferation of armed unmanned aerial systems (UAS), precision strike, and contested electromagnetic spectrum (EMS) that define today's battlefield. That observation misses the enduring lesson. The principle is not specific to the M1A1 or the conditions of 1991. When joint and combined effects degrade an enemy system, and when an armored

combined arms force exploits faster than the enemy can react, the result is decisive destruction at minimal cost. That principle is more relevant in 2030, not less. The future battlefield will see longer-range fires, better sensors, and faster decision cycles, all of which will degrade enemy systems more thoroughly than coalition air power did in 1991. The ABCT, augmented with robotic combat vehicles, AI-enabled targeting, and counter-UAS (CUAS) protection, is the only formation built to exploit at the speed and lethality the future fight requires.

Outsized Lethality

An ABCT brings disproportionate lethality to the battlefield relative to any other brigade combat team. A single ABCT fields more than 200 armored combat vehicles capable of delivering devastating direct fire while surviving enemy fires that would destroy lighter platforms. Each maneuver battalion maintains its own organic mortar capability, providing immediately responsive indirect fires under the direct control of the battalion commander. Direct support Paladin howitzers, when habitually aligned with the brigade, provide responsive indirect fire support from self-propelled, armored platforms that can displace rapidly.

Figure 1. U.S. Army Soldiers assigned to Charlie Company, 1st Battalion, 36th Infantry Regiment, 1st Armored Division, zero their M1 Abrams tank's sighting system during gunnery training operations at Novo Selo Training Area, Bulgaria, May 30, 2026. (U.S. Army photo by SPC Thomas Madrzak)



Emerging capabilities such as one-way attack munitions and launched effects further extend the brigade's lethality beyond the range of direct fire systems.

This lethality is synergistic, not merely additive. The combination of direct fire from tanks and BFVs, indirect fire from supporting artillery and organic mortars, and precision effects from UAS and one-way attack munitions create multiple simultaneous dilemmas the enemy cannot solve.

Compare this to the lethality of a Stryker brigade combat team (SBCT). An SBCT brings Stryker vehicles with medium-caliber weapons and towed howitzers. An SBCT fights effectively in situations requiring rapid deployment and operational mobility, but it cannot generate the volume, range, and lethality of direct fire that the ABCT delivers. In a direct fire engagement against a peer armored force, the SBCT is at a significant disadvantage. The ABCT is the only formation designed to win that fight.

The ABCT's lethality also compresses the timeline of decisive action. When the enemy has been degraded by joint fires, electronic warfare, and reconnaissance, the ABCT's combined arms attack destroys the enemy's remaining combat power so rapidly that the enemy cannot recover. Lighter formations can attack a degraded enemy, but they cannot generate the same rate of destruction. The ABCT's lethality shortens the decisive engagement and prevents the enemy from recovering between operations.

Seize, Retain, and Hold Terrain – the ABCT's Primary Mission

Standoff fires can deny terrain. Only ground forces can seize, retain, and hold it. Theodore Reed "T.R." Fehrenbach captured this truth in *This Kind of War* when he wrote: "You may fly over a land forever; you may bomb it, atomize it, and wipe it clean of life—but if you desire to defend it, protect it, and keep it for civilization, you must do this on the ground, the way the Roman Legions did—by putting your Soldiers in the mud."² Fehrenbach wrote those



Figure 2. U.S. Soldiers assigned to 2nd Armored Brigade Combat Team, 1st Infantry Division dismount a Bradley Fighting Vehicle during Rotation 24-11 at the National Training Center, Fort Irwin, Calif., Sept. 18, 2024. (U.S. Army photo by SPC Jeffrey Garland)

words in 1963, and they have only grown more relevant as the temptation to substitute technology for ground combat power has grown stronger. Standoff fires impress. Drones impress. Precision strikes impress. None of them hold terrain. Soldiers do, and the formation that puts the most capable Soldiers into the mud, with the firepower and protection to stay there, is the formation that wins. In LSCO, control of terrain remains essential for forward operating bases, logistics nodes, airfields, river crossings, and communication hubs.

The ABCT is the formation best suited to seize terrain against a defending enemy because it combines the firepower to suppress and destroy the defense, the protection to absorb the defender's fires during the assault, and the mobility to maneuver rapidly to

exploit gaps. Once terrain is seized, the ABCT's armored platforms provide the protection and firepower needed to retain it against counterattack. The ABCT's sustainment depth allows it to hold terrain for extended periods while follow-on forces consolidate.

A mobile brigade combat team (MBCT) can seize terrain, but its lack of armored protection means it suffers disproportionate casualties during the assault, particularly against a peer adversary with integrated fires. The MBCT cannot retain terrain against an armored counterattack with the same confidence as the ABCT, because it lacks the direct fire overmatch to defeat enemy armor at range.

Terrain seized by the ABCT stays seized. The same firepower and protection that enabled the assault are

immediately available to defeat counterattacks, repel infiltration, and hold the position until follow-on forces consolidate. This continuity of capability is something only an armored formation can deliver.

Survivability and Resilience

The ABCT is the most survivable formation in the U.S. Army. The M1 Abrams and M2 BFVs provide levels of protection against direct fire, indirect fire, and fragmentation that no other platform in the brigade combat team inventory can match. This protection extends to the supporting Paladin howitzer, which operates from an armored, self-propelled platform rather than the towed systems found in other BCT fire support packages.

Survivability has operational consequences that extend far beyond individual engagements. A formation that survives engagements retains combat power. A formation that retains combat power can sustain operations over time. A formation that sustains operations over time maintains tempo and prevents the enemy from recovering. This is the logic of resilience: the ability to absorb punishment and continue fighting. An MBCT or SBCT operating within a peer adversary's engagement area would suffer significant attrition from indirect fires and precision munitions before reaching the close fight. The ABCT's survivability allows it to fight through the enemy's deep fires, close with the defense, and retain enough combat power to consolidate and prepare for the next operation.

The 1973 Yom Kippur War illustrates the principle. The introduction of the modern anti-tank guided missile in significant numbers led many observers to declare the tank obsolete, and the same flawed reasoning is being applied to today's battlefield. Critics in 1973 looked at casualty figures from the opening engagements and assumed that any weapon capable of destroying tanks made tanks irrelevant. That logic ignored two realities. First, every weapon system on the battlefield can be destroyed by some other weapon system. Second, the response to a new threat is not abandonment of the affected platform but adaptation of how

that platform fights. Israeli armored forces adapted by integrating combined arms more tightly, employing infantry to suppress anti-tank guided missile (ATGM) teams, using artillery to neutralize launch sites, and developing better protection. The platforms that adapted, survived.³

The contemporary parallel is the war in Ukraine. The proliferation of first-person view (FPV) drones, top-attack munitions, and ubiquitous battlefield surveillance has led some commentators to declare the tank obsolete once again. Tanks are taking losses in Ukraine, but so is every other type of vehicle and dismounted formation. Where Russian and Ukrainian armored forces have employed combined arms, integrating infantry, electronic warfare, CUAS, and active protection systems with their tanks, they have continued to achieve effects that lighter formations cannot replicate. Where they have employed armor in isolation, they have suffered. The lesson is the same as 1973: the tank is not obsolete, but the requirement for combined arms integration is more important than ever. The future ABCT with active protection systems, organic CUAS, robotic combat vehicles, and tighter integration of dismounted infantry will be more survivable than the Israeli armor of 1973 and more capable of absorbing the punishment that contemporary battlefields deliver.

Speed and Shock

The ABCT delivers speed and shock effect that no other ground formation can replicate. M1 Abrams tanks and M2 BFVs can maneuver at speeds exceeding 35 miles per hour on roads and maintain significant speed cross-country. When armored forces move at speed against a degraded enemy, the psychological and physical effects are devastating. Defenders who have already been subjected to fires, electronic warfare, and reconnaissance pressure are suddenly confronted by a wall of armored vehicles closing rapidly and delivering overwhelming direct fire.

Shock effect is more than psychological. Speed compresses the enemy's decision cycle. A defender who has minutes to react makes worse decisions

than a defender who has hours. Speed reduces the defender's ability to shift forces, adjust fires, and coordinate a coherent response. An MBCT cannot generate the same speed. An SBCT can achieve operational mobility but lacks the firepower and protection to generate the same shock effect in close combat. The ABCT combines speed, firepower, and protection into a single formation that delivers shock no other ground force can match.

Prime Innovation Partner for Industry

A technology that works for an ABCT works everywhere. The ABCT is the natural integration platform for emerging technologies because robotic combat vehicles, autonomous logistics platforms, CUAS, one-way attack munitions, advanced sensors, launched effects, and AI-enabled targeting tools all find their most demanding application in the armored close fight. The ABCT provides the operational context that forces industry to develop solutions that work under the harshest conditions: high tempo, combined arms, contested electromagnetic spectrum, and direct fire contact. A CUAS that can protect an armored formation moving at speed in a contested environment can certainly protect a static logistics node. The ABCT is the hardest test case, which makes it the best development partner.

The 1st Armored Brigade Combat Team, 3rd Infantry Division, Raider Brigade, provides a current example. Raider Brigade is working with industry partners across a broad portfolio of emerging capabilities. AI-enabled planning tools are being evaluated to accelerate the military decision-making process and produce executable orders inside the enemy's decision cycle. Dismounted command and control systems are being tested to extend mission command beyond the armored vehicle and into the dismounted fight. CUAS capabilities are being integrated at both the dismounted and mounted level, including electronic warfare effects and hard-kill systems designed to defeat the FPV and loitering munition threats observed in Ukraine. FPV drones are being integrated into the brigade's organic strike and

reconnaissance capability. Drone swarm technology is being explored for reconnaissance, deception, and saturation effects. Autonomous breaching capabilities are being integrated through partnerships with the 20th Engineer Brigade's Sandhills Project, alongside small-UAS (sUAS) mapping systems that accelerate route reconnaissance and obstacle assessment.

Each of these technologies is being tested at the speed, tempo, and depth of an ABCT operation, providing feedback that no laboratory or simulation can replicate. The progression from controlled testing to brigade field exercises to a National Training Center (NTC) rotation creates a development pipeline that accelerates capability delivery to the force. The U.S. Army gets a return on its modernization investment measured in combat power rather than PowerPoint slides.

Deterrence

Forward stationed and rotational ABCTs provide a deterrence capability that no other formation replicates. The visible presence of heavy armored forces communicates capability and resolve in a way that standoff fires and light forces cannot. Deterrence requires that a potential adversary believes that aggression will be met with a force capable of defeating them. An ABCT forward stationed in Europe, Korea, or the Middle East communicates precisely that message. Tanks are visible, tangible, and unambiguous. They communicate commitment in a way that missiles, drones, and cyber capabilities cannot. Deterrence works only if the adversary perceives the capability and the will to use it. The ABCT provides both.

Addressing Criticisms

The ABCT is not without costs, and intellectual honesty demands that this

article address the criticisms directly. The most common criticisms fall into two categories: the resource demands of fielding and operating the ABCT, and the challenge of deploying it strategically.

Resource Demand: Sustainment, Maintenance, and Cost

The ABCT consumes more fuel, ammunition, and repair parts than any other brigade combat team. An M1 Abrams burns approximately 300 gallons of fuel per day during operations. M1 Abrams tanks, M2 BFVs, and supporting M109 Paladins are mechanically complex and require extensive preventive maintenance, trained mechanics, and a robust parts supply chain. The cumulative cost to equip, man, train, and sustain an ABCT exceeds the cost of an MBCT or SBCT by a significant margin. Any honest discussion of the ABCT must acknowledge these facts.

The relevant question is not how much

Figure 3. A U.S. Army M1A2 Abrams tank assigned to the 2nd Battalion, 37th Armored Regiment, prepares to engage simulated targets during exercise Combined Resolve 26-07 at the Joint Multinational Readiness Center's Hohenfels Training Area, Germany, April 28, 2026. (U.S. Army photo by CPL Jordan Leroy)



the ABCT consumes or costs. The relevant question is what the ABCT produces per dollar, gallon, and labor hour invested, and what the alternative would cost to achieve the same operational effect. A properly resourced ABCT can execute sustained offensive operations against a peer adversary, advancing significant distances per day, destroying enemy forces, seizing terrain, and regenerating to continue the attack. An MBCT or SBCT achieves a fraction of the ABCT's rate of advance and a fraction of its destructive effect. When measured by outcome rather than input, the ABCT delivers more terrain seized, more enemy forces destroyed, and faster operational tempo per unit of resource invested than any other formation.

The cost calculation also has a dimension that critics rarely raise: the American will to sustain prolonged combat operations is finite. Vietnam, Iraq, and Afghanistan all demonstrated that public support erodes well before military missions are complete, constraining strategic options long before the situation on the ground demands it. Lighter formations fighting at lower tempo against a peer adversary will require more time to achieve strategic objectives. More time means more casualties accumulated over a longer period, which means faster erosion of public support. Armored formations achieve strategic and military objectives faster, with fewer casualties relative to the magnitude of the effects achieved. The ABCT allows the nation to achieve its goals while the will to achieve them still exists.

The cost comparison must also account for what it would take to replicate the ABCT's capability using lighter formations. Seizing defended terrain against a peer adversary without the protection, firepower, and shock effect of the ABCT would require multiple brigades, additional fire support, more time, and significantly higher casualties. The financial cost of replacing destroyed

light vehicles, training replacement soldiers, and sustaining a prolonged operation would likely exceed the cost of equipping and sustaining the ABCT that could have achieved the same result in a fraction of the time. An ABCT that deters a conflict is infinitely cheaper than any formation that must fight one.

Modernization will further reduce the resource burden over time. Autonomous resupply convoys, predictive maintenance enabled by AI, and more fuel-efficient powerplants will reduce the logistics tail. The current resource burden reflects the cost of fielding the most capable ground combat platforms in the world. The alternative is fielding platforms that are easier to sustain but cannot survive the fight, which is no alternative at all.

Strategic Deployability

The ABCT is the hardest formation in the U.S. Army to deploy strategically. M1 Abrams tanks weigh approximately 73 tons. M2 BFVs weigh approximately 33 tons. Moving an ABCT from the continental United States to a theater of operations requires significant strategic lift, extensive port and rail infrastructure, and weeks of deployment timeline. An MBCT can deploy by air in days. An SBCT can deploy faster than an ABCT by a significant margin.

This is perhaps the most legitimate criticism of the ABCT, and it explains why the U.S. Army maintains MBCTs and SBCTs in addition to ABCTs. The U.S. Army needs formations that can deploy rapidly to respond to crises and establish an initial presence. The MBCT and SBCT fill this role effectively. But deployability and combat effectiveness are different requirements, and the U.S. Army must not confuse the ability to arrive with the ability to win. A formation that deploys in 72 hours but cannot survive the close fight against a peer adversary has not solved the problem; it has merely arrived at the problem.

The U.S. Army mitigates the deployability challenge through forward stationing and pre-positioned stocks. Rotational ABCTs stationed in Europe are already in the theater where they are most likely to be needed. U.S. Army pre-positioned stocks in Europe, the Middle East, and the Pacific provide equipment sets that deploying units can draw, reducing the strategic lift requirement. These investments acknowledge the deployability limitation and address it through posture rather than by eliminating the formation.

The 2003 invasion of Iraq illustrates what deployed armored capability achieves. The 3rd Infantry Division's advance from Kuwait to Baghdad covered more than 550 kilometers in 21 days, fighting through multiple defended positions including Tallil Airfield, Objective Rams, the Karbala Gap, and the Thunder Runs into Baghdad.⁴ During the Thunder Runs on 5 and 7 April, armored task forces drove directly through the Iraqi capital, destroying resistance with direct fire while absorbing RPG, small arms, and indirect fire that would have been catastrophic for lighter vehicles.⁵ Multiple Abrams tanks sustained significant damage and continued to fight. The future fight will demand more from the ABCT, but the principle proven in 2003 will hold: deployed armored capability, properly employed, decides the campaign.

The ABCT in the Future Force

The value proposition of the ABCT is not static. As the U.S. Army modernizes, the ABCT will become more capable, more lethal, and more sustainable. Robotic combat vehicles will extend the brigade's reach and reduce risk to crews. Autonomous logistics platforms will reduce the sustainment burden. Advanced active protection systems will increase survivability against precision munitions and anti-tank guided missiles. AI-enabled targeting and decision support will accelerate the kill



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chain. CUAS will protect the formation against the drone threat.

These modernization efforts amplify the ABCT's relevance rather than diminish it. Every new technology the U.S. Army fields increases the gap between what the ABCT can do and what lighter formations can do. A robotic combat vehicle operating alongside an M1 Abrams in a combined arms formation is more effective than the same vehicle operating alongside a Stryker or a dismounted infantry squad, because the armored formation provides the firepower, protection, and tempo to exploit what the robotic vehicle finds or creates.

Conclusion

The question facing the U.S. Army is not if it can afford ABCTs. The question is if it can afford to fight without them.

LSCO against a peer adversary will demand formations that can maneuver under fire, absorb punishment, deliver decisive lethality, seize terrain, and sustain operations over time. The ABCT is the only formation in the U.S. Army's inventory that does all five. The ABCT costs more to equip, sustain, and maintain than lighter formations. It is harder to deploy strategically. These costs must be measured against what the ABCT produces: decisive results at a tempo the enemy cannot match, with a level of survivability that preserves combat power across multiple engagements, and with a deterrence effect that may prevent the conflict entirely.

Every formation in the U.S. Army's inventory has a role. MBCTs provide rapid deployment and effectiveness in restrictive terrain. SBCTs provide operational mobility and a balance of deployability and capability. The ABCT provides what neither of them can: the ability to close with and destroy a peer adversary's armored forces, seize and hold defended terrain, and sustain the tempo of offensive operations until the enemy is defeated.

The iron is indispensable. The army that fights without it fights at a disadvantage it cannot overcome with technology, precision fires, or operational cleverness. The ABCT is the formation the future demands.

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NOTES

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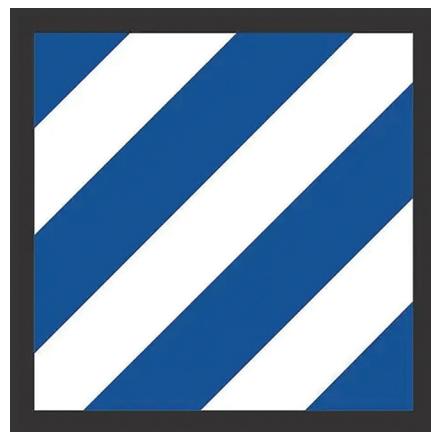
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5 David Zucchino, *Thunder Run: The Armored Strike to Capture Baghdad* (New York: Atlantic Monthly Press, 2004).



What Would You Do?

FEEDBACK

Armor Leaders,

It is great to be part of a professional dialogue with leaders actively thinking about how best to close with the enemy by means of fire and movement to defeat or capture them, or repel their assault by fire, close combat, or counterattack, as detailed in Army Techniques Publication (ATP) 3-90.1, *Armor and Mechanized Infantry Company Team*. I found myself in the difficult but enviable position of having to evaluate several excellent solutions to the tactical problem posed in the Spring 2026 issue. After reviewing them all, one response clearly stood out.

In the Spring 2026 issue's tactical vignette, readers were asked, "What Would You Do?" (WWYD) as an armor company team commander tasked with seizing a critical intersection just after first light. The objective was defended by a capable enemy force supported by a platoon of Type 99A2 main battle tanks (MBTs) prepared to counterattack. Reflecting the realities of the current operational environment, this enemy was well-supported by drones, rapid targeting, and spot-jamming capabilities, as described in ATP 7-100.3, *Chinese Tactics*. Our company team commanders had limited information to work with—just a battalion-level intelligence update, basic graphics, and a commander's intent. This is not dissimilar to the mission orders our forces must execute at Combat Training Centers (CTCs) or in large-scale combat operations (LSCO).

The winning WWYD submission came from CPT Daniel Parent of 2nd Armored Brigade Combat Team, 1st Armored Division. CPT Parent's response was selected for its exceptional depth, clarity, and comprehensive approach to the tactical problem. The plan demonstrated a superior understanding of combined arms integration, particularly within a complex modern battlespace saturated with unmanned systems. CPT Parent effectively integrated all available assets, detailing a sophisticated plan for employing and deconflicting unmanned aerial systems (UAS) and counter-UAS (CUAS) through the use of designated air corridors and weapon engagement zones (WEZs).

Furthermore, the concept of utilizing a feint to fix the enemy and actively degrade their small UAS (sUAS) capabilities before committing the main effort is a creative, doctrinally sound approach to make contact in the air-ground littoral under conditions of his choosing. CPT Parent's response was well-structured—clearly defining the problems faced by his team, the concept of the operation, and scheme of maneuver—and was supported by clear graphical overlays could effectively drive understanding for subordinates. This submission showcases how an armor company team can fight and win in the modern close fight.

- LTC Dirk K. van Ingen



Figure 1. Soldiers of 1st Battalion, 21st Infantry Regiment and soldiers of the German Army conduct Tactical Operation Center (TOC) activities during their Joint Pacific Multinational Readiness Center (JPMRC) rotation at Townsville Field Training Area, Townsville, Australia, July 27, 2023. (U.S. Army photos by SPC Mariah Aguilar)

Problem Statement 1: How does my company conduct a synchronized attack to seize Objective Ford against an enemy reconnaissance troop, arrayed in depth with consistent intelligence, surveillance, and reconnaissance (ISR) observation of United States forces and have priority of fires, that is screening along three distinct, mountainous avenues of approach, all of which contain natural chokepoints that slow maneuver and force the piecemeal commitment of decentralized platoons?

Problem Statement 2: How does my company deconflict friendly sUAS assets from active CUAS engagements to enable the rapid and effective neutralization of enemy sUAS, without increasing the risk of fratricide of friendly sUAS assets?

Company Team Approach: The purpose of this operation is to seize Objective Ford to secure a critical crossing site and enable future operations. The company will accomplish this by conducting a penetration. The decisive point to this operation is to establish a foothold in Objective Ford with a minimum of two infantry squads and four armored fighting vehicles (AFV). This is decisive because it will deny enemy access to the Battalion's axis of advance. To enable penetration of the enemy, the company will conduct a feint with two tank platoons (SE1 and SE2) in the southern valley to force early commitment and degrade the enemy's sUAS capabilities. This will enable the

infantry platoon (ME) to seize Objective Ford without being disrupted from enemy sUAS assets.

Operational Concept: This operation will consist of three phases. Phase 1 (Feint/Degrade) begins when tank platoon 1 (SE1) initiates an attack to destroy enemy section in the southern valley and establish a SBF 1 overlooking Objective Ford. Tank platoon 2 (SE2) is tasked to follow and assume SE1. SE2, assigned with one CUAS system, will trail SE1 and act as the primary ground-based air guard for the southern valley. Additionally, the company will coordinate with the battalion's short air defense system to assist with enemy UAS during this phase. SE2 will assume SE1 task if more than 2 tanks from SE1 become NMC. Phase 2 (Isolate) begins when SBF1 is established. Once SBF1 is established, ME will attack the enemy section in middle valley and posture to seize Objective Ford. ME will utilize the EW support team to isolate the enemy within their AO. ME will also be assigned with one CUAS system to defend against any remaining enemy sUAS assets. Critical this phase is shift/lift fire of SBF1. Phase 2 ends and Phase 3 (Seize/Defeat Counterattack) begins when SBF1 lifts fire. ME will seize Objective Ford and occupy BP 2 to defeat the enemy counterattack. Once SBF1 lifts fire, tank platoon 3 (SE3) will LD and attack any remaining enemy in the northern sector of AO. SE3 will occupy BP1 to defeat the enemy counterattack. O/O

SE1 and SE2 will reinforce BP1 and BP2 to defeat the enemy counterattack.

Mortars: For phase 1, SE1 and SE2 will have priority of fires. For phase 2 and 3, priority fires will shift to ME to fix enemy on Objective Ford and enemy counterattack.

sUAS/C-sUAS Integration Plan: Friendly sUAS will operate within designated airspace corridors and altitudes. Friendly sUAS will be marked with 1 IR chem light to assist ground forces with identification. Ground forces are granted engagement authority on any sUAS within any active WEZ. Phase 1: Friendly sUAS will operate only in AC Blue to support SE1 and SE2. sUAS will provide only ISR observation. C-sUAS: WEZ 1,2,3,4 are active Phase 2: Friendly sUAS will only operate in AC Red to support ME. sUAS will provide ISR and loitering munitions. C-sUAS: WEZ 2,3,4 are active. Phase 3: Friendly sUAS will operate only in AC Green to support ME1 and SE3 to identify and defend counterattack. sUAS will provide only ISR observation and loitering munitions if available. C-sUAS: 3 and 4 are active. Once Objective Ford is seized, WEZ 3 becomes inactive.

End State: The operation is complete when Objective Ford is seized and secured, the enemy screen is destroyed, and the company is postured to defeat enemy counterattack from the south east. Friendly forces are consolidated, and initial resupply and casualty evacuation are complete.

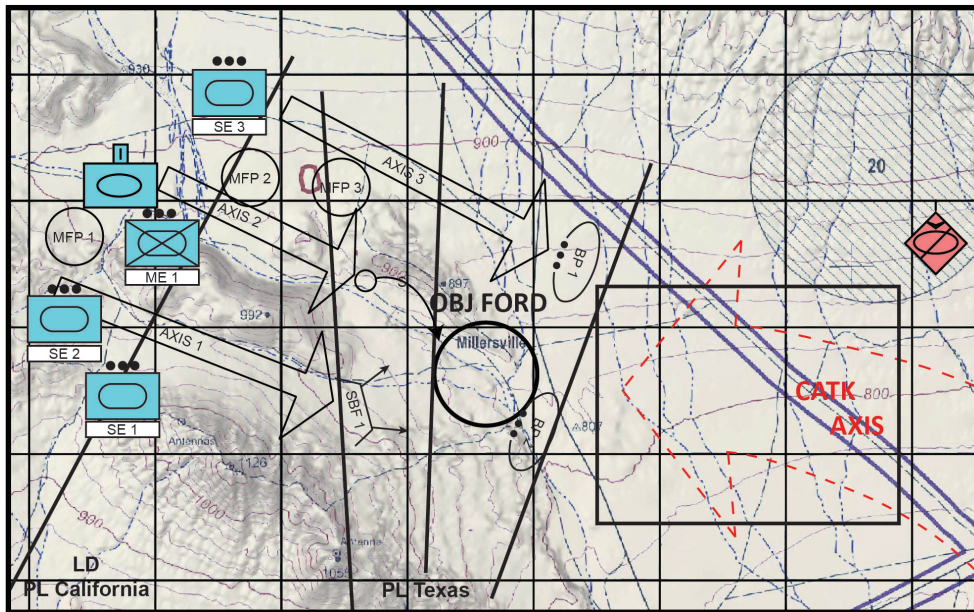


Figure 2. Notional friendly course of action sketch. (Graphic created by author)

Figure 3. Notional scheme of air sketch. (Graphic created by author)

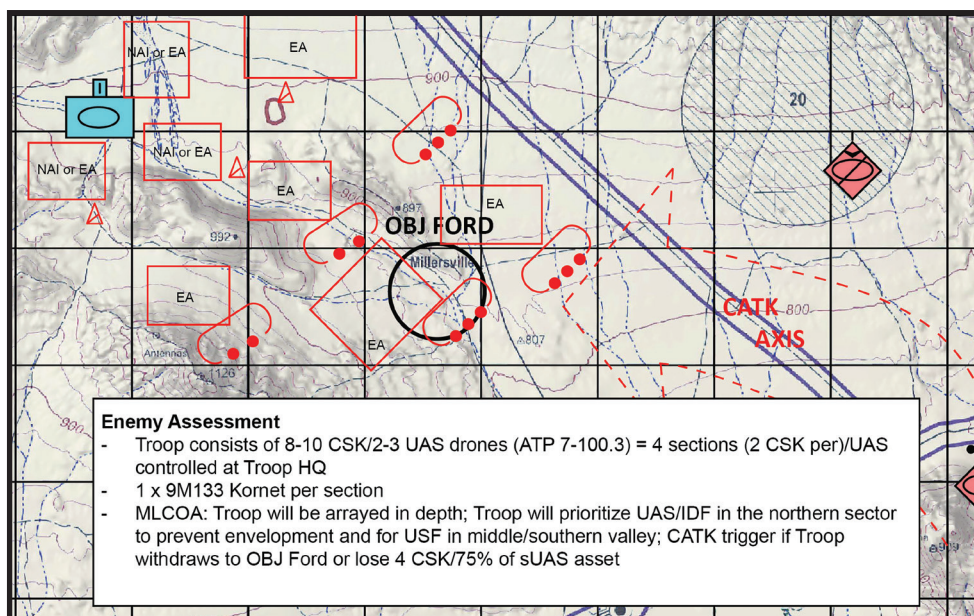
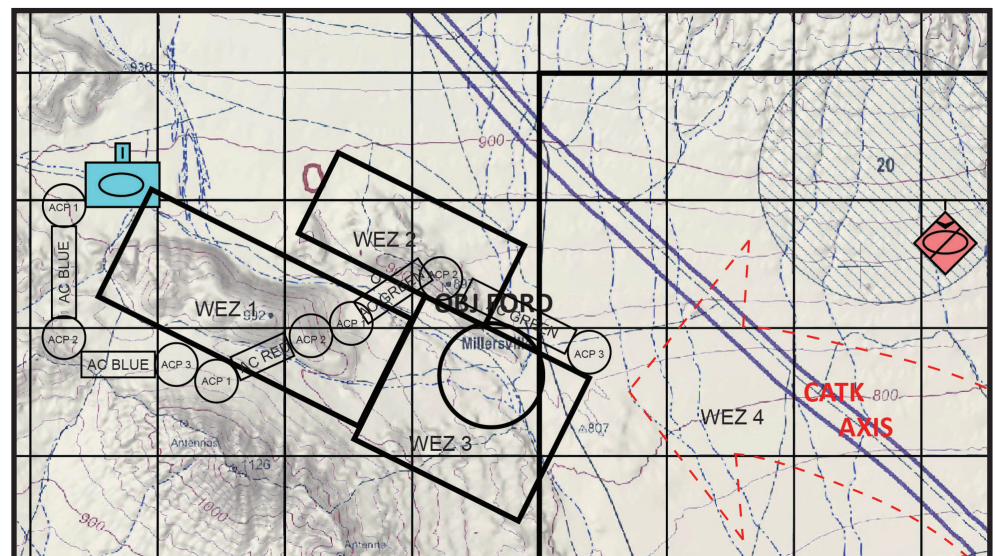


Figure 4. Notional most likely course of action sketch. (Graphic created by author)

A Proclivity for Violence

Training Violence of Action in Armor Leaders

by LTC Mitchell Payne and MSG
Johnathan D. Werner

Proclivity: a natural or habitual inclination or tendency; propensity; predisposition.¹

Armor officers, noncommissioned officers (NCOs), and Soldiers must have a proclivity for violence. The mission of the Armor Branch is to close with and destroy enemy forces using fire, maneuver, and shock effect, or to repel their assault by fire and counterattack.² Armor leaders must be aggressive to be effective in both the offense and defense. This aggression must be controlled to maximize the effects of our direct and indirect fire, but the necessary aggression must stem from a foundational proclivity among Armor leaders toward violence.

To be clear, this proclivity is a good thing. Armor officers and NCOs represent a unique capability for the U.S. Army – we are the mounted maneuver experts, and we exist to close with and destroy the enemy. This is an inherently violent task that requires leaders and Soldiers with the right mindset to achieve their military aims effectively.

On offense, this controlled violence is typified by the audacity required to seize the initiative and aggressively develop the situation.³ Doctrinally, when assaulting the objective, “the assault must be extremely violent, and the platoon must fire with all appropriate weapon systems.”⁴ This doctrine applies to all armored crews, whether tanks or Bradley Fighting Vehicles (BFVs).

Writing in 1933, GEN George Patton notes this as well, arguing, “New weapons are useful in that they add to the repertoire of killing, but, be they tank or tomahawk, weapons are only weapons after all. Wars may be fought with weapons, but they are won by men. It is the spirit of the men who follow and of the man who leads that gains the victory.”⁵ This fighting spirit – this controlled aggression and violence of action – supersedes the technological platform and must be fostered in training for application in combat. A proclivity for violence will never be replaced with technology; instead, it must be instilled through tough and realistic training.

In this area, leaders at the National Training Center (NTC) observe

systemic training gaps in how we train our armored warriors – our scouts, Bradley crewmen, and tankers – to instill this proclivity for violence of action. It is a stark but necessary admission that we, as an Armor force, often fail to train in ways that instill this proclivity for violence in our junior leaders and Soldiers, creating critical training gaps that impact our ability to fight and win in large-scale combat operations (LSCO).

Gaps in Training Direct Fire Violence of Action

From their first days in the U.S. Army at Fort Benning, our armored trainees are introduced to the sound and feel of armored warfare. Whether they are officers or enlisted Soldiers, one unique aspect of the Armor community is the vehicle-centric nature of our military role. We are taught to close with and destroy the enemy through fire, maneuver, and shock effects, which cannot be achieved apart from the controlled use of our combat



U.S. Army photo by SGT Kim Browne

OC/T Insight: We want a “weapons-free” mentality in our armor crews, but only train at “weapons-tight” during gunnery.

vehicles’ size, speed, and full direct-fire capabilities.

Somewhere between initial entry training and crew-level gunnery, however, the Armor community shifts from building aggression to imposing restraint. Our doctrine and practices regarding direct-fire control measures focus on precision rather than overwhelming but controlled violence. We train crews in tightly controlled and rigid environments but expect them to act with initiative amid the chaos and uncertainty of modern combat.⁶ In LSCO, the Armor community will need crews comfortable with a weapons-free level of aggression and violence of action, but we only ever train our crews in a weapons-tight environment.

The recently published Training Circular (TC) 3.20.31-120, *Heavy Tank Gunnery*, offers a clear description of various engagement types by table number. Various charts and tables show the specific ammunition allocation by type for each engagement. For example, Figure 6-8 specifies 25 total rounds of 120mm main gun ammunition per crew for Table IV gunnery across 10 total engagements with 16 overall armor

targets.⁷ This gunnery guideline sets an overall ammunition-to-target ratio of 3:2, allowing occasional missed targets but not suppressive fire. Instead, when assessing tank crews using Table IV scores, crews are evaluated on time and their ability to hit targets with precision and control through fire commands.⁸

Based on the ammunition allocation charts and the evaluation criteria, it is clear that crew-level tank gunnery is designed to train and evaluate the crew’s precision of fire, which is absolutely necessary at the crew level. Tank crews must be able to confidently engage and destroy any targets presented to them, whether during gunnery or combat. But it is this mentality – this focus on control and precision – that works against developing a robust proclivity for violence of action on the objective. Put another way: we in the Armor community continually train only to weapons-tight standards yet expect a weapons-free level of aggression and violence of action on the objective.

This is evident as units move from crew-level training to platoon- and higher-level live-fire training. Our doctrinal training methodologies promote control and precision with little emphasis on overwhelming firepower, particularly at the platoon and company levels. This contradiction weakens

combat readiness and kills the lethality we require from armored formations.

Observations from NTC

This lack of violence is evident in nearly every live-fire exercise at the NTC across multiple rotations and at all echelons. Senior leaders – division commanders, general officers, the Commander of Operations Group, and countless observer controller/trainers (OC/Ts) – have personally observed and questioned this lack of aggression. There is nothing more frustrating than seeing a company of tanks roll up to the breach site with targets in view and no direct-fire suppression. Minutes – which feel like hours – will go by before the first tank round is fired, followed by equally frustrating silence before another vehicle fires again. While some of this may be attributed to inexperienced crews, such conduct on a gunnery range would result in disqualification for time.

Inexperienced armor crews are trained to prioritize direct-fire precision, but this emphasis on precision results in a loss of aggression and violence of action while suppressing the objective. The adage “train as you fight” is easily reversed here; NTC shows that units “fight as they trained” at home station. The overreliance on “range-isms” – such as limits of fire markers and misunderstandings of negligent discharges is evident in the hesitance of junior armor leaders to achieve violence of action through fire, maneuver, and shock effect. But if those platoons and companies show hesitancy in live-fire exercises, then part of that responsibility must be shouldered at the battalion (BN) and brigade (BDE) levels. Have we, as senior armor leaders, done what is necessary to instill that proclivity for violence throughout a logical progression of training from crew, section, platoon, and company?

Gaps in Armored Vehicle Maneuver Training

A failure to understand and train the full maneuver capabilities of the tank and BFV is a second gap that contributes to an armored crew’s lack of

Figure 1. U.S. Soldiers assigned to 1st Battalion, 8th Cavalry Regiment, 3rd Armored Brigade Combat Team, 1st Cavalry Division posture a Bradley Fighting Vehicle in an attack position during Rotation 25-06 at the National Training Center, Fort Irwin, Calif., April 3, 2025. (U.S. Army photo by PFC Alexis Perales)



OC/T Insight - Instead of “train as you fight,” units “fight as they train,” and it is evident that units do not train for violence on the objective.

violence. Armored crews often lack a full understanding of their platform’s capabilities, which limits their proclivity for violence and leads to overly cautious behavior reinforced early at crew-level gunnery. This is reinforced by the design of our direct fire ranges, with linear or straight range roads, inadequately sized maneuver boxes, and tightly controlled directions of fire. These “range-isms” condition armored crews to prioritize restraint over aggression, preventing them from leveraging their vehicle’s dash speed, micro-terrain, and the tank’s inherent maneuverability to gain overmatch.

Most training areas further constrain this by offering limited space and few opportunities to execute nonlinear movement, rapid transitions, suppressive fire, or tactical decision-making under realistic conditions. To develop and increase true lethality, crews must be evaluated not only on precision but on their ability to maneuver violently, exploit terrain, re-engage rapidly without consequence, and understand mobility as a form of protection. These are the very strengths that allow tanks and BFVs to attack and destroy enemy forces with speed and dominance.

Forging Tactical Aggression at the Crew Level

The foundation of any lethal armored formation is its crew-level gunnery. It is the crucible in which individuals are forged into a cohesive fighting team. While our current progression excels at creating technically proficient crews—capable of identifying and destroying targets within a 50-second exposure—it inadvertently creates a tactical flaw. It teaches that urgency is a temporary condition, limited only to the moment of engagement.

This is the gunnery paradox: after the intensity of a timed engagement, all pressure evaporates. Crews are afforded unlimited time to conduct drills, troubleshoot systems, or move to the next position. This is a dangerous lie



Figure 2. 1st Battalion, 12th Cavalry Regiment, 3rd Armored Brigade Combat Team, 1st Cavalry Division, conducts live-fire proficiency training in a M1A2 SEPv3 Abrams MBT during the CALFEX at the Jack Mountain range on Fort Cavazos, Texas, Jan. 16, 2025. (U.S. Army photo by MAJ Brian Sutherland)

that instills a false sense of security and fails to cultivate the relentless urgency required in combat. The foundation of an aggressive platoon begins with an aggressive crew; if the foundation is passive, the entire structure is compromised.

The consequences of this paradox are visible on every gunnery range. Defensively, we witness the “hand-waved berm drill,” in which a tank moves a mere track-pad’s length, technically fulfilling the requirement yet remaining dangerously exposed. We must ask: are we grading a checked box, or are we enforcing a survival standard? On the offense, we see crews halt in the open, uncomfortable with firing on the move, sacrificing momentum, platform stability, and surprise because we fail to enforce violence as a standard in our gunneries. These are not isolated failures; they are the direct root cause of poor collective performance.

To fix this, we must instill a new mindset during our crew gunneries, governed by a simple, binary principle: if you are not attacking, you are

defending until you can attack again. There is no in-between. The moment a vehicle halts, it is defending. The driver should immediately seek a hull-down position. The gunner and tank commander (TC) should begin the seven steps of engagement area development by re-establishing target reference points (TRPs) and sectors of fire and identifying dead space. The instant that the vehicle initiates movement, it is attacking again, and the characteristics of the offense—speed, surprise, and violence of action—must be its guiding principles.

We must stop training crews to simply pass a test. We must redesign our gunnery standards to forge crews who embody this relentless spirit. Crews cannot just service targets; they must be trained to attack the range itself using violence of action.

Bridging the Gaps in Training Violence

Based on our examination of the training gaps, we offer three recommendations that armor leaders can use to

address them. First, the Armor community at echelon must push to increase the viable maneuver space in armor-centric continental United States (CONUS) installations, which will inevitably become a BDE, division, installation, or senior mission commander effort. Second, units at the BN and below should consider allocating space for aggressive maneuver training in addition to the baseline driver training requirements. Third, leaders at the BN and BDE levels should consider introducing suppression and multi-round engagements in their collective (section-company/troop) level gunneries as well as in their situational training exercise (STX) training.

Increase Installation Maneuver Training Space

With the Armor Transformation and Standardization Initiative (ATSI), the Armor community is identifying and closing range capability gaps to meet the gunnery standards outlined in the new heavy tank gunnery manual. Those efforts are sure to enable

OC/T Insight: We must instill a new mindset during our crew training: if you are not attacking, you are defending until you can attack again.

greater freedom for gunnery training and instill violence of action in our most junior Soldiers. As a note of caution, however, the Armor community's habitual over-reliance on "range-isms" certainly mitigates accidental risk, but this hyper-focus on safety reinforces poor tactical habits.

Designing platoon-level tank and BFV maneuver ranges that keep all vehicles within line of sight is certainly safe. But this "range-ism" safety comes at a cost – it reinforces a dependence on visual lines of communication that does not reflect the reality of mounted maneuver warfare in LSCO. Keeping tanks in visual sight of one another mitigates direct fire safety concerns, but training our leaders to stay consolidated will kill our tank and BFV crew members in a near-peer LSCO fight.

At a larger scale, despite the relatively large sizes of armor-centric

installations such as Fort Stewart, Fort Hood, or Fort Benning, much of the training area is unusable for maneuver training. Much of Fort Stewart or Fort Benning is unnavigable by mounted vehicles, which forces them to stay on the sandy roads and trails. If armor leaders expect to train aggressive drivers who fully understand their vehicles' maneuver capabilities, those drivers, crews, and units need the appropriate maneuver space to spread out and execute doctrinally spaced mounted maneuver training.

This may mean navigating the various bureaucracies involved with environmental oversight, deforestation, and community involvement. Still, armor-centric installations must increase their available maneuver space to allow nonlinear movement, tactical decision-making beyond the line of sight, and flexible approaches to engagements in gunnery and STX training. The lack of available mounted maneuver training space reinforces poor maneuver habits and decreases our lethality as an armor force.

Figure 3. U.S. Soldiers assigned to 9th Engineer Battalion, 2nd Armored Brigade Combat Team, 3rd Infantry Division conduct breaching operations during Rotation 26-08 at the National Training Center, Fort Irwin, Calif., June. 18 2026.
(U.S. Army photo by SPC Kaliya Friday)





Figure 4. U.S. Army Soldiers assigned to 1st Battalion, 194th Armor Regiment, 1st Brigade Combat Team, 34th Infantry Division, maneuver in a M1A1 Abrams tank during Decisive Action Rotation 16-07 at the National Training Center in Fort Irwin, Calif., June 11, 2016. (U.S. Army photo by SPC Daniel Parrott)

Train Vehicle Maneuver as a Form of Violence of Action (BN / Unit Level)

One of my most enduring lessons as a young Staff Sergeant came from a former BN commander. Before crew gunnery, he took the entire BN to a maneuver training area for a live demonstration of proper aggressive maneuver. From a vantage point where all could observe, his intent was to show the BN what “right” looked like. The BN commander sent two tanks out to demonstrate. The tanks moved with a disciplined aggression, using the micro-terrain to make the 70-ton tanks disappear for minutes at a time. The tanks did not move in a linear motion, nor did they follow predictable paths; instead, they used the natural folds in the terrain to mask their maneuver.

The tanks would be exposed for just a moment to confirm their next covered position and then vanish again. By the time they reached the objective—a 3km movement—the tanks had been exposed for approximately 30 cumulative seconds. This was only possible because they understood the true capabilities of their platform and had constant, effective communication; the

crosstalk never stopped, ensuring one of them was always covering the other.

They used the tank’s true dash speed not just to be fast, but to be violent. That day, the BN Commander demonstrated a critical truth: the M1 Abrams’ turbine engine was chosen for its ability to generate explosive speed, which is a weapon in itself. It is a capability that every armor Soldier and leader must intimately understand and exploit. We must move beyond simply training maneuver and begin teaching it for what it is: a fundamental and brutal form of violence of action.

Introduce Suppression and Multi-Round Engagements (BN / BDE level)

Combat requires rapid re-engagement and suppressive fire—conditions that most of our crew gunnery or subsequent collective gunnery (section, company/troop) do not reinforce. BDE and BN leaders and Master Gunners should develop gunnery standards that build on the precise standards already outlined in TC 3-20.31-120, *Gunnery: Heavy Tank*, and train and incentivize aggression in direct-fire suppression and movement.

For example, in a section or platoon gunnery, this might look like one vehicle or section suppressing a target area while other vehicles move from battle position (BP) to BP. Sections and platoons should be evaluated not only on targets hit, but on their aggression during suppression, use of the terrain while maneuvering, and overall aggression in direct fire and maneuver. Figure 5 outlines a suggested scoring matrix that could be incorporated into crew, section, or platoon gunnery and training to emphasize and evaluate aggressiveness and violence of action.

Gaps in Organizational Culture – Building a Culture of Violence

Reexamining the standards and expectations for gunnery and crew-level training in our armored forces is a tangible step that leaders can take to instill a proclivity for violence in their Soldiers, crews, and junior leaders. These adjustments, however, reveal a third underlying gap: the need to build a culture of aggression and violence in our formations. To a large degree, this is a much less quantifiable, more nuanced gap, rooted in the leader’s individual personality and leadership style as much as enshrined in our leadership doctrine.

Mission command is the U.S. Army’s approach to command and control that empowers subordinate decision-making and decentralized execution appropriate to the situation.¹⁰ Mission command relies on subordinates executing disciplined initiative within their commander’s intent. To be effective, however, units must develop a culture of mutual trust and shared understanding. This may seem counterintuitive, but to build an organizational culture of violence and aggression, leaders must first build an organization bound by cohesion, shared understanding, and mutual trust.

Leaders at the company/troop, or platoon level who do not understand the plan or lack their superiors’ trust are often hamstrung and indecisive. They hesitate to pull the trigger or order their platoons to attack aggressively. Without a broad and shared understanding of the plan, subordinates cannot exercise appropriate aggression, initiative, and risk acceptance. Conversely, highly functioning organizations with a shared understanding and leadership relationships built on mutual trust can have a powerful, outsized impact.

There is only one tactical principle which is not subject to change. It is, “To so use the means at hand to inflict the maximum amount of wounds, death, and destruction on the enemy in the minimum time.”¹¹

OC/T Vingette – Culture of Aggression and Violence

At 1800 on D-1, the armored cavalry squadron was set to cross the line of departure (LD). Their mission was to conduct reconnaissance through the Whale Gap and establish a foothold for the brigade combat team (BCT) in the vicinity of the John Wayne Foothills. Time and time again, I have witnessed cavalry squadrons follow the same predictable plan: deploy scout troops to conduct stealthy and deliberate zone reconnaissance up to the foothills. The squadron almost always dies at the outset and fails to reach its objectives due to poor terrain analysis, poor violence of action, and slow speed. The Whale Gap canalizes units, but it is a wide-open area where the troops are exposed on all sides to enemy observation and direct fire before they even cross the LD.

This cavalry squadron, however, approached the problem differently, choosing violence over subtlety. Instead of attempting another doomed infiltration, this cavalry squadron decided to defy convention by embracing speed, violence of action, and rapid transitions from movement to maneuver. They led with their tank troop, “Demon,” instructing them to execute a rapid and forceful movement to contact directly into the John Wayne Foothills.

Erupting from the mouth of the Whale Gap, Demon Troop immediately transitioned into a fighting formation, leveraging raw speed and aggression to their advantage. It took them a mere ten minutes to come face-to-face with an enemy force that wasn’t expecting contact for several more hours. After quickly destroying a mechanized infantry company in the foothills, Demon Troop realized the enemy was completely unprepared for their relentless assault, so they took the initiative and continued their attack up to Hill 781 East.

Again, using speed, micro-terrain to mask their formation, and overwhelming aggression, Demon Troop destroyed an entire mechanized infantry

Figure 5. Author’s proposed Aggression and Tempo Scoring Matrix for tank and Bradley gunnery.

Fire and Maneuver Scoring Matrix		
Superior (Dominating)	100	Tactical Dominance: Tank fights as a single, violent platform. Bounding is executed at maximum possible dash speed/berm drills are fluid and expert, covering the hull of the vehicle, minimizing exposure. Suppressive fire is continuous and synchronized with movement to next firing point. The tank tempo is relentless.
Proficient (Assertive)	80	Effective Execution: Tank effectively executes fire and maneuver. Bounding is well-paced and covered by effective suppression. Berm drills and use of terrain are correct but lack the speed and fluidity of a superior crew.
Basic (Passive)	60	Hesitant and Unsynchronized: Execution is hesitant. Movement is slow and exposes the vehicle. Suppressive fire is intermittent and not synchronized with maneuver. The tank is reactive and lacks urgency.
Unacceptable (Reactive)	0	Failure of Command and Control: A gross failure to integrate fire and maneuver, creating unacceptable risk.
What the Vehicle Crew Evaluator (VCE) Should Look For		
Superior (Dominating)	100	Immediate Action: The moment an engagement ends, the leader is issuing a command for the next action (move, suppress, scan). There is zero “dead time.” Proactive Commands: The leader’s commands anticipate the next phase, not just react to the current one (e.g., “Suppress Area X while we move to Battle Position 4”). Continuous Pressure: The tank flows from one action to the next without pause. The VCE feels like they are being pulled along by the crew’s pace.
Proficient (Assertive)	80	Limited Delay: There is a brief, acceptable pause (3-5 seconds) after an engagement before the next command is given. Effective Commands: Commanders are correct and achieve the desired effect but may be more reactive to the immediate situation. Controlled Pace: The tank effectively moves and fights but may have moments of reset. The pace is controlled and efficient, but not overwhelming.
Basic (Passive)	60	Significant Hesitation: There are long, noticeable pauses (>5-10 seconds) after engagements. The VCE is left wondering, “What is next?” Reactive Commands: The crew waits for something to happen before acting. Commands are often prompted by a new target appearing, not by a plan. Stop-and-Go Pace: The tank fights in a disjointed, “stop-and-start” manner. There is no flow or rhythm to their actions.
Unacceptable (Reactive)	0	VEC Intervention: The element is completely passive. The tower must prompt the leader for every action (“What are you doing now?”). Failure to Act: The crew fails to move or coordinate for suppression when tactically required, demonstrating a lack of situational awareness or will. Static Posture: The element essentially becomes a fixed firing point, showing no aggression or initiative.

BN and seized the objective. This tank troop's proclivity for violence allowed them to build on their success throughout the rotation. In all my years at the NTC, I had never seen a BDE make that left-hand turn into the central corridor to begin setting conditions for the "Razish" fight on the very first night.

Conclusion – Armor Leaders Must Instill a Spirit of Violence of Action

Our Soldiers and leaders like to compete and win – look at the esprit de corps that stems from competitions like the Sullivan and Gainey Cups each year. There is not a tank or BFV crew worth their salt that does not want to shoot "Top Tank" and "Top Brad." Our Soldiers will train to the standards we, as Armor leaders, set. If we genuinely want to instill a proclivity for violence in our subordinate armor warriors, then we must take a hard look at what we value. Remaining hyper-focused on safety will mitigate accidents, but it reinforces habits that will kill a generation of armored warriors in the next war. All of this must also take place in an organizational culture that promotes initiative and aggression.

As the U.S. Army was preparing Soldiers for deployment to the largest conflict in world history, leaders in 1943 recognized the need to instill a proclivity for violence across the U.S. Army. "The will to meet and destroy the enemy... springs from the fighter's confidence, courage, and grim determination and is the result of vigorous training. Through training, the fighting instinct of the Soldier is developed to the highest point."¹² If we truly want to train as we fight, and we as armored warriors want to fight with fire, maneuver, and shock effect, then we must train in a way that reinforces a proclivity for violence.

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U.S. Army photo by Eric Kowal

Beyond the Golden Hour

Adapting Casualty Evacuation for LSCO with Ground MEDEVAC Control Status

by COL Jose Reyes and CSM Eddy Perez

For decades, U.S. military medical doctrine has been anchored to the “golden hour” – the concept that a casualty’s best chance of survival depends on reaching a surgical facility within 60 minutes of injury. This paradigm, born from an era of uncontested air supremacy in counterinsurgency (COIN), is now obsolete. The ongoing war between Russia and Ukraine provides a stark preview of the future of the large-scale combat operations (LSCO) environment. Saturated with sophisticated air defense systems, long-range precision fires, and pervasive electronic warfare, the modern battlefield makes helicopter-based medical evacuation (MEDEVAC) a high-risk, low-probability luxury that will not be available. To win the next fight, we must evolve past the golden hour and embrace a more disciplined, realistic, and ground-based system for casualty management. The ground MEDEVAC control status (GMCS) is the framework that enables this critical evolution.

The Reality of LSCO Casualty Care

The conflict in Ukraine has been a brutal teacher, invalidating many of our long-held assumptions about medical operations.

Air Denial: The ubiquitous presence of man-portable air-defense systems (MANPADS) and integrated air defense networks means that permissive airspace is a fantasy. MEDEVAC helicopters cannot fly with impunity, rendering the 60-minute evacuation standard of COIN virtually impossible to meet.

The Tyranny of Artillery: LSCO is dominated by massed artillery and drone-spotted precision fires. Any concentration of forces, including a mass of ambulances at a Role 1 or 2 facility, presents a lucrative target. Unsynchronized casualty flow strains medical resources and creates a target that the enemy will exploit.

The Necessity of Prolonged Care: With evacuation routes contested and delayed, the burden of care is pushed forward. Soldiers, medics, and physician assistants must be proficient in prolonged field care (PFC) to manage

complex casualties for many hours, or even days, at or near the point of injury.¹ The fight is won or lost in these critical hours of decentralized care.

The Tactical Imperative of Concealed Evacuation: Ukrainian forces have learned through bitter experience that any daytime movement, especially a casualty evacuation (CASEVAC) operation, is immediately targeted by Russian drones and artillery.² In response, they have largely abandoned daytime evacuations, moving casualties almost exclusively during hours of darkness or when overwhelming tactical advantage has been secured. This demonstrates that patient survival is now inextricably linked to the ability to remain concealed. It forces a choice: a rapid evacuation attempt in daylight that invites more casualties, or a delayed, deliberate evacuation under the cover of darkness or a place of advantage that preserves the force.

These lessons demand a doctrinal shift from the current evacuation-on-demand system to one of controlled and deliberate patient movement.³ We must manage casualty flow with the same or better precision and discipline we apply to the sustainment

community’s logistic release point (LRP) operations.

A Disciplined Approach to Saving Lives

Developed at Fort Hood and refined at the National Training Center (NTC), the GMCS provides a standardized method for controlling the flow of casualties from battalion Role 1 aid stations to the Role 2 with the brigade support medical company. The GMCS synchronizes medical resources with tactical realities, ensuring patient prioritization and evacuation decisions are made deliberately.

Crucially, GMCS preserves combat power at the decisive point. By instilling the discipline to hold stable casualties at forward locations, platoon sergeants and squad leaders are no longer forced to break contact and deplete their fighting strength to conduct CA-SEVAC for non-critical wounds. This keeps vital fighters and weapon systems engaged with the enemy, allowing the unit to maintain momentum, overwhelm the opposition, and secure the objective more rapidly. A faster, more decisive engagement reduces the

unit’s overall exposure to enemy fire, leading to fewer casualties in the long run. As stated in the care under fire (CUF) phase of tactical combat casualty care (TCCC), “the best medicine on the battlefield is fire superiority”.⁴ GMCS provides commanders with a tool to manage risk and control the operational tempo of medical assets, preventing the catastrophic collapse of the healthcare system in a high-casualty environment.

GMCS in Practice

The implementation of GMCS yielded dramatic improvements in survivability and combat effectiveness at an NTC rotation. During rotation 25-02, operating under the old paradigm, the Black Jack Brigade achieved a 41% survivability rate.⁵ After implementing GMCS and applying it a year later at NTC rotation 26-02, the Brigade saw that rate climb to 67%.⁶ This success is a direct result of disciplined execution. By holding routine and priority casualties when necessary to retain combat power to destroy an enemy force, the brigade kept its infantry and armor formations intact at the point of contact. This allowed them to maintain an overwhelming operational tempo,

successfully massing combat power that consistently broke the opposing force’s (OPFOR’s) defensive lines. The ability to control the casualty flow was directly proportional to the brigade’s ability to control the pace of the battle.

Units that demonstrated disciplined adherence to GMCS experienced a high survivability rate while executing force-on-force operations at NTC 26-02. Specifically, 1-9 CAV over 8 days of continuous operations over 45 kilometers experienced a 94% casualty survivability rate. In contrast, units that broke this discipline demonstrated the friction it creates. One unit’s Role 1, eager to clear their casualties, evacuated over 21 routine patients to the Role 2 while under GMCS Red Status which created an unsynchronized patient surge. This overwhelmed the Role 2 and created a notional target for enemy fires, a costly mistake that the GMCS framework is designed to prevent.

Recommendations for the NCO Corps

Noncommissioned officers (NCOs) are the standard-bearers who will make or break this system. The implementation

Figure 1. Ground MEDEVAC Control Status (GMCS) criteria and actions.

Ground MEDEVAC Control Status		
GMCS Status	Criteria	Actions
RED	Unit in contact or expecting high casualty rates.	Hold casualties at the control point of injury (POI), casualty collection point (CCP), or Role 1. Execute PFC and delayed evacuation principles. Only URGENT patients are authorized with specific approval from higher command.
AMBER	Units are expected to be in contact; potential for mass casualties (MASCAL).	Hold casualties at Role 1 until mission and launch are approved. URGENT and PRIORITY patients are authorized for movement. ROUTINE patients require higher approval.
GREEN	No MASCALS, low expected casualty rate.	Self-evacuation is authorized with notification to command. No restrictions by patient category.

and enforcement of GMCS fall squarely within their purview.

Lead the Training: NCOs must champion GMCS during all training events. NCOs must drive rehearsals and integrate status transitions into field exercises. This builds the “reps and sets” needed to make disciplined evacuation an instinct, not a debate.

Enforce the Standard: At the point of injury (POI), the CCP, and the Role 1, NCOs are the ultimate authority enforcing the current GMCS status. It is our responsibility to ensure medics are empowered and that junior leaders do not violate evacuation protocols. We must have the moral courage to triage casualties with the understanding that not everyone will make it, especially when an evacuation request violates the established control measures.

Develop our Medics: A system that requires holding patients demands a higher level of medical proficiency. NCOs must ensure their 68W Combat Medics are trained beyond the basic TCCC standard. We must seek out and prioritize advanced instruction in PFC and delayed evacuation casualty management (DECM). If we expect our medics to manage complex casualties for hours or days, we have an obligation to provide them with the advanced skills to do so successfully.⁷

Drive Rehearsals Down: GMCS must be rehearsed at brigade and battalion combined arms and sustainment rehearsals, in addition to ensuring a full understanding at the company and platoon levels. NCOs should lead these rehearsals, clarify roles, and ensure every Soldier understands why they may be asked to hold a stable patient. This proactive training ensures GMCS is enforced at the point of injury, not corrected retroactively after a mistake is made.

The Future is Deliberate and Lethal

GMCS is a fundamental shift in mindset. It is the deliberate application of discipline to the chaos of the battlefield, replacing the hopeful, but unrealistic, golden hour with a framework that directly enhances a unit's lethality. In the brutal calculus of LSCO, lethality is paramount. Every Soldier

pulled from the line to evacuate a stable patient is a weapon system no longer aimed at the enemy. Every weapon system, M1 Main Battle Tank, M2 Bradley Infantry Fighting Vehicle, or rifle that's forced to break contact is a loss of momentum. The old paradigm, where undisciplined evacuation was the norm, effectively forces units to inflict wounds upon their own combat power. GMCS corrects this critical vulnerability.

By empowering leaders to hold patients and continue the mission, GMCS ensures that maximum combat power remains focused on destroying the enemy and seizing the objective. This ability to maintain operational tempo, even after taking casualties, is the very definition of a resilient and lethal fighting force. The swiftest path to preventing casualties is to win the First Fight decisively. The lessons from Ukraine are clear: the future fight will be brutal, prolonged, and won by the side that can best preserve its combat effectiveness under fire. NCOs are the guardians of this standard. They must lead the charge in institutionalizing GMCS, understanding that enforcing this discipline is about ensuring our formations have the lethality to win the only fight that matters: the one directly in front of them.

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Forging Lethality

4-6 Infantry Gunnery and Maintenance Excellence

"In March 2026, 4-6 IN qualified 55 out of 56 tank and Bradley crews Q1 with 24 distinguished and all but three qualifying on their assigned vehicle. This was 4-6 Infantry's first experience with the new Abrams and Bradley tables and the 1st Armored Division's best gunnery performance on record. I asked LTC Oschwald to share with the community how they did it. This is 'what right looks like' in 1st Armored Division"

MG Curt Taylor, Commanding General, 1st Armored Division

by LTC Ben Oschwald, CSM Jason Cassidy, MAJ Sean Oldknow, MAJ Bryan Uribe, 1SG Paul Maloney, SSG Mathew Fuller

Readiness for the next ground war is not built on the gun-line, but forged through a daily, leader-driven commitment to maintenance and disciplined training. The following sections detail the strategic framework 4-6 IN utilized to achieve success, from protected training time to brigade-level support, required to cultivate a culture of uncompromising lethality across formations.

Culture & Command

Building and maintaining a culture of lethality is critical to ensuring our combined arms battalions (CABs) are ready to fight and win our nation's next ground war. Preparing for this future happens every day in the motor pool and begins with maintenance of our fleet. The foundation for lethality is a good maintenance program with buy-in at the company, platoon, and non-commissioned officer (NCO) level. Once armored formations get the maintenance part right, that same

laser focused mindset is required to execute a to-standard rigorous gunnery program. Every leader has a part to play, from the battalion commander to the driver of our tanks and Bradleys. Leader engagement and presence are required to ensure the right level of ownership and buy-in is in our motor pools, ranges, ready-line, and gun-line.

To enable success in gunnery, the battalion must protect company maintenance time and enforce leader presence in the motorpool during maintenance operations. Company commanders to platoon sergeants must be present with their crews and the mechanics that are verifying faults and hanging parts. Doing so helps build a culture of vehicle accountability and will increase the chances that crews shoot off their own platform. As a battalion commander, I do weekly platoon leader equipment status report (ESR) scrubs following command maintenance to

emphasize the importance of aggressively pursuing maintenance excellence. These battalion commander and platoon leader engagements focus on vehicle slants, status of parts on hand, command maintenance priorities of the week and weapons, and Joint Battle Command-Platform (JBC-P) health. When the battalion commander spends time understanding maintenance of the fleet, platoon leaders and NCOs follow suit. This practice has improved the culture and quality of the battalion maintenance program.

To shape unit culture, leaders must be prepared to navigate a period of negative climate as established, substandard "norms" are challenged. Eradicating these habits is an everyday fight that requires educating leaders to the standard and holding everyone accountable for their actions. While individual discipline provides the foundation, our ultimate goal was to move



U.S. Army Photo by SPC Charles Leitner



Figure 1. A close-up view of the newly designed 1st Armored Division Gunnery Patch. The division introduced the patch to recognize armored crews who demonstrate unprecedented lethality during Table VI gunnery qualifications. (U.S. Army photo by SSG Felix Mena)

the formation beyond compliance toward genuine mission commitment. We achieved this by using critical thinking to address root causes and demonstrating genuine care for our Soldiers to reach our objectives. The battalion command team remained focused on staying relevant to the formation through continuous assessment from the individual to the collective level. By prioritizing battlefield circulation over administrative tasks, we were able to see and feel the direct impact of our decisions on our Soldiers, providing the real-time feedback necessary to measure our performance and effectiveness.

Maintenance

4-6 IN began maintenance preparations for the gunline with scheduled services for the combat vehicles at the platoon level. Services are treated as a deliberate operation, with platoon leaders briefing the battalion commander on their plan with touch points throughout execution. Concurrently the platoon conducts all ancillary services, to maintain all equipment that they are responsible for. With

scheduled in-briefs and out-briefs to the battalion commander, the organization was able to ensure the services occurred to standard. We completed services 2.5 months prior to the first company's gunline, allowing plenty of time for parts flow to build readiness. This deliberate approach resulted in 97% of organic M2A3s successfully road marching to the range under their own power.

Maintenance activities on the range allowed 4-6 IN to maintain its operational readiness (OR) through the duration of the gunline. Immediately upon identification of a fault, the crews did not "muscle through" the gunnery table. Mechanics actively worked to verify faults and correct them or order the parts needed. With the brigade requirement to request "hot seats" for every table, both day and night, it forced companies to energize lateral support or controlled exchanges to maximize their OR before the end of every table. This forced crews to dedicate additional time to perform preventative maintenance checks and services (PMCS) on their vehicle between iterations and work through minor

faults, rather than relying on a few functional platforms to get through the gunnery tables.

LPDs, LTT, & VCE Training

To build and sustain leader proficiency across all echelons, the battalion executed a deliberate, gunnery-focused training strategy driven by rigorous leader training time (LTT) and leader professional development (LPD) sessions. LTTs were established as heavily protected time, specifically four hours once a week, allowing crews and leaders to focus exclusively on their assigned tasks without outside distraction. These weekly sessions emphasized gunnery fundamentals, including engagement sequencing, fire command execution, target identification, and the doctrinal application of the new gunnery standards in accordance with Training Circular (TC) 3-20.31-25, *Gunnery: Bradley Fighting Vehicle, 25MM*. Directing protected training toward historically difficult GST tasks, such as boresighting and ammunition upload/download, directly addressed early training shortfalls and ensured immediate proficiency gains. Because of this protected focus, no crews required extra ammunition to zero due to crew inexperience, and the formation experienced minimal crew-induced M242 malfunctions requiring Master Gunner intervention or lost range time during live-fire hours.

Complementing the LTTs, LPDs were utilized to reinforce leader understanding of the advanced gunnery framework and updated scoring methodologies. These sessions highlighted the training shortfalls of previous units who had shot the new tables, illustrating the requirement for increased repetitions in the Advanced Gunnery Training System (AGTS), Bradley Conduct of Fire Trainer (BCOFT), and Close Combat Tactical Trainer (CCTT). Consequently, the battalion allocated additional time for these trainers beginning as early as September, following redeployment from Europe. To complement this training model, the battalion implemented a comprehensive vehicle crew evaluator (VCE) certification program for every NCO assigned to a crew. Emphasis was placed on standardized

scoring, strict adherence to updated evaluation criteria, and consistent enforcement. This comprehensive approach established a common standard across the formation, leveraged lessons learned from across the force, and directly contributed to improved crew proficiency prior to live-fire execution.

GST & GTLF

Gunnery Skills Testing (GST) serves as the most critical pre-gunnery training event and the foundational live-fire prerequisite before moving to the range. Units capable of completing all GST tasks in a calm and proficient manner prior to executing live-fire tables significantly reduce the overall friction of gunnery execution. For this gunnery density, the unit executed GST over a deliberate two-week period. The first week was devoted to general train-up and grader certification, while the second week was dedicated strictly to testing. To maximize effectiveness, GST training and execution were treated

with the exact same rigor and methodology as an Expert Soldier/Expert Infantryman/Expert Field Medical Badges (E3B) event. Testing was conducted in a highly controlled environment and given absolute priority over all other taskings. Furthermore, company command teams executed all GST training and testing in the same environment and under the exact same conditions as the rest of the formation, providing invaluable leadership presence.

Gates to Live Fire (GTLF) must be operationalized in a similar manner to GST to extract maximum value. The most effective tactic to ensure success during digital tables is to treat them as closely to the real event as possible, preventing crews from merely checking the block. For example, GTLF tables conducted in the AGTS/BCOFT were evaluated by a certified VCE with a Master Gunner present. To pass these gates, a crew was required to qualify distinguished twice in a row. If this standard was not met, the crew continued shooting until they could

achieve those back-to-back distinguished scores. Additionally, the M2 companies conducted standard Gunnery Table VI (GTVI) in the CCTT to mitigate shortfalls in the BCOFT. While CCTT is not a precision training system, allowing the entire crew, drivers included, to execute a full GTVI to standard with VCEs provided invaluable practice. This strict requirement for repeated distinguished qualifications ensured that target acquisition, engagement timing, and fire command execution were mastered prior to the live-fire phase.

Gunnery Table III-V

The execution of Gunnery Tables III-V utilized a deliberate and progressive training approach designed to build individual and crew-level proficiency in accordance with TC 3-20.31-25. The battalion achieved high levels of crew proficiency during these tables through the strict enforcement of standards, leader-driven retraining, and the deliberate integration of supporting assets

Figure 2. An Abrams tank firing during Armor Week activities at Fort Benning, GA, 2026. (U.S. Army photo by Patrick Albright)



whenever a crew failure or major platform system issue was identified. Key leaders were placed early in the firing order to make themselves available to retrain subsequent crews and assist in identifying deficiencies. This leader presence ensured that retraining was standardized and directly tied to observed performance shortfalls.

A critical component of this phase was the systematic approach to friction. If a crew identified a critical platform failure such as communication issues, weapon functionality, or maintenance problems, they were immediately pulled off the lane to diagnose the issue with maintainers or verify faults with armament co-located at the unit maintenance collection point (UMCP). Once verified by a Master Gunner, a plan for an alibi engagement was discussed with the command team to efficiently get the crew back in the fight. Conversely, when a crew displayed substandard performance, a deliberate retraining plan was implemented using tabletop trainers or GST resources located on the range to reduce recurring errors. Crews were only permitted to advance to the next table once they scored a superior qualification or better. This was sustained by a disciplined battle rhythm of twice-daily safety and training briefs to discuss performance trends and identify methods of improvement, enabling leaders to rapidly adjust training focus.

Best Practices on the Range

The foundational philosophy that enhances a unit's efficiency during execution is to "fight the range." This mentality dictates that every single task, from the mundane to the intensely critical, must be given the exact same amount of effort and attention. To enforce this, the battalion developed and distributed gunnery standard operating procedures (SOPs) to every crew member, ensuring a clear understanding of duties, fire commands, and execution standards. These SOPs were heavily reinforced through rehearsals paired with disciplined pre-fire checks and pre-combat checks/pre-combat inspections (PCC/PCIs).

Junior NCOs fully embraced this focus, enabling elements of the battalion to

average 16 crews a day on a single lane with no beachmaster required. This throughput was achieved through applied and disciplined backwards planning. All vehicles, personnel, and crews were fully prepared, with ammunition uploaded and pre-fire checklists complete, prior to the start of the daily safety brief. By staging fully prepared crews on the ready line before the execution of each table, the battalion routinely achieved first rounds down-range within a minute of green time daily, maximizing available training windows.

Furthermore, positioning Master Gunners and key leaders at critical points of friction ensured accurate evaluations, maintained a high-quality of after-action reviews (AARs), and provided immediate feedback to crews. Keeping an entire formation focused for the duration of a ten-day gunline is a daunting task, but establishing this highly disciplined environment directly contributed to increased throughput and reduced retraining requirements.

Brigade Support

Brigade support served as a critical enabler by helping to manage land and ammunition while extending range times to maximize training windows, as requested. This centralized management removed significant administrative burdens from the battalions, allowing tactical leaders to focus entirely on crew training and execution. A key logistical success was the establishment of a brigade field ammunition holding area (FAHA). This forward node allowed for the rapid draw of speedballs, providing flexibility to reshoot crews and prioritize true proficiency over resource constraints. As a result, if companies struggled with qualifying certain tables, they could continue to reshoot crews without the worry of logistical friction of traditional ammunition draws. Furthermore, brigade-led LPDs ensured all leaders were educated on recent doctrinal changes and updated gunnery standards prior to execution. This shared understanding across the formation prevented execution errors on the gunline and synchronized evaluation standards across all battalions.

By retaining approval authority for

hot-seating and engagements without thru-sight video, Bulldog 6 forced units to exhaust every maintenance resource to fix their own platforms. This strict policy yielded major fleet readiness benefits and allowed seven crews to qualify on their own vehicles. Crews were forced to fight through maintenance faults and rely on their organic mechanics to qualify on their assigned platforms, rather than taking the easy route of jumping to a fully mission capable vehicle. Additionally, mandating thru-sight video guaranteed that evaluators captured invaluable audio and visual data. This directly translated into highly objective AARs, where crews could watch their exact mistakes, correct their fire commands, and rapidly increase their overall lethality.

The 3rd Brigade, 1st Armored Division also created a culture of maintenance support that paid dividends during the gunline. At any point throughout the training, if a unit identified a needed part that a sister battalion had in their individual shop stock list (ISSL), we could expect to receive it within 24 hours. Additionally, sister units worked diligently to provide all types of support, to include recovery and pass-back maintenance, to allow the company on the gunline to truly be the main effort. Ultimately, success during gunnery is the direct result of a deliberate, disciplined commitment to maintenance and training standards at every echelon. By enforcing leader presence, protecting training time, and leveraging comprehensive brigade support, our formations will continue to field highly proficient crews ready to fight and win in their assigned platforms.

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First Sergeant Paul Maloney is the Company First Sergeant of B Company, 4-6 Infantry Regiment at Fort Bliss, Texas. His previous assignments include Operations Sergeant Major of 4th BN 6th Infantry Regiment at Fort Bliss; Platoon Sergeant of 4th BN 6th Infantry Regiment at Fort Bliss; Senior Drill Sergeant of 2nd BN 29th Infantry Regiment at Fort Benning, Georgia; and Battalion Master Gunner of 2nd BN 69th Armored Regiment at Fort Stewart, Georgia. His military education includes the Bradley Master Gunner Course, The United States Army Drill Sergeant Academy, Heavy Weapons Leader Course, Joint Firepower Course, and Master Resiliency Trainer. He holds a bachelor of arts in special education from Mars Hill College and a master of arts in military studies with a

concentration in joint warfare from American Military University. He has been inducted into the Order of Saint Maurice.

Staff Sergeant Mathew Fuller is the battalion Master Gunner, 4th Battalion, 6th Infantry Regiment, 3rd Armored Brigade Combat Team, 1st Armored Division, Fort Bliss, Texas. His previous assignments include section leader, 4th Battalion, 6th Infantry Regiment, Fort Bliss; and squad leader, fire team leader, and assistant gunner, 1st Battalion, 26th Infantry Regiment, 101st Airborne Division, Fort Campbell, Kentucky. He deployed to Poland in support of Operation Assure and Deter. He is a graduate of the Bradley Master Gunner Course, Fort Benning, Georgia, and the Air Assault School, Fort Campbell.



Ranger, Airborne, Air Assault, Pathfinder qualified Cavalry Scout?

PFC Veit Accomplished All That Before His 20th Birthday

PFC Mace Veit is a 19D Cavalry Scout assigned to the Nevada Army National Guard. Upon graduating from one station unit training (OSUT) as an Honor Graduate, PFC Veit went on to compete the Ranger, Airborne, Air Assault, and Pathfinder courses in less than six months total, all without being recycled.

Here at **ARMOR**, we wanted to hear more about PFC Veit, so we conducted the following interview with him.

PFC Veit, you were selected for a very challenging talent pipeline. What did your physical and mental regimen look like prior to and during the schools that allowed you to be successful?

Prior to going to Ranger School I worked on physical fitness during my time in Ranger Team Leader Initiative (RTLTI)*. They heavily focus on physical preparation, specifically geared towards the events you will see at Ranger Assessment Phase (RAP) week. Every week we would do the Ranger Physical Fitness Assessment (RPFA) and 4 mile run, Combat Water Survival Assessment (CWSA) and pool physical training (PT), land navigation practice, and regular PT. We ran a lot and the instructors would occasionally offer to take us on rucks. There was also a gym on the camp that we were encouraged to use on our own time after training was over for the day. This training at RTLTI familiarized me with the physical challenges I would face at Ranger School and helped me progress, especially on my running, allowing me to gain confidence going into RAP week.

**RTLTI is a specialized Army National Guard program that prepares enlisted soldiers for Ranger School.*

Many soldiers look at the schools you attended as a status symbol. What does it mean to you to have achieved success at these schools?



Figure 1. U.S. Army PFC Mace Veit, Nevada Army National Guard, poses for a photo at the Las Vegas Readiness Center in Las Vegas, Nevada, Jun. 26, 2026.
(U.S. Army photo by Adrianne Lopez)

Personally, my success throughout these courses represents that anything is possible. As long as you have the right mindset, work hard, and want it badly enough, you can achieve it. I often doubted myself throughout these courses and underestimated what I was really capable of. Now anytime I feel like something seems impossible or too difficult, I can look back on these experiences as a reminder that I have done hard things before and it is possible.

Did you encounter any unexpected failures during these schools and how did you overcome them?

I did encounter a challenging failure during my last test of Pathfinder School. I failed my first chance at the test and was not sure if I was going to be able to pass it the next day to make

it through the course. It was really upsetting because I had already made it so far through the course and studied so hard and I did not want to come all that way just to fail. I was almost sure I was not going to make it but I still spent the entire rest of that day studying and practicing. I even stayed after class as long as I could to get help from the instructors. I thought I should give it my all and if I still failed at least I knew I gave it my best shot. Later when I got back to the barracks my roommate came in the room and offered his assistance to help me study. He showed me his study techniques which helped me. The next day I during the test I felt a lot more confident and I ended up passing. So even when I thought I knew for sure I was not going to pass, I did not give up, I still gave 100% effort, and it paid off.

What was the most important lesson you learned throughout the Warrior Training Center program that you think carries over to the rest of your career?

I learned many important lessons, met so many great people, and received so much great advice throughout my time in training it is hard to say what is the most important. I will always look back on those times and use those experiences to help me through my career in the future. One thing that I would say helped me and I would want others to know would be to take every opportunity and give it your best shot. Even if something seems unrealistic, impossible, or you feel like maybe you are not ready, give it your best effort and care, try your hardest and it is amazing what can happen.

Tell us a little about your past. High school sports, clubs, teams, etc. Past

accomplishments. What made you into the person you are today? What set you up to be such a high achiever in the U.S. Army?

In high school I wrestled which was helpful physically and mentally. It is a challenging sport that I feel helped me with my mindset when it came to challenging physical fitness and mental tests. Before I thought about the military, I wanted to be a firefighter, so I started doing a firefighting explorer program which was amazing and I was able to workout and learn new skills and get great advice from people in that profession. Once I learned about the U.S. Army, I watched videos about Ranger School and I did not understand what it was but I thought it was awesome and I knew I wanted to do something like that at some point in my career. I never thought I would get the opportunity so quickly but having that goal of doing something

extremely challenging is what always kept me pushing to do the best in everything I did even before I attended basic training.

What would you tell other Soldiers that wish to attend and be successful in the schools that you have completed?

What I would tell other soldiers is that if you really want it you have to care, and if you care and work hard, it is possible. You have to do your best in everything leading up to it and face the challenges head on when they arrive. Do not let fear take over and just aim for the 25-meter target, one thing after the other. A lot of small accomplishments start to snowball into bigger ones.

PFC Veit, we appreciate you taking the time to answer some of our questions. We wish you well as you begin your journey as a Cavalry Scout!

Figure 2. A M2 Bradley Fighting Vehicle and M1A2 Abrams Tank from 'Badger' Troop 3-116th Cavalry Brigade Combat Team hold security at their assembly area during Joint Readiness Training Center (JRTC) Rotation 24-09 at Fort Johnson, La. (U.S. Army photo by MAJ Gregory Walsh)



“You’re the Commander Now”

Lessons Learned from NTC Rotation 24-08

By CPT Samantha Richard

The last thing that Attack 6 said to me before he jumped off his tank and headed home to meet his newborn was, “You can have my map board and you can eat my snacks,” informing me that I was just elevated from company executive officer (XO) to commander of Attack Company, 1st Battalion, 67th Armor Regiment for the next eight days at the National Training Center (NTC). In that moment, there was no formal transition, no time to rehearse command, and no time to think about what I did not know. The fight was not paused just because leadership changed. I immediately transitioned from managing systems and sustainment as the XO to making decisions that would directly impact the company’s success and survivability. This abrupt shift highlighted a fundamental

truth — leaders in the U.S. Army must be ready at any moment to step into the next role.

First Lesson Learned

Guidance, guidance, and more guidance.

Shortly after assuming command, I moved to the battalion mobile command post (MCP) to receive updated products to refine our next mission. Instead, there were no updated graphics, no synchronization matrix, and no clear guidance from higher. Despite this, we were still expected to provide a back brief to the battalion commander on how we would execute. With minimal information and no refined plan from battalion, I had to rely on doctrinal fundamentals and quickly develop a feasible course of action to move the company forward.

As a company commander, we rely on the battalion to give clear and concise guidance on the current operation using known fighting products such as the EXCHECK, SYNCMAT, COP, etc., with the expectation that all companies and adjacent units have a shared understanding of the battlefield. I quickly figured that this is not always the case, and you must be prepared to execute the mission with incomplete guidance, relying on doctrinal fundamentals rather than perfect information. Since I had not yet completed Maneuver Captains Career Course (MCCC), I was forced to rely on doctrinal fundamentals rather than advanced tactical experience. Those fundamentals, paired with clear and simple guidance to the lowest level, ultimately made the difference in mission execution.

Way Forward: When guidance from higher is unclear or absent,





Figure 1. U.S. Soldiers assigned to 1st Battalion, 67th Armored Regiment, 3rd Armored Brigade Combat Team, 1st Armored Division refer to map to verify location during Rotation 23-06 at the National Training Center, Fort Irwin, Calif., March 29, 2023. (U.S. Army photo by PFC Richard Monyer)

commanders must be prepared to adapt. This requires developing and communicating a clear, concise commander's intent grounded in doctrinal fundamentals. Leaders should rely on established frameworks, such as the sequence of the offense or defense, to build shared understanding and provide direction to subordinate elements. Effective leaders develop competence through continuous learning and apply that knowledge to guide their formations with clarity and purpose, as dictated in Field Manual (FM) 6-22, *Developing Leaders*, table 4-51. By simplifying the plan and ensuring understanding at the lowest level, commanders enable disciplined initiative and maintain momentum despite uncertainty. When guidance is unclear or absent, do not wait; build a simple plan, define and communicate a clear commander's intent, and push that guidance down to subordinate leaders without delay.

Second Lesson Learned

Graphics must be understood, not just copied.

As a platoon leader (PL) at last year's NTC rotation, I learned the hard way what happens when you ignore your graphic control measures. It was our final force-on-force mission, and I was the lead platoon with my commander right behind us. It was dark, my lead tank had a new tank commander (TC), my adjacent platoon was getting bunched up too close to our flank, and I felt like I did not have the time to take a tactical pause or look at my map board. There was a small hill in front of us, and we had to decide whether to go north or south. I chose to go south. Within five minutes, that rushed decision resulted in my wingman, my commander, and my tank dead due to, of all things, a minefield. It turns out there was an axis I was supposed to follow traveling north of the mountain.

In that small moment of not paying attention to the graphics, I had three tanks and roughly ten soldiers killed. For this year's dry fire run of the offense, I made sure all the TCs had my graphics, but I found myself running out of time to verify the meaning and reason for the operational graphics. Consequently, I had tanks traveling in the wrong directions, and we learned the hard way before the live fire run. I made a point to ensure we would not make the same mistake again. Before we left the attack position the next day, I ran a radio rehearsal on the company net covering each phase line, trigger, movement to maneuver, and task and purpose of each platoon. It took ten extra minutes that could have felt risky in a compressed timeline, but in this case, there was no greater risk than a lack of shared understanding. That deliberate pause ensured every platoon understood not just where to go, but why they were going there. That shared understanding allowed my subordinate leaders to make decisions,

maintain tempo, and execute the plan without hesitation. Those ten minutes created a common operating picture that ultimately led to a successful live fire exercise full of shock and firepower.

Way Forward: Creating a shared understanding starts at the top and is effective all the way down to the lowest level. As outlined in FM 6-22, Table 4-46, successful leaders discuss intent, priorities, and thought processes with peers and subordinates to ensure understanding. You should encourage feedback and always allow time for rehearsals and back briefs, as well as periodically check in with your team members and subordinates as the mission develops to maintain that shared understanding. Prior to execution, require your subordinate leaders to back brief their plan in their own words, confirm understanding through rehearsals, and take a deliberate tactical pause to identify and correct gaps before movement.

Third Lesson Learned

Accept failure, never accept defeat.

Across both NTC rotations I experienced, we repeatedly faced friction that disrupted our plans- entering the fight with fewer tanks than expected due to maintenance, experiencing loss of communication that delayed tempo, or receiving last-minute mission changes that forced rapid adjustments. These moments created uncertainty and exposed gaps in execution, making it easy for leaders and soldiers to become frustrated or fixate on what went wrong. These moments, however, reinforced a critical lesson: failure is inevitable, but it must never become defeat. Success is built on the ability to recognize failure, learn from it, and apply those lessons to the next fight. If we pay attention to our failures, we can capture the feedback in our personal systems of knowledge and wisdom.

Way Forward: FM 6-22 defines mental agility as, “a flexibility of mind that allows leaders to adapt to uncertain or changing situations.” A successful leader displays self-control and composure in adverse conditions. After facing defeat, it is important to remain positive

and continue to encourage subordinates through manner and example. If you do not conduct an after-action review (AAR) after difficult missions where you identify effective and ineffective actions that took place, then you are minimizing opportunities to improve as a lethal team. After every failed mission or friction point, conduct an honest AAR, identify what went wrong, and immediately apply corrections to the next operation. Do not allow failure to carry over into the next fight.

Summary

Stepping up as the commander of this rotation, I instilled into the Attack Company PLs what my previous commander used to push to me: “Get out there and mess it up and then mess it up again.” This is why we train- to learn, adapt, and keep moving forward. As GEN Dwight D. Eisenhower once said, “What counts is not necessarily the size of the dog in the fight -- it’s the size of the fight in the dog.” Taking over as the commander as a first lieutenant for Attack Company, this rotation was a huge lesson learned that I will never forget. It bettered me, it humbled me, but more importantly, it gave me a critical opportunity to lead

Soldiers in a crucial training event right before our United States European Command (EUCOM) deployment. It allowed me to remind these Soldiers just how vital their roles are in this company. Whether it was two black bars on my chest or one, I had the gratification of learning something and then sharing and extending those failures and lessons of what I learned to others. Ultimately, these experiences reinforced that effective leadership requires providing clear guidance, building shared understanding, and treating failure as a tool to continuously improve and drive mission success.

Captain Samantha Richard was the company executive officer for Attack Company, 1-67 AR, 3 ABCT, 1AD in Fort Bliss, Texas when she wrote this article. Her previous assignments were a platoon leader with Berserker Company, 1-67 AR, 3 ABCT, 1AD and the Battalion S4 OIC for 1-67 AR, 3 ABCT, 1 AD. CPT Richard’s military schools include ABOLC, Scout Leaders Course, Bradley Commander’s Course, and Maneuver Captain’s Career Course. Her awards include two Army Commendation Medals. She holds a bachelor of arts degree in therapeutic recreation and communications from the University of Iowa.

Figure 2. On May 16th 2025, Montana’s 1-163rd Combined Arms Battalion hosted over a dozen British Army Soldiers of the Royal Wessex Yeomanry (RWxY) training event to help their armored crewmembers. (U.S. Army photo by SFC Christopher Hoffert)



238th CAVALRY REGIMENT



The 238th Cavalry Regiment was a parent cavalry regiment of the United States Army, represented within the Indiana Army National Guard by Troop E, 238th Cavalry. Stationed at Bluffton, Indiana, the unit was aligned under the 76th Infantry Brigade Combat Team and tasked with executing reconnaissance missions. Operating under the call sign "Saber" and the regimental motto "Deo Favente" ("With God's Favor"), the Troop comprised three platoons unofficially designated as "Cobra" (1st Platoon), "Shadow" (2nd Platoon), and "Deathdealer" (3rd Platoon).

Originally constituted on 31 January 1949 as the 138th Antiaircraft Artillery Automatic Weapons Battalion, the unit underwent multiple redesignations before becoming the 238th Cavalry in 1963 under the Combat Arms Regimental System. Reorganized in 1995 to consist of Troop E under the 76th Infantry Brigade, the unit was ordered into active Federal service on 23 January 2002 and deployed to Bosnia in support of Operation Joint Forge, where it conducted anti-smuggling operations along the Sava River. Following its return to state control, personnel from the Troop supported Hurricane Katrina relief efforts during Operation Vigilant Relief in 2005. The unit was officially redesignated as the 238th Cavalry Regiment in 2005, relieved from the 76th Infantry Brigade in 2007, and ultimately consolidated with the 152nd Cavalry Regiment on 1 January 2009.



U.S. Army photo by SGT Lianne Hirano