



Left: A column of tanks of the 6th Panzer Division awaits the order to advance during Germany's invasion of France in 1940. (Photo courtesy of the Imperial War Museums) Right: Soldiers from 1st Armored Division's Combat Aviation Brigade and Poland's 18th Mechanized Division conduct a live-fire demonstration 16 September 2025 during Iron Defender 25 in Orzysz, Poland. (Photo by Sgt. James Larimer, U.S. Army)

The Coming Blitzkrieg

Adapting Armored Formations for the Future of Warfare

Maj. Gen. Curtis Taylor, U.S. Army

The next war will be won by the side that first perfects the use of drones in offensive, maneuver warfare.

—Estonian Field Grade Officer, 2025

In early December 2024, as Americans were preparing for Christmas, the 13th Khartia Brigade of the National Guard of Ukraine, did something extraordinary. Operating just north of Kharkiv, they executed the first-ever, all-robot assault on Russian defensive positions with a combination of several dozen air and ground systems.¹ The robots rapidly seized initial positions formerly held by the surprised Russian troops but very quickly had to be replaced by Ukrainian troops to retain that ground and continue the advance.²

While not quite as dramatic as Lt. Col. Creighton Abrams's armored breakthrough to relieve the 101st Airborne Division in Bastogne eighty years earlier, its impact on the future character of war is perhaps more significant. Like the introduction of tanks during the First World War, robotic systems have proven that they are on the battlefield to stay.³

Many today are questioning the future relevance of armored formations as pictures of tanks struck by drones emerge daily from the war in Ukraine.⁴ For those of us that lead the armored forces of the U.S. Army, this war is a clarion call to reexamine the role of armor on the modern battlefield.

This is an “*adapt or die*” moment for our armored formations.

What Is Armor For?

Any discussion about the future role of armored formations on the battlefield must start by considering what armor is for. Why did someone decide over a century ago to mount a cannon on a tractor and send it out into no-man's-land? Although the purpose of armored forces has evolved over time, the general trends of the last century suggest that armored formations today provide *three indispensable capabilities* to America's arsenal that arise from no other source.

Penetrate prepared defenses. Since its birth, the role of armor has been to strike with speed, shock, and firepower to fix, turn, or penetrate the prepared defenses of our adversaries. Any good tactician will follow B. H. Liddell Hart's advice and seek the "indirect approach" to bypass, outflank, or outmaneuver his opponent; however, this is not always possible.⁵

Tactical surprise is rare in the history of warfare. After all the shaping and condition setting is done, formations must close within the killing range of an enemy and send young soldiers to deliver the decisive blow. Armored forces are uniquely configured to breach these prepared defenses in a way that affords maximum lethality and survivability to our most precious asset—the American soldier.

While this makes good tactical sense, there is a strategic component here that we cannot ignore. The U.S. Army exists to preserve peace for our citizens by making war an infeasible option for our adversary. Our deterrence is founded on our demonstrated capability to prevent an enemy from achieving political objectives at acceptable costs. It is feasible, even likely, that a potential adversary could look at recent experiences in Ukraine and conclude that terrain, once seized and properly entrenched with competent defenses, cannot be retaken by any force—even one led by the U.S. Army.

This belief, if it takes hold, is inherently destabilizing as it provides a tremendous first-mover advantage to any adversary. U.S. deterrence demands that we retain a credible capability to recapture territory, no matter how well entrenched it might be. This imperative is supported by a 2020 RAND study that examined the history of deterrence operations over the last forty years.⁶ The study determined that the presence of heavy armored ground forces in the region served as the most effective deterrent to aggression.⁷ As we

proved in Operation Desert Storm, the United States requires forces that can penetrate and retake terrain from any opponent.

Seize and hold ground. T. R. Fehrenbach reminds us that you can bomb a civilization into the Stone Age, but if you want to seize and hold ground, you must do it as the Roman Legions did "by putting your young men in the mud."⁸

It is in this vital role that the armor force stands beside and in support of its older sibling—the infantry. Taking ground is intimate business. The most high-tech battle is still ultimately decided by young soldiers with bayonets. Centuries of conflict have taught us that the winning side in the clash of infantry is the one who can deliver the most overwhelming firepower to the decisive point.

The basic load of a single Abrams tank includes as much firepower as a light infantry company. The tank can deliver that firepower from a mobile platform protected from machine-gun fire and most direct fire. A tank ensures that our infantry never walk into a fair fight when they must close those final yards with the enemy. This point is particularly true in the Indo-Pacific theater, where nearly every major military retains large, armored formations for this purpose. China, for example, is brimming with over 5,800 main battle tanks—nearly five times the number in the current U.S. Army force structure.⁹ Every war fought in the Pacific in the last century has seen the extensive use of armor to support and enable infantry forces in the close fight.

Maj. Gen. Chris Smith, deputy chief of the Australian Army, recently discussed the enduring utility of heavy armor in a high-intensity archipelago fight across the South Pacific. He observed, "While the image of columns of destroyed Russian tanks in the early

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stages of the Ukraine War has been used by opponents of armored vehicles ... the scale of destruction is incomparable to what would have happened had those columns of Russian armour been columns of marching troops or columns of thin-skin trucks carrying troops.”¹⁰ Light forces are ideal for lightning-fast strikes against an assailable flank, but to sustain that fight or commit infantry against hard, dug-in targets, they need the support of armor to seize ground.

Dislocate combined arms formations.

Dominating in the close fight requires mass and the concentration of forces. This concentration invariably creates opportunities as resources are pulled from elsewhere on the battlefield and gaps emerge.

Armored forces are uniquely equipped and organized to exploit these often-fleeting opportunities. Today’s armored formations possess extraordinary mobility and the capacity to fight on the move. They are fit for the purpose of dislocating enemy forces, rendering enemy strength irrelevant, and enabling deep attacks upon supply lines or strategic objectives. Consider for example, the rapid three-hundred-mile advance of the 3rd Infantry Division from the Kuwaiti border to Baghdad in 2003. The Iraqi Republican Guard had trained for years for a rematch against the U.S. Army following Operation Desert Storm. Most, however, surrendered without firing a shot as the 3rd Infantry Division slipped past and struck at the unprotected heart of the Saddam regime. Imagine instead the carnage that would have ensued on both sides if U.S. and Iraqi forces had slugged it out for weeks at the Euphrates River pitting strength against strength.

What Is Changing?

The three imperatives above define a lasting role for armored formations that rise above the temporary character of weapons technology in any particular point in history. Weapons evolve and the character of warfare is changing rapidly. As the armored force adapts to this change it is important to have a clear understanding of the principal changes that affect the future of armor.

Precision strike has replaced direct fire as the principal form of lethality in close combat. Roman Kostenko, chairman of the Ukraine Defense and Intelligence Committee, recently made the claim that 70 percent of deaths and injuries were the result

of drone strikes.¹¹ Additionally, recent reporting on casualties suggests that bullet wounds are exceptionally rare on the Ukrainian battlefield as most injuries come from drones or artillery.

While it is still early, this profound change in the character of warfare requires some historical context. In 1942, the irreparable damage done to Japanese ships by U.S. naval warplanes during the battle of Midway solidified their importance to extend the task force’s reach beyond direct fire and provide observed precision fire capability. Early indications suggest that a similar transformation may now be occurring on the land domain.

Just as naval warfare progressed from direct fire between surface ships to power projection of aircraft sorties and precision missiles, so too will future land warfare. Between armored formations, it will require the ability to launch attack drones and loitering munitions on the move, under armor, and protected by layered counter-unmanned aircraft systems. The tank main gun will endure just like the battleship persisted for five decades after Midway, but their role will gradually diminish as robotic swarms eclipse the direct-fire fight.

Killing is cheaper than protecting. Precision strike has been around since the Second World War, but it has never been this inexpensive. Systems that cost a few hundred dollars to produce can now destroy exquisite weapon systems costing millions. Never have battlefield outcomes been more susceptible to rapid technological innovation. Our entire acquisition model must adapt to product life cycles measured in weeks and days. Armored formations will survive by surrounding themselves with a body-guard of attritable and consumable systems, upgraded and adapted on a continuous basis to endure in this deadly economy.¹²

Surveillance is now pervasive. By 2030, experts estimate that over five hundred billion devices will connect to the internet.¹³ Freely available, commercial satellite technology will track everything that moves on the surface of the earth in real time. A network of crowdsourced surveillance will emerge that will render it impossible to hide the presence of any significant military capability. Formations will survive by looking unimportant. Enemy forces will seek to blend in with civilian infrastructure and populations. Armored formations must adapt by becoming experts at masking signals, thermals, and optical signatures.¹⁴



A tank crew from 3rd Armored Brigade, 1st Armored Division, participates in U.S. Army Europe and Africa's International Tank Competition in February 2025 at Grafenwoehr, Germany. (Photo courtesy of 1st Armored Division Public Affairs Office)

What Is Not Changing

Change is evident, but often the most important insights emerge when we identify what is not changing.

Soldiers are still essential on the battlefield. War, unlike simulation, is infinitely more chaotic and unpredictable than we might imagine. We must exercise extreme caution with fantastic notions that military forces will be able to defeat enemy forces from sanctuary. Ask any veteran about their worst day in combat—about the agonizing decisions they had to make in the chaos of desperate human struggle. We cannot assume a future where we can understand or shape what is happening on the ground without being there. Technology has proven itself effective at detecting and at striking, but it is too easily fooled by countermeasures and decoys. Most importantly, it is least effective in dense, complex environments where friendly forces, civilians, and enemy combatants mix in close proximity. Human intuition and physical presence are still essential. We cannot telework to the battlefield—not today and not in the foreseeable future.

Robots can't develop the situation. You will recall that the robots in Kharkiv were quickly followed by

Ukrainian forces who seized the ground and held it. Robots break. They often get stuck. They lose link. At the National Training Center (NTC), I had the opportunity to see ground robotic systems fight in many mock battles. They perform impressively in a very narrow set of tasks, but as the diversity and complexity grows, their operators often fail to keep pace. They maneuver poorly because the operator lacks intuition about their own exposure to fire. Consider the panoply of sensory data and human intuition required to clear a multiroom building. This is not easily transmitted through any known end-user device. To quote a young robot operator after a training exercise at the NTC, "Robots don't have hair on the back of their neck."

The fast, attritable quadcopter drone is an impressive piece of technology, but it is neither a wonder weapon nor is it a silver bullet. Countermeasures are already evolving—rapidly.¹⁵ Like other innovations in the past, small attack drones will become an important part of the combined arms team but not a replacement for it.

Soldiers are not attritable. Skeptics of armored formations often point to Russian tactics in Ukraine

as a sign of the decline of armor's utility. It is true that Russian forces have all but stopped using tanks in their traditional assault role and employ them to augment their artillery. Instead, they assault Ukrainian machine guns with recruits on motorcycles.¹⁶ Wave after wave of these poor young men attack with predictable results as hundreds die daily in these assaults—this clearly is not the model. For the foreseeable future, warfare will require humans at the tactical edge; not just any humans, but tough, resilient, courageous humans with a deep mastery of highly technical weapons and information processing systems. They are both indispensable and irreplaceable.

There will be occasion in any war in the future, when these indispensable men and women, driven by tactical necessity, will be compelled to enter the killing ground of a waiting enemy. We owe them a suitable tool in our arsenal that affords them the protection they must have to survive chance contact, seize their objectives, and develop the situation on the ground—armored forces fill that role. This is not to imply that there is not a vital and equally indispensable role for the rapid strategic and tactical mobility of our light infantry forces, especially at the onset of a conflict. We need both. The U.S. Army needs a force that is as diverse in its capabilities as the threats we face.

How Must We Adapt?

Now that we have established what armored formations are for and how the character of warfare may be changing, we next turn to how armor must adapt to continue to fill its vital role on a changing battlefield. Lt. Gen. Kevin Admiral, the III Corps commander, recently wrote, “The lessons from contemporary conflicts are the call to action to adapt now.”¹⁷ In line with this guidance, the 1st Armored Division is pursuing four areas of experimentation to adapt to the new battlefield conditions. There is no time to waste. The four areas presented below are by no means exhaustive or final but represent some initial insights in the ongoing discussion with the U.S. Armor School on the future of the armored brigade combat team (ABCT). In this effort, our division stands in full support of 1st Cavalry Division as they lead the armored forces transformation-in-contact initiative.

Sense and strike at echelon. Clearly the greatest and most urgent need in our ABCTs is a robust sense

and precision strike capability from the platoon to the brigade levels. At the platoon level, this requires loitering munitions fired from our existing combat platforms. At the company level, we require significant numbers of first-person-view (FPV) drones that we can deliver on the move and from under armor protection. At the battalion level, this looks like short- and mid-range reconnaissance drones that can pass high-precision targeting information to our mortars and artillery at machine speed with only human-on-the-loop approvals.

The pace of innovation in Ukraine is instructive here. The FPV drone that dominates in the next war will likely be invented within weeks of its start. We cannot get fixated on a specific technology. Instead, we need to focus on the organizations and training system we need now. In the 1st Armored Division, we are learning that directing a drone with attached explosives, flying at seventy miles per hour at tree-top level is really hard work. Our pilots will require hundreds of hours of experience to perfect this skill, especially if they pilot the drone from inside a moving armored vehicle.¹⁸ We are starting now to build this expertise with the goal of having hundreds of our cavalry scouts certified on FPV operations by the end of 2026. At the battalion and brigade levels, we are integrating drones with artillery and mortar systems to enable human-on-the-loop processing.¹⁹ 1st Brigade, 1st Armored Division, recently tested both of these capabilities at the NTC with a Multi-Functional Reconnaissance Company employing FPV drone strike teams operating from Bradley Fighting Vehicles and by integrating drones with live artillery fires in a fully automated kill chain.

Layered counterdrone systems. The 2nd Cavalry Regiment has done extensive work through the Operation Flytrap program to develop a suite of counterdrone detectors and effectors that operate on the move or at a short halt.²⁰ While we wait for this technology to mature, there is much we can do today to adapt. Fighting with closed hatches, camouflaging vehicles, exploiting overhead cover, and dispersing command posts are techniques we can begin today. There is no battle drill or tactical task in the 1st Armored Division that should not be reconsidered in light of the persistent drone threat. We are adapting to this now by changing the way we train and how we



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equip our aggressor formations so that every training event includes a counterdrone operation. 2nd Brigade, 1st Armored Division, will significantly improve our learning in the area in 2026 as they assume the U.S. Joint Task Force Southern Border mission. As part of this critical mission, they will test and employ a litany of soldier-borne, platform-specific, and formation-level counterdrone tools now coming online to protect the homeland.

Embedded electronic warfare. Future ABCT formations will need to maneuver within the electronic spectrum with the same agility they currently have in the land domain. To do this, we will require embedded detection and jamming capabilities at the battalion level and the agility to move our communications to the waveform most feasible at the moment. We will also require attack capabilities that allow us to suppress enemy communications for brief periods of time to enable maneuver. As we wait for new technologies to be fielded in this area, 1st Armored Division is adapting to this requirement by closing the gap between national and tactical electronic warfare systems and building agility in its communications methods. The first step is spectrum literacy—our tactical commanders and their staffs must become fluent in the language of electronic warfare so that we can fight within it.

Robotic breaching. The most effective robots are often the simplest. A Ukrainian senior leader recently told me about a robot that was nothing more than a metal tripod with one wheel and two circular antitank mines that would roll ahead of an infantry squad and drop into a trench line—simple, attritable, and effective. The future of robotic breaching may be the same. Project Sandhills, led by the 20th Engineer Brigade, continues to experiment with simple and cheap robotic mechanisms that attach to nearly any vehicle to enable robotic operations.²¹ The only feasible path to breach an obstacle as extensive as the Surovikin Line is with swarms of these systems—simple, cheap, reconfigurable, and most importantly, highly attritable.²²

3rd Brigade, 1st Armored Division, used their recent deployment in Europe to conduct extensive analysis of what would be needed to penetrate prepared defenses in that theater and will take the analysis to test a fully robotic breaching capability during their NTC rotation in 2027.

A Vision for the Future

Recently, I had the incredible privilege to stand on the bank of the Narva River in northern Estonia with a talented young Estonian officer as we talked through his defensive plans in that isolated region. Two castles stood beside us only a few hundred meters apart, one bore a Russian flag and the other Estonian. At this intersection of civilizations, he explained how these two castles had opposed each other for centuries. As we pondered the tension between the enduring nature of war and its changing character, he offered this superb insight. He said, “The next war will be won by the side that first perfects the use of drones in offensive, maneuver warfare.” He nailed it.

The Ukrainians have shown the world, with tremendous ingenuity and persistence, how to adapt drone technology to a static, attrition-based war in which FPVs are carefully assembled on site and hand-launched from bunkers that have been built and reinforced over months and years. In this war, opponents are separated by a vast no-man’s-land dominated by persistent drone coverage not unlike the machine-gun-swept killing grounds of the First World War.

But another blitzkrieg is coming. In the 1930s, the Wehrmacht’s army figured out how to restore maneuver warfare on a battlefield dominated by the machine gun. The next blitzkrieg will come from the army that does the same for the drone.

In the coming years, an army will emerge that adapts today’s technology to a more mobile style of warfare, where killer drones are launched by the thousands from mobile platforms, encased in layered countermeasures and agile electronic warfare systems. This force will be able to project the precision strike

lethality we see today at a speed and pace for which its opponents are unprepared. It will be able to penetrate prepared defenses with swarms of robotic breachers that overwhelm obstacles under the persistent over-watch of loitering munitions. It will seize and hold ground, first with robots and then with manned, survivable systems that can endure chance contact with enemy forces so that soldiers can develop the situation on the ground. As opportunities emerge, it will move

rapidly to dislocate enemy formations, rendering their strength irrelevant as it advances to cut off supply lines or seize strategic objectives.

This is the future of armor. The U.S. Army along with our allies must lead the way into this future. ■

The views expressed are those of the author and do not reflect the official position of the Department of the Army or the Department of War.

Notes

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