MODERN WAR INSTITUTE AT WEST POINT

The MWI Ukraine Papers

2022–2025

Since 2022, the Modern War Institute (MWI) has published almost a hundred articles and podcasts that provide understanding of, recommendations for, and lessons from the Russo-Ukrainian War. We have gathered a collection of those articles to capture the discourse during the war. These articles display how the character of the war and how our analysis of that character has evolved. MWI will continue to facilitate the professional discourse to assist Ukraine and to prepare the United States and its allies to prevail in a future conflict.

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The Initial Conflict

The Two Debates in Military Circles the War in Ukraine Could Help Settle

John Amble | March 2, 2022

Russia's invasion of Ukraine is a blatant violation of sovereignty and territorial integrity. It is a tragedy for those on the receiving end of what appear to be increasingly indiscriminate attacks. It is a clarion call for nations to choose sides, and it is strengthening the resolve of European political and defense institutions. It's also set to settle longstanding debates in Western military circles.

Militaries make assumptions about the adversaries they will face in the future, the characteristics of the environments in which they will operate, and the weapons and systems that will be required. This is natural and is why professional military forces develop future-looking concepts. As retired General David Perkins often explained when he commanded US Army Training and Doctrine Command, doctrine describes how we train and fight today, while concepts describe how we expect to fight in the future. And while those concepts rest on a wide range of assumptions, many of these assumptions remain untested—and debated.

This is why learning from our experiences of war is so important. But just as important is learning from others' experience—watching, assessing, analyzing, and deriving insights to refine our expectations of the future of conflict. Russia's attack against Ukraine is an opportunity to do so, and it is bringing two debates in particular into focus.

Urban Warfare: Inevitable Challenge or Avoidable Distraction?

In 2017, we launched the Urban Warfare Project at MWI. We have published dozens and dozens of articles, a podcast series, and historical case studies—all aimed at exploring and conceptualizing urban warfare and the unique challenges posed by cities as operational environments. John Spencer, MWI's chair of urban warfare studies, is arguably the leading expert on the subject and has challenged the US military to consider a range of important questions. What are the tactical challenges of fighting in cities? What about the strategic implications? How is a military force's ability to maneuver degraded by dense structural complexity? What would a unit optimized to operate in large cities look like? What types of training are most useful? Can modern warfare be conducted in a city without causing massive destruction?

And yet, all of these questions *assume* the unavoidability of urban warfare. There are good reasons to believe this assumption. The world is becoming increasingly urban. Cities hold political, economic, and symbolic value, so an aggressor seeking to diminish an adversary state's political stability, economic vitality, social cohesion, and national will might naturally see cities as attractive targets. Urban environments lend considerable advantages to a defending force, inviting a militarily weaker side in a conflict to seek sanctuary in cities and turn them into fortresses that provide protection, not only from enemy fires but also enemy intelligence, surveillance, and reconnaissance platforms. The list goes on.

But not everyone agrees. Given the challenges cities pose, they argue, urban warfare can—and should—simply be avoided. Military forces should isolate cities and bypass them, not get pulled into an unnecessary street-to-street, building-to-building fight.

Today, as Russian forces approach Ukraine's capital, this debate is as relevant as ever. To be sure, Ukraine's military is preparing to defend the capital city (as is its civilian population—more on that below). For Ukraine, avoiding urban warfare is clearly not an option. Whether doing so is an option for Russia is the salient question—and its decisions in the near future will be telling. Russian forces' drive toward Kyiv and its encirclement and targeting with rockets and artillery of Kharkiv and Mariupol make clear that cities represent primary objectives of Russia's military campaign. Russia has signaled its belief that achieving its operational goals—namely, isolating Ukrainian forces in the east and establishing a land connection between Crimea and the Donbas—*and* its strategic goals—whatever they are—center on cities.

What remains to be seen, however, is what Russian forces do next. Will they escalate indirect fire attacks and employ

airstrikes in order to extract political submission on Moscow's terms? Or will they enter Kyiv (and other cities) and accept the enormous risks of seeking to forcibly dislodge the Ukrainian defenders? Either way, the current conflict reinforces the strategic and operational importance of cities and necessitates their consideration in any serious conversation about large-scale combat operations. But if Russian forces do in fact enter the city intent on fighting, it will provide a powerful piece of evidence that the future of warfare is urban—and that we must prepare for it.

Civilian Resistance: Winning Strategy or Dangerous Delusion?

As Russian revanchism has built in recent years and the small states closest to Russia have felt increasingly threatened, an obvious question has arisen: How can those states, militarily weaker by an overwhelming degree, deter aggression and defend against attacking forces should deterrence fail?

One option is to incorporate nonmilitary and paramilitary personnel into an integrated defense plan. Indeed, several of the small states under threat have done so. Estonia, Latvia, Lithuania, Finland, Sweden, and Norway have all adopted approaches that combine conventional military capabilities with civilian resilience and resistance—a concept sometimes called total defense. But the appropriate balance between those capabilities is the subject of debate. Given the overwhelming military superiority of Russian forces vis-à-vis those of Russia's smaller neighbors, the argument can be—and has been—made that jettisoning the majority or even *all* conventional capabilities is not only a legitimate strategy, but the smartest one. Sandor Fabian, a former Hungarian special forces officer and MWI nonresident fellow, explains the logic of this view. "If the conventional military capabilities of the Scandinavian and Baltic states were combined in a single military force," he writes, "they would still be outweighed by Russian capabilities in the Western Military District." The result of any force-on-force conventional fight pitting one of these states' militaries against that of Russia would be, he concludes, "the quick and complete destruction of the defenders' military force and full occupation of the attacked country." Why, then, maintain a conventional military capability not strong enough to deter aggression on its own and likely to be destroyed in the event of conflict? Instead, those resources should be directed toward establishing a professional irregular defense force and building a broad, society-wide capability to resist both invasion and occupation through irregular tactics.

Placing a bet on irregular forces and civilian resistance as a primary means of national defense, however, is not without critics. After MWI published an article advocating for such an approach, Jeroen Verhaeghe, a Belgian infantry officer, responded by describing the several reasons why even small states need conventional military forces. He argued, among other reasons, that even limited conventional capabilities will necessarily have a larger deterrent effect than a wholly irregular, resistance-based approach. Moreover, there is a domestic reassurance component to consider, since a conventional military is more readily visible. And of course, for NATO members, maintaining alliance cohesion is dependent on burden sharing—even if the portion any country shares is proportionate to its size—and that requires conventional capabilities.

Ultimately, the questions are whether civilian resistance is a credible means of defending against aggression and, if so, what balance between such an approach and conventional capabilities is appropriate. The war in Ukraine is shaping up to help illuminate both questions. Ukraine's military forces have performed extraordinarily well since Russia's invasion—better than most observers anticipated and almost certainly better than Moscow expected. Civilians have also already adopted a resistance posture, the effects of which remain unknown in an operational sense but have certainly been symbolically powerful. In a war with a significant information warfare component, that matters.

Moreover, as Russian forces approach Kyiv and other strategic cities, two prongs of unconventional defensive forces are taking shape: the Territorial Defense Forces are an organized reserve component of the Ukrainian military already being deployed, while individuals and small groups are equipping themselves to resist Russian forces by whatever means are at their disposal. Some are establishing obstacles to block the progress of Russian vehicles, while others are arming themselves with homemade Molotov cocktails.

We will learn a lot in the days to come about the ability of a militarily weaker state to withstand the aggression of stronger state. Based on the contributions of both Ukraine's conventional military forces and its legions of volunteers, we will also learn a lot about the viability of civilian resistance as a means of national defense.

The world is watching the war in Ukraine unfold on TV, TikTok, and Twitter. Underneath the deluge of rapid-fire analysis and between the mountains of mis- and disinformation is a learning opportunity—one that military and defense professionals have an obligation to take. Will we eliminate the need for assumptions and conclusively settle ongoing debates about our future adversaries and the environments in which we will operate? No. But by closely watching this conflict and honestly and soberly assessing its conduct, we can get closer—and we should.

Wargaming a Long War: Ukraine Fights On

James Lacey, Tim Barrick and Nathan Barrick | April 4, 2022

In the weeks prior to the start of the Russo-Ukrainian War, Marine Corps University hosted a four-day wargame to forecast the war's course. That wargame proved remarkably prescient, accurately predicting almost all of Russia's major combat movements in the first week of operations. As the war entered its second month, the Marine Corps War College and the Brute Krulak Center for Innovation and Future Warfare reopened the wargame with the aim of exploring how the future fight might develop, with a particular emphasis on a national resistance scenario in a Russian-occupied Ukraine.

Our wargame's advisors came from a variety of backgrounds and experiences, including United States military officers, representatives from NATO countries, two experts on internal Russian decision-making, and a retired Ukrainian colonel with experience on the Ukrainian general staff. The second iteration's most significant change to gameplay was a switch from each turn representing a single day to three-month turns. This was done to allow us to play out a full year of combat operations within the time allotted to complete the wargame. Lengthening the game turn duration required a higher degree of adjudication abstraction than our previous wargame, but it proved essential to enabling players to look at broader operational and strategic considerations over the duration of a protracted conflict.

After applying expected geostrategic and operational developments over the remainder of this year and into the start of 2023, we determined the Russians reached an operational culmination well-short of their maximal objectives. Given the combination of Ukraine's proven will and its capabilities in a defensive fight, the prospects for Russian forces in heavy urban combat proved daunting. By the end of the summer, Russia no longer possessed the forces to pursue major simultaneous objectives nor the combat power to conquer a major city. All was not rosy for the Ukrainians, who lacked the combat power to go on the offensive and eject Russia from the occupied territories. With neither side able to achieve decisive military effects in the offense, without exception, the combined teams predicted that without a negotiated settlement the war is headed toward an indefinite stalemate.

The ramifications of such an outcome are immense. First, of course, is the toll in human suffering, as losses mount on both sides, and the refugee crisis remains unalleviated for a year or more. For the United States, a stalemate means that the ad-hoc defense-related resupply arrangements require systemization and the establishment of a quasi-permanent logistics infrastructure. Ukraine's future success also requires the establishment of training centers that can regenerate Ukraine's frontline combat power and allow these forces to reenter the fight.

As we conducted the wargame, the surprises came fast and furious. The first was we entered the wargame with a flawed assumption about Russia's prospects. Initially, we assessed that over the next four months the weight of the Russian force would gradually wear down Ukraine's military and allow for a complete occupation of the country. After conducting open-source analysis to develop a current operating picture and assessing losses since the start of the war, the team agreed to fast forward one month and assume the collapse of Mariupol, Sumy, and Konotop. The wargamers were then tasked to determine the major operational movements for the summer 2022 campaign, using as the key decision how Russia would employ the maneuver forces freed up by these successes and the option to employ forces held in reserve. In weighing and then employing the wargame to test courses of action, it rapidly became clear that Russia lacks the combat power to collapse the Ukrainian military this summer.

Another surprise for the wargame was the validation of how national leaders' political objectives trounce the best military advice provided by generals. As the summer campaign played out, the "generals" (wargamers) were forced to decide how best to employ military forces, and shift combat resources, including strategic reserves, to accomplish objectives. Political requirements dominated military decision-making, as the expert military advice on future operations was overruled in favor of seizing objectives deemed more politically important. In this case, our Vladimir Putin ordered spectacular victories were necessary to sustain his own power, repeatedly saying that the postwar condition of the army was of small consequence.

Summer and Fall 2022

Russia's summer 2022 move prioritized political objectives to achieve iconic successes over improvements of the overall military situation. Despite increasing Ukrainian partisan activity in occupied areas, Russia launched localized and

limited offensives in pursuit of these objectives. However, apart from Mariupol, these objectives proved elusive, and most of the Russian-Ukrainian front lines barely budged. The only major exception was a local Ukrainian counterattack that retook a sizable amount of territory northwest of Kyiv.

The major takeaway from this first move is that, despite the lack of movement, frontline attrition remained frightful. Although Russia continues suffering higher attrition rates than its opponent, Ukrainian forces are far from unscathed. The most damaging losses for the Russians are in experienced officers, troops, and armored vehicles, which are the primary targets of local counter-attacks given increasing numbers of portable antitank weapons. The wargame highlighted Ukrainian capabilities to employ killer-drones to knock out Russian vehicles, including tanks, armored personnel carriers, and self-propelled artillery. Open sources claim that Ukraine has over fifty such weapons on near-constant patrols and this number is growing. If only one drone in ten kills a vehicle each day, that equates to 150 vehicles a month and 1,350 Russian vehicles losses between now and Christmas. Moreover, the wargame-imposed daily success rate of a mere ten percent is likely a gross underestimate. Add to this the losses inflicted from thousands of anti-tank weapons and the Russians soon ran short on modern armor to support combat operations. Over the wargame's year-long course, Russian losses in troops and vehicles approached the entire amount it had built up around the perimeter of Ukraine at the conflict's start.

Despite our intention to devote the rest of the wargame to a possible insurgency or national resistance campaign, the fact that, even if Ukraine was not winning the war, it was certainly not losing it, caused a re-evaluation. As Ukraine still had an intact, discernible, and well-manned front line, it was decided to let the wargame continue on its natural course. What was apparent to all was that the wargame was starting to parallel the situation the warring parties found themselves in 1915, with both sides unable to launch major offensives as manpower and munitions stocks were nearly exhausted.

As the war progressed, attrition challenged both armies' ability to create operational reserves, as all available forces were required to sustain the line. Thus, by mid-summer, Russia lacked the capacity to conduct more than one operational offensive at a time, and its force would rapidly culminate in front of fierce Ukrainian resistance. For the Ukrainians, they were still holding a long defensive line with an ever-shrinking force, opening the possibility of multiple Russian breakthroughs.

Similarly, both sides in our wargame were limited by a lack of munitions. Current reporting appears to give the Ukrainians an edge, as they are apparently attacking throughout the theater, employing thousands of Javelins and other antitank systems. While important, a superiority in munitions does not equate to a capability to conduct a large-scale offensive to retake lost ground. The initiative remains with the Russians, but grievous and continuing losses limited Russian striking power. Furthermore, with the Russian economy under sustained international assault, it may not be able to resupply munitions, particularly precision-guided missiles and bombs, which already appear to be in critically limited supply. As a result, we reduced the striking capacity of formations as the lack of resupply took its toll.

In game terms, during the summer and fall campaigns, the Russians remained capable of applying pressure at many points along the front but could no longer sustain the four major offensives they initiated the war with. Just sustaining their isolation attempts on Kyiv and Kharkiv consumed and fixed the majority of Russia's available combat power. As the second turn concluded, taking the conflict into December, the Russians, with severely depleted forces, were forced to make hard choices. Our Russian generals advised shifting to an eastern strategy similar to what Russia announced late last week. But they were overruled by Putin, who insisted on capturing Odessa, despite a lack of progress against Kyiv and Kharkiv.

Thus, Russia employed its strategic reserves for an offensive in the south that culminated short of capturing Odessa. The impact was to extend the front without achieving anything of military or political significance, while also eliminating any further reserve formations in theater. The wargamers did take some time to explore the eastern strategy, and although it likely would have initially caused significant Ukrainian military losses, the Russian offensive culminated before Dnipro and the Dnieper crossings, and with Kharkiv still controlled by Ukraine.

Winter 2022

As its losses mounted and Russian forces prepared to conduct a winter offensive, Ukraine, in the winter turn, faced the decision to either defend in place and continue to contest the Donbas and Kharkiv or withdraw most of its forces back to cover the city of Dnipro and the Dnieper River crossings. A withdrawal, by reducing the front by several hundred miles, freed up substantial forces for reemployment around Kyiv or in the south. It also ceded key terrain in the Donbas and Kharkiv regions. Defending forward would have increased Ukrainian leverage in strategic negotiations but risked a Russian envelopment of the center of Ukrainian defenses. The wargamers opted for a withdrawal of much of the combat power back toward the west, while still holding Kharkiv as an eastern bastion.

During the wargame, adjudicators allowed both sides to sustain the personnel strength of many units through various

means—volunteers and reserve manpower for Ukraine, and drafts of new conscripts and foreign mercenaries for the Russians. What could not be replaced in any great numbers, by either side, were vehicle losses. These losses impacted the Russians far more than the Ukrainians on the defense. By the end of a year, vehicle losses brought offensive operations to a near standstill—a natural culminating point.

The game ended with Ukraine growing stronger, but still incapable of retaking lost territory. Russia, on the other hand, needed a prolonged operational and strategic reset, no longer having the combat power to sustain a major advance and with little hope of reviving such power in the near term.

Observations

Ultimately, both sides lack the forces to achieve their ideal outcomes. Without a political compromise, we predicted the military aspects of this conflict will be characterized by stalemate, limited advances, high casualties, and massive equipment attrition on both sides over the next twelve months. Given Putin's political position, the Russian army will be under heavy pressure to achieve success, which may lead to desperate employment of chemical weapons and/or tactical nuclear weapons to end the battlefield stalemate. However, players assessed that resorting to such tactics invites a United States and NATO response that would be cataclysmic for Russian hopes of ultimate success.

Reluctance on behalf of the United States and NATO to intervene hampers the development of logistics infrastructure needed to provide humanitarian assistance. The wargame indicated a growing demand for some international intervention to address the humanitarian crisis. The wargame also indicated that there are opportunities to conduct limited interventions to preserve and protect humanitarian concerns without presenting a direct challenge to Putin's political and military operations. A bias toward avoiding the risk of escalation should not prevent consideration of intervention scenarios, such as humanitarian corridors or the establishment of safe havens within Ukraine.

The wargame allowed for differing levels of force generation under several scenarios. The establishment of a force generation capacity to train and equip shattered or new Ukrainian formations, outside of Ukrainian territory, had a marked positive impact in Ukraine's ability to sustain its defensive positions. Similarly, anything that can be done to interfere with Russian force regeneration further limited its capacity to conduct further assaults. Still, without a sustained flow of munitions and equipment, Ukraine will be challenged to maintain its defensive positions. As for Russia, the game indicated that it will soon lack sufficient trained infantry to capture any major Ukrainian city after Mariupol falls, and will be unable to capture, nor even threaten the defensive viability of, Kyiv or Odesa. Kharkiv remained at risk of becoming isolated. But the wargamers assessed Russia lacks the combat power to quickly seize the city. Kharkiv may be able to hold out until year's end and beyond unless the Russians halt all other operations to mass combat power around the city. Even then, such an assault will be an extremely costly operation, leaving Russia scant resources to do much else, while opening other areas to Ukrainian counterattack.

The wargame assumed Putin will remain unfazed by economic sanctions until their impact makes it impossible to rebuild his devastated ground forces without a national mobilization, which our experts believe presents a real risk to his regime's survival. However, throughout the wargame, the economic sanctions imposed upon Russia were a constant backdrop to all else going on. If Russia remains cut off from capital markets, its energy industry sanctioned, and the country's institutions removed from SWIFT, rapid economic collapse is likely. In that case, Russia will be unable to sustain the likely year-long conflict simulated in the wargame.

Finally, the possibility of a rapid Ukrainian collapse cannot be ruled out. But the wargame did not show any path where such an outcome is likely, as long as the West continues to sustain Ukraine's resistance. In fact, this wargame indicates it may be time to start talking about the implications of an unambiguous Ukrainian battlefield victory.

After our first wargame, we had the luxury of looking backward to determine the accuracy of the game's predictions. The results were good enough to give us the confidence to employ the game to look into a more distant future. Still, this is a wargame, and real-life human interactions in the bloody cauldron of war can easily confound our team's predictions. Still, the game presents a set of interesting possibilities, all of which require more through examination by policy experts, tasked to prepare answers to a problem that seemed absurd in late February 2022–that Ukraine would still be holding its own against the Russian colossus a year hence.

Time Is Not on Kyiv's Side: Training, Weapons, and Attrition in Ukraine

Andrew Milburn | June 27, 2022

The battalion commander shrugged helplessly when we advised him that five days was a completely inadequate amount of time in which to train his soldiers. "This is all we have—they are needed on the front," he replied with grim finality. A few days later, on a separate course that we were running for his medics, half of our class disappeared on the second day. "We have had casualties," was the only explanation we received. Even in units that fall within the Ukrainian special operations command, most soldiers are sent to the front line with very little training. In one such unit, we estimated that just 20 percent had even fired a weapon before heading to combat.

On May 3, the Ukrainian parliament passed a law that allows territorial defense units—the country's home guard—to be deployed to combat outside their home regions. These units are manned by local volunteers who typically have received very little preparation. We were soon swamped by requests for training courses. In the western Ukrainian city of Lviv, a town hall meeting to explain the new policy to local territorial defense volunteers was disrupted by wives alarmed at the prospect of their part-time soldier husbands deploying to the front.

Each anecdote by itself a data point, but together they tell a story that belies the relentless optimism that has pervaded Ukrainian representation of the war from the outset. After four months of grinding attrition, the Ukrainian army is facing a manpower shortage.

Every day in the current fighting, President Volodymyr Zelenskyy said earlier this month, around sixty to one hundred Ukrainian soldiers are killed and another five hundred wounded in combat. A more recent *New York Times* article puts that figure much higher—at one hundred to two hundred deaths a day. To put that in context, during the 1968 Tet offensive in Vietnam, one of the bloodiest periods of the war, US deaths were roughly two hundred a week—and among a force almost twice the size of the Ukrainian army.

Aside from Zelenskyy's admission, the Ukrainian government has been largely reticent about releasing casualty figures and Western governments have offered few of their own assessments, but grim reports from the front line indicate that Ukrainian casualties are high—and perhaps in the long term unsustainable. "My friend's son is in a company with just thirty soldiers left," down from the 120 personnel typically in a company, one senior Ukrainian officer told me.

Every day last week, while evacuating civilians from areas in the east under bombardment by the Russians, as we drove to the front we passed a succession of ambulances going the other way. As they passed, my interpreter read aloud the signs displayed on their front bumpers: "three times 300s" or "four times 200s," using the Ukrainian military terms for wounded and dead. By the end of the week, the figures in their aggregate, for just one section of the front we observed, seemed staggeringly high.

Of course, the Russians continue to take even higher casualties, but with their vastly greater pool of manpower, it is unlikely that these losses will have a significant impact—at least not in the short term.

And as news of the war slides from prominence in the news cycle, the way it is being fought has changed significantly. Ukraine's troops now face a Russian force that has shifted strategy from the hasty, single-axis attacks that characterized the early weeks of the war. Now there are no more attempts at pincer movements but instead slow but inexorable advances, preceded by massive artillery bombardments—a few kilometers every day all along the front from Izyum in the north to Zaporizhzhia in the south, tightening the noose on a fragile Ukrainian salient protecting the road network that links Kyiv to the east.

In between artillery barrages, the Russians probe Ukrainian lines with small packets of armored vehicles accompanied by infantry and supported by vehicle-mounted heavy machine guns. All the while, artillery shells are launched at regular intervals in the general direction of Ukrainian forces and along their supply routes, a technique known in the US military as harassment and interdiction fire. The Russians are also practicing movement to contact—a form of reconnaissance in which the idea is to identify Ukrainian positions by drawing fire, thus enabling Russian artillery to pound new targets with precision.

Optimism in the Kremlin?

The Russian army now occupies an area comprising one-fifth of Ukraine's total land mass—far more than it did at the outset of the war. President Vladimir Putin's overall objective

remains opaque. The low threshold for declaring victory is likely to be annexation of the entire Donbas region, a goal that Putin has almost accomplished, but with a recent resurgence in Russian confidence, that may not be enough to satisfy him.

Credible reports from Meduza, a Russian-language news site based in Latvia, indicate that Kyiv is back in the crosshairs and that there is now renewed support within the Kremlin for another onslaught on the capital. And there are reports of renewed military activity on the Russian side of the border to the north, the most likely origin of an assault on the capital. Our contacts with the Ukrainian military intelligence directorate tell us that Russian reconnaissance troops and private military contractors have been spotted on the Ukrainian side of the border. These may be indications of another attack on the capital, but a ground attack still appears unlikely. Taking Kyiv would involve a massive effort—probably more resources than Russia has at hand without resorting to general mobilization. But Putin has other options.

An advance to within artillery range would be sufficient to inflict severe punishment on the city, especially if combined with a determined effort to undermine Kyiv's air defense system. "I have advised my wife that it is not safe to return to Kyiv," one senior officer told me the other day. While those in the know are worried about this prospect, it's hard to see any reflection of concern in the city itself. Every day, packed trains and buses return more of the population to their homes, and the capital is again a bustling city, with no resemblance to the ghost town it became in the early days of the war. Sirens still wail throughout the day but are universally ignored. Ironically, the impressive performance to date by Ukraine's air defense system may have lulled the population into a false sense of security. But every air defense system, no matter how modern, is susceptible to a determined and well-planned effort to penetrate it, and Ukraine's outdated S-300 is no exception.

A War of Endurance

Some might say that this commentary paints an overly gloomy picture for Ukraine—that game-changing weapons are on their way, and these will be enough to turn the tide. It is true that the US-made High Mobility Artillery Rocket System (HIMARS), already operating in Ukraine, is a formidable weapon and a welcome improvement on the Ukrainians' over-used Soviet howitzers and even the recently supplied M777 lightweight 155-millimeter howitzer, whose deficiencies I have written about recently. Even lacking the long-range Army Tactical Missile System, HIMARS can bring accurate fires to bear at ranges exceeding forty miles within minutes of receiving data.

It will be weeks, however, before HIMARS is fielded in sufficient quantity to have a significant effect—maybe too late to reverse the Russian advance. The logistical exigencies of getting more into theater and then bringing Ukrainian artillery personnel to Germany or Poland for training stand in the way. Meanwhile the hemorrhage of casualties continues. And even when fielded, the HIMARS will not have the same effect for the Ukrainians as when employed by the US military, because of a shortfall in Ukrainian task organization. The tactical units we trained lacked forward observers, personnel trained to locate and report targets in a manner that can be rapidly transferred into firing data. The extremely centralized execution of artillery fire in the Ukrainian army makes for some effective fires for effect, such as the recent one that struck several Russian generals, but is not very responsive to the needs of frontline units.

The lack of forward observers may put the Ukrainians at a significant disadvantage, but the Ukrainians have on their side a strong affinity for drones and an intuitive understanding of their value in modern war. I have written previously of the requirement for long-range strike drones, loitering munitions with longer range and heavier payload than the Switchblade, and drones that can be used to deliver logistics. If Washington does provide strike drones, such as the MQ-1 Predator or even its longer-range successor, the MQ-9 Reaper, these platforms will doubtless come with the proviso that they must not be used to strike targets in Russia itself. Since launching such strikes is undoubtedly part of their plan, the Ukrainian military will have to look elsewhere for platforms that can be used for cross-border strikes on Russian reinforcements, supply chains, and infrastructure.

How Does This End?

If senior Ukrainian officers are to be believed, the war will not end with a ceasefire while Russian boots are on Ukrainian soil. They are determined not only to remove Putin's gains since the beginning of the war in February, but also to recover areas of the Donbas that have been under de facto Russian control since 2014. Crimea, some Ukrainians admit, may prove to be a bridge too far, but many are determined that the threshold for Ukrainian victory must also include this region, the annexation of which eight years ago sparked the current period of enmity between the two countries.

The problem lies in squaring the wellspring of Ukrainian resolve with the military's limited resources. Ukraine needs weapon systems that will give it a real edge over its adversary and help staunch the flow of casualties. Without this edge, no amount of determination and courage will be enough to avoid a prolonged war of attrition, and such a contest will favor the side with the greatest numbers. For Ukraine, the darkest days may be yet to come.

Don’t Underestimate the Bear—Russia Is One of the World’s Most Effective Modern Counterinsurgents

Martijn Kitzen and Marnix Provoost | March 24, 2022

The Russian invasion of Ukraine grinds on. So far, Ukrainian conventional forces and resistance groups have mounted a stiff defense against Russia’s numerically superior forces. The Ukrainian people, meanwhile, have rallied behind their government and seem willing to join the fight. Over the past few weeks, civilians have blocked armor with their bodies and prepared Molotov cocktails; Ukrainian women and children have started weaving camouflage netting; and civilian casualties from Russian fire are mounting. All of this is deliberately disseminated through a savvy Ukrainian social media campaign that has successfully reverberated in Western countries.

The conflict can best be characterized as what Rupert Smith has called a war among the people, in which “civilians are the targets, objectives to be won, as much as an opposing force.” It is no wonder, therefore, that many analysts and observers have urged Ukraine to adopt a strategy based on irregular warfare. Since the overwhelming Russian forces may well end up occupying at least part of the country, a Ukrainian insurgency will be part of the armed resistance. Any such insurgency will be long and bloody. But so far, most commentary on the topic has overlooked the grim but successful track record of Russian counterinsurgencies. Policymakers need to grapple with the brutal reality of Russia’s approach if they are to predict how Russian forces might react when confronted with a Ukrainian insurgency armed with advanced weaponry.

The Logic of Russian Counterinsurgency

There are two primary ways of countering insurgencies: states can either try to win hearts and minds or crush them. Both distill down to the challenge of fighting an elusive enemy hiding among the people. Modern Western military thought considers such a fight an indirect, population-centric approach hinging on the state’s ability to enhance the populace’s collaboration with the government. This assumes that strengthening the ties between people and state authorities augments the latter’s legitimacy while simultaneously weakening the insurgent’s position.

But while this approach emphasizes collaboration, there are other potential pathways toward control. Stathis Kalyvas, for example, has pointed out how the use of force can lead to more or less unquestioned dominance. Here, occupying forces can establish control through effective sanctions aimed at insurgents and their supporters. They use force to neutralize opponents and coerce people to comply with the government. Typically, the identification problem caused by the elusive nature of the opponent makes it particularly hard to target these sanctions and therefore indiscriminate violence and collective punishment are common. Thus, instead of enhancing governmental legitimacy this brutal, so-called authoritarian approach essentially revolves around gaining control through repression.

Recent Russian military campaigns in Chechnya and Syria, which featured indiscriminate violence and collective punishment, make clear that modern Russian armed forces adhere to an authoritarian counterinsurgency strategy. Moreover, an analysis of the historical track record reveals that this brutal approach has not only become a trademark of Russian counterinsurgency but has also brought unprecedented success. Of the twenty-four rebellions and insurgencies encountered between 1917 and 2017 Russia (or the Soviet Union) “won” twenty-one of these conflicts—an astonishing 87.5 percent—where “won” means that “the insurgency is militarily defeated and its organization destroyed, or the war ends without any political concessions granted to insurgent forces.” This makes Russia one of the world’s most effective modern counterinsurgents.

Ukraine may represent an outlier for Russia: unlike the Chechens, Dagestanis, and Ingush, the Ukrainians have a substantial number of conventional military units, including an effective drone air force, that are working alongside pro-Ukrainian militias, territorial defense units, and resistance groups. The Russian approach may struggle against a more professionalized insurgent force with modern weaponry. But analysts would be unwise to write Russia off too quickly.

There are five characteristics of an authoritarian approach to counterinsurgency. First, authoritarian regimes have a stronger grip on information than democracies. While these regimes are not immune to dissent, their control of information offers a powerful tool for protecting their hold on power and silencing critics.

Second, and related, an authoritarian state’s monopoly on information can be used for mobilizing mass support at home for even the most brutal of campaigns. Key here is that in the

logic of the authoritarian approach, information operations focus on selling the threat of the insurgency to domestic audiences and not on winning over the hearts and minds of the local population. The aim is to demonstrate the necessity of the use of force against insurgents and their supporters.

Third is the deliberate use of massive and often indiscriminate violence. This seeks to prevent the insurgents from mobilizing popular support while simultaneously augmenting governmental control. The fragmentation of society that results from such violence denies opponents the ability to build or sustain solid ties with local communities. For this purpose, "coercive engineered migrations" might also be adopted. As a result, the insurgency will become more isolated as it is deprived of popular support and sanctuary.

Fourth is the concept of "Holding, Suppressing, Controlling." This effectively boils down to the imposition of a police state. Physical control of territory and people gives the state the ability to monitor cooperation and trumps achieving any sense of legitimacy among the local population. When satisfied with the level of control, locally recruited paramilitary, police, and intelligence forces will gradually take over from the armed forces. This is all about imposing and sustaining an effective apparatus for punishing any dissent as swiftly and severely as possible in order to achieve a deterrent effect.

Finally, even authoritarian governments have to persuade the population to accept the new balance of power. They typically do so by interposing the state in every local societal transaction and activity and thus rendering it indispensable to public life.

The Brutal Reality of Russian Counterinsurgency

The most eye-catching feature of Russian counterinsurgency is its brutality, or more precisely its heavy reliance on massive force and suppression in the form of indiscriminate violence and collective punishment. The specific use of both methods and their interaction depends on capabilities and local regime characteristics. Historically, Russia has employed indiscriminate violence when its capabilities have been limited. In such cases the counterinsurgent was weakly rooted in the target society and local asymmetries favored the insurgency. Collective punishment, by contrast, has been most commonly observed under Russian regimes with strong capabilities and a sufficient degree of state penetration in the local population. In both cases, unquestioned dominance is achieved by unleashing brutal force on people living within the territory in which an insurgency takes place. Such efforts tend to be supported by subjecting Russian society as a whole to measures for curtailing dissent and mobilizing popular support. In fact, the Russian government's thinking about cutting itself off from the global internet reflects a similar desire to control the information space for its domestic audience.

The use of indiscriminate firepower is generally a response to the difficulties in coordinating combined arms operations in tough terrain in which the population is mostly on the side of the insurgents. This has resulted in the primacy of artillery in Russian ground combat power in counterinsurgencies. Substituting firepower for infantry makes it possible to save soldiers' lives by avoiding close combat. This reliance is heightened in areas where local support for Russia is elusive. During the Soviet-Afghan War, for example, massive fire support was the weapon of choice to limit risk to Russian soldiers and to compensate for the relatively low numbers of available infantry. Herat, a city that had been in guerrilla hands even before the Soviet invasion, was shelled to such an extent that three quarters of the center was obliterated. More recently, Russian airpower has been deployed to accompany conventional and thermobaric artillery in bombing the likes of Grozny and Aleppo into submission. Indiscriminate firepower is an enduring trait of the Russian approach to counterinsurgency; it will most likely be deployed in any future scenario in which insurgents hold an advantage.

When regime capabilities are strong, Russia tends to adopt collective punishment as its main vehicle for establishing control. Throughout modern Russian history, the Russian state has regularly turned to forced resettlement as one of its most extreme forms of repression in counterinsurgencies. The objective of such drastic measures is to target an insurgency's tangible support in order to deny provision of goods and food, gathering of intelligence, and mobilization of new recruits. The application of collective punishment is also intended to set an example and deter the remaining local population from supporting insurgents. Of course, the operational challenges of this approach are manifold, and it's unclear whether Russia would resort to such measures in Ukraine. But collective punishment remains a potential feature of the Russian counterinsurgency toolkit.

Once Russian armed forces have restored security, the results of the counterinsurgency campaign are consolidated and sustained through "reconstruction by local government." This particular form of state building focuses on rebuilding governmental institutions by using local allies to reestablish political power according to the customs of the target society. This entails co-opting powerful leaders from within that society. Clientelism tends to result: the new local leaders remain heavily dependent on Moscow. Syria's Bashar al-Assad and Chechnya's Ramzan Kadyrov both epitomize the success of this approach.

A Grim Outlook

This track record suggests that if a Ukrainian insurgency materializes, any counterinsurgency effort will be aimed at establishing unquestioned dominance through the use of massive force. Russia has already sought to shape its domestic public opinion by prohibiting dissent and using state-controlled media to mobilize popular support for the war. And there are already many reports of indiscriminate firepower. This all bodes ill for Ukrainians: even without an insurgency, most characteristics that allow for the implementation of brutal authoritarian counterinsurgency are already in place. The threat of "Groznyfication" is real.

Little more is needed for the Russian armed forces to fully unleash a campaign of massive, indiscriminate violence in order to break the resolve of the Ukrainian population. Similarly, collective punishment—despite its absence in other recent campaigns—cannot be excluded as some of the preconditions are in place. Especially in areas where Russia succeeds in establishing military dominance, repression and even forced migration through refugee corridors could be an option.

So much for Russian attempts to win local hearts. As for converting local minds, thus far, Russian troops seem to enjoy little support across Ukrainian society. But it is not hard to imagine that under the pressure of brutal violence some local agents might start to collaborate in order to establish a new political order in occupied territories. The Russians have almost certainly already identified potential candidates for co-optation.

The outlook is especially grim if the Ukrainian war develops into a full-blown insurgency. Such an insurgency will prove costly to the Russian armed forces, but the costs for Ukrainians may well be much higher. For now, the challenge for the irregular warfare community is to identify the best ways to offer resistance tactics, techniques, and procedures in the face of a likely Russian counterinsurgency—all while trying to limit the costs to Ukrainian civilians.

The Russian Way of War in Ukraine: A Military Approach Nine Decades in the Making

Randy Noorman | June 15, 2023

When Ukrainian forces launched offensives last September in both the country's northeast and the south, retaking six thousand square kilometers of Russian-occupied territory, it reinforced a narrative about the war in Ukraine that weaved together a series of disparate facts into a concise story of the conflict: Russia's initial invasion was blunted by a spirited and effective Ukrainian defense, after which Ukrainian forces combined tactical agility, wise operational planning, and international material support to inflict shocking numbers of casualties and persistent battlefield disappointment on their Russian adversaries.

Yet, there are features of the war—and of both sides' performance—that are lost in this simplified narrative. Among these are the fact that, despite the numerous and obvious shortcomings displayed in Russian military forces' performance in practice, on a conceptual level they are actually ahead of their time. Tracing nearly a century of Soviet and Russian strategic culture and military thinking makes this clear. More importantly, exploring this history of military thinking in the context of Moscow's competition for advantage with its Western competitors and adversaries highlights dynamics that evolve in a continuous fashion, influencing the character of warfare today and in the future. In essence, then, by studying the history of ideas that shaped battlefields of yesterday, we can better understand those of today and conceptualize and prepare for those of tomorrow.

Understanding the Evolution of Russian Military Strategy

Foresight and *forecasting* are concepts in Russian military strategy that are generally associated with predicting the character of future warfare, which is then translated into *forms* and *methods* of warfare, like operational concepts, force structures, and necessary military equipment. As a survey of decades of history illustrates, Russian military strategy over the past decades has correctly forecasted a number of implications of advancements in weapons, as well as sensor technologies, that are currently affecting the character of warfare in Ukraine.

The capacity to detect and strike targets at ever-greater distances and with ever-growing precision increases the vulnerability of dense troop concentrations, and therefore limits the ability to conduct large-scale sequenced and concentrated operations. As such, in order to enhance survivability, current battlefield conditions are forcing military units to disperse into smaller formations, dig in, or both, unless these conditions are effectively countered. As a result, the battlefield tends to become more fragmented, offering more independent action to lower tactical formations as the depth of the front is expanding to a considerable extent.

In 1936, Georgii Isserson, one of the key architects of operational art—the effort to organize and align the effects of tactical actions against overarching objectives—within the Soviet Union during the 1930s, described the value of history in recognizing military developments:

Each historical period is pregnant with a new one and displays new rudimentary tendencies and forms.

Given Isserson's maxim, it becomes especially valuable to examine two Soviet/Russian military concepts—*nonlinear warfare* (on *the fragmented battlefield*) and *noncontact warfare*—which originated during the late 1980s and early 1990s. Both of these concepts have had a significant impact on contemporary Russian military thinking regarding the conduct of large-scale conventional warfare. Primarily born out of advancements in military technology that were initially developed during the 1980s, these concepts have now finally reached maturity. They reinforce a trend in the Russian view of large-scale conventional warfare that has been ongoing since the advent of nuclear weapons. A properly contextualized historical examination must therefore begin during the aftermath of the Soviet Union's Great Patriotic War—World War II—and continue through the Cold War to the present day.

Deep Battle and Deep Operations

The Great Patriotic War is considered to be the high mark of practicing Soviet operational art, whose theoretical foundations had been laid in the 1920s and 1930s. Its two primary elements, *deep battle* and *deep operation,* sought to attack enemy forces simultaneously throughout their entire tactical and operational depth by using long-range artillery, air strikes, and air landings. The aim was to penetrate enemy front line and follow this with a powerful mechanized second echelon that exploited the initial breakthrough. Needless to say, this necessitated an enormous troop density along an uninterrupted front line, multiple echelons deep, and the Red Army's force structure was organized accordingly.

Soviet military strategy remained centered around what was called the *strategy of destruction* for most of the Cold War, preparing to conduct large-scale offensive operations during the initial period of war. Nonetheless, adaptations were made to this strategy over time. The first major change occurred during the 1950s, following the realization that any large-scale conventional war would involve the employment of nuclear weapons. This had a significant impact on Soviet military strategy and subsequent military force structure, as it increased the vulnerability of the traditional concentration of forces necessary for conducting deep operations. Units would need greater mobility to increase survivability. The subsequent Zhukov reforms therefore aimed to transform the larger and more cumbersome mechanized and rifle divisions of World War II into smaller and more mobile tank and motor rifle divisions.

This persistent threat prompted the Soviets during the late 1970s to gradually abandon deeply echeloned and densely packed forces, instead opting for more forwardly deployed tactical detachments and operational-level maneuver groups. This strong forward posture and added mobility aimed to further reduce vulnerability by increasing Soviet forces' rate of advance. The necessary concentration of forces for offensive operations was no longer to be achieved by massed formations, but rather through rapid movement from dispersed positions and shifting fires, raising the importance of independently operating formations. Consequently, according to the Soviet view, the battlefield would become increasingly fragmented in nature, offering more independence of action to commanders of combined arms formations.

Nonlinear Warfare

In 1978, under a program called Assault Breaker, the United States Defense Advanced Research Projects Agency began working on a number of advanced intelligence, surveillance, and reconnaissance (ISR) systems, long-range strike capabilities, and precision-guided munitions. These *deep strike* and *deep attack* capabilities would enable US armed forces to detect and engage targets at far greater distances with a high degree of precision, aimed specifically against heavily concentrated Soviet rear-echelon forces before they could join the battle. This represented a technological solution to overcome the imbalance in conventional forces between NATO and the Warsaw Pact and formed a key component of the United States' overarching AirLand Battle concept.

Marshal Nikolai Ogarkov, chief of the Soviet General Staff at the time, devoted much attention to these emerging technologies, acknowledging their major implications for the character and conduct of conventional warfare. He even discussed the use of unmanned flying machines in 1984. The Soviets were quick to recognize the offensive potential of these weapons systems. Acknowledging the Soviet Union's technological backwardness, Ogarkov became the driving force in developing new concepts and capabilities in order to counter these emerging threats, in large part laying the foundations for current Russian military strategy.

The capabilities that the Soviets sought to develop became known as the *reconnaissance-strike* and *reconnaissance-fire complex*, which enabled them to preemptively attack Western deep-strike and deep-attack systems. The reconnaissance-strike complex would utilize high-precision long-range weapons like ballistic and cruise missiles against operational- and strategic-level targets. The reconnaissance-fire complex was its tactical-level equivalent, using artillery like howitzers and rocket artillery, as part of brigades and divisions, firing both conventional and precision munitions. Based on active reconnaissance through advanced ISR sensors, combined with automated command and control and long-range precision-strike systems, the conceptual aim was to accelerate the process between detection, decision-making, and destruction of the target. Major General Ivan Vorobyev, one of Ogarkov's contemporaries, envisioned these systems operating in a network of reconnaissance assets, enabling the near-real-time destruction of targets.

The Soviets' concept development sought to mitigate the destructiveness of these new Western capabilities by further dispersing Soviet forces on the battlefield, including logistical support elements, to make them less vulnerable. In doing so, they recognized that maintaining momentum and achieving the necessary concentration before battle would become more difficult. Toward the end of the Cold War, these developments matured into what the Soviets called *nonlinear battle*. In 1990, Lieutenant Colonel Lester Grau, of the Soviet Army Studies Office at the US Army Combined Arms Center, wrote a report on Soviet forecasting of future war, stating:

The Soviets see non-linear battle as one in which separate "tactically independent" battalions and regiments/brigades fight meeting battles and secure their flanks by means of

obstacles, long-range fires and tempo. . . . Large units, such as divisions and armies, may influence the battle through employment of their reserves and long-range attack systems, but the outcome will be decided by the actions of combined arms battalions and regiments/brigades fighting separately on multiple axes in support of a common plan and objective. . . . Tactical combat will be even more destructive than in the past and will be characterized by fragmented [*ochagovyy*] or non-linear combat. The front line will disappear and terms such as "zones of combat" will replace the outdated concepts of FEBA, FLOT and FLET. No safe havens or "deep rear" will exist.

Noncontact Warfare

These new NATO and especially US precision-strike capabilities, initially designed against Soviet follow-on echelons, were eventually deployed against Iraq during the First Gulf War in 1991. While the coalition air campaign went on for thirty-nine days, the ground offensive lasted a mere one hundred hours. Eight years later, the NATO campaign against Yugoslavia was even fought entirely without deploying ground forces. Both conflicts strongly influenced the Russian view of future war and determined the types of attack that Russian forces must be able to defend against, especially the threat of a massed aerospace attack.

According to late Major General Vladimir Slipchenko, arguably one of the most influential Russian military theorists of recent decades, Operation Desert Storm was the first manifestation of what Ogarkov had called a "revolution in military affairs"—a reference to the increasing use of long-range precision-strike systems in future war. Slipchenko's own concept of *sixth-generation warfare* signaled the computerization of warfare and the increased use of standoff weaponry. Its most important element was therefore called *noncontact warfare*, as opposed to traditional fourth-generation contact warfare.

In future war, Slipchenko stated, the role of noncontact distant warfare would increase, using long-range strike systems and precision-guided munitions, directed by enhanced ISR and command-and-control capabilities and supported by space-based systems like surveillance, navigation, and communication satellites. He emphasized that the increased ability to find and strike targets at both greater speed and greater distances, today referred to as the kill chain in Western militaries, would make traditional mass concentrations of troops a dangerous undertaking.

Besides its tactical employment, remote, noncontact strikes as part of reconnaissance-strike complexes would also be conducted at operational and strategic distances, aimed at military, economic, and infrastructural targets, using cruise missiles, ballistic missiles, and weaponized unmanned aerial vehicles (UAVs), as well as traditional airpower using precision munitions. Consequently, the battlefield would expand and Slipchenko concluded that:

Fundamental concepts such as "front," "rear," and "forward line" are changing. . . . They are now passé and being replaced by just two phrases: "target" and "non-target" for a high precision remote strike.

As a result, deep battles and deep operations were steadily being countered and replaced by the concept of deep attack. Because Russia, at the time, was lagging a generation behind, Slipchenko stressed that it needed to develop its own sixth-generation warfare capabilities.

Recent Developments

Over the last several decades, the concepts of nonlinear and noncontact warfare have been recurring themes among Russian military writers. Prominent theorists S. S. Bogdanov, a retired lieutenant general, and Colonel S. G. Chekinov agreed that, as a result of advancements in information technologies, remote engagement of the opponent using precision munitions would form a significant part of what they referred to as *new generation warfare*. This involved increasingly exposed flanks, blurring front lines between opponents, and expanding the strike range far beyond the front lines. Likewise, Colonel General Kartapolov pointed to the shift from large-scale operations to precision strikes along the front as well as deep inside an opponent's territory.

In several fairly recent statements, General Valery Gerasimov, current chief of the Russian General Staff, himself has mentioned the expanding spatial scope of modern warfare, in which both the use and impact of precision weapons is increasing. Stating that long-range, contactless strikes are now conducted throughout the entire depth of the enemy's territory, using reconnaissance-strike and reconnaissance-fire complexes. According to Gerasimov, "frontal engagements of large formations of forces" conducting "sequential and concentrated operations" are being replaced by dispersed, mobile, combined arms formations, linked in a single intelligence-information space, placing greater demands on command and control.

While theoretical developments do not necessarily mean that concepts are cast into doctrine and successfully translated into practice, both concepts have strongly influenced current Russian military thought and the forms and methods of warfare it anticipates. Instead of fighting along thousands of kilometers of uninterrupted front line, Russian military thinkers envisioned a future war in which linear contact warfare would occur only at specific locations, and nonlinear combat along most of the front, with effects substituting for troop concentrations in order to establish a main effort. Together with the prospect of more common small wars along

Russia's periphery, these views have strongly influenced Russian reorganization and modernization efforts, undertaken based on the increasing need for smaller, high-readiness, tactical formations capable of independent action and noncontact warfare.

In 1999, Slipchenko asserted that noncontact warfare had not yet fully matured. Since then, however, the technology enabling it has finally come of age. In February 2020, Turkish forces employed UAVs and artillery against Syrian troops in a short, sharp engagement, destroying dozens of armored vehicles form a standoff distance. In in an even more convincing demonstration, the 2020 Nagorno-Karabakh War saw large-scale deployment of weaponized UAVs and loitering munitions being employed to great effect. Most Armenian casualties were inflicted by Azerbaijani standoff weapons, instead of through traditional close-combat engagements, undermining Armenia's ability to concentrate sufficient forces in order to conduct combined arms counterattacks and ultimately inflicting a decisive defeat rarely seen in modern warfare.

Russia was watching both of these cases, but the Russian army had itself already demonstrated its reconnaissance-fire complex with frightening efficiency. On July 11, 2014, near the Ukrainian village of Zelenopillya, in the first of many cross-border artillery strikes, a Russian UAV spotted a Ukrainian tactical assembly area inside Ukrainian territory. The ensuing artillery strike, lasting under three minutes, killed over thirty Ukrainian soldiers, wounded another hundred, and destroyed two battalions' worth of vehicles and equipment. Since then, Russian forces have continued enhancing their precision-strike capabilities and have expanded their concepts with several other variants, including *radio-electronic strike*, aimed primarily at disorganizing the opponent's command and control and reducing the effectiveness of the enemy kill chain.

The Ukrainian Battlefield

Although not always portrayed as such, the war in Ukraine is, or at least has become, a peer conflict, largely because of the extent of Western and especially US support, providing Ukraine with significant amounts of advanced weapons systems—not to mention real-time battlefield intelligence to help identify Russian targets for Ukrainian long-range precision strikes. As a result, this is the first war in history in which both sides are capable of striking throughout the opponent's tactical and operational depth with a high level of accuracy.

After the failure of the initial invasion, the subsequent period of the fighting in the Donbas was at first marked by Russian dominance in fires. Besides precision munitions, the employment of UAVs for target detection greatly enhanced the effectiveness of Russia's large numbers of legacy artillery systems. Russian artillery batteries employing UAVs for target detection generally showed themselves capable of engaging Ukrainian positions within minutes after being detected. As a result, Ukrainian infantry companies were forced to disperse and often occupied front lines up to three kilometers wide. Consequently, battalions covered frontages that are traditionally the responsibility of brigades. Russian artillery superiority and sensor density even prevented Ukrainians from concentrating in units above company size, because anything larger would be detected prematurely and effectively targeted from a distance.

It was only when Ukrainian forces managed to establish their own effective kill chains that their artillery was partly able to counter this—particularly through the use of US-provided HIMARS (High Mobility Artillery Rocket System), which is itself an offshoot of the Assault Breaker program. By effectively targeting Russian ammunition stocks, the Ukrainians steadily degraded Russian artillery superiority during the summer of 2022, forcing Russia to displace its railway logistics distribution centers from fifty to one hundred miles behind the front. Ukrainian long-range precision strikes also proved exceptionally effective in destroying Russian command posts. On the Kherson front, for example, over a period of eight months, they destroyed several high-level Russian headquarters, degrading Russia's ability to conduct large-scale operations.

Whenever offensive or defensive maneuver is conducted, safety is found in mobility, with periods of concentration kept as short as possible. This was demonstrated during Ukraine's Kharkiv offensive, where Ukrainian troops relied on speed and surprise, using lightly armed and fast moving reconnaissance units, and Russian troop density was relatively low. Whenever large formations remain static and concentrated, they become easily targeted. This was on display during the failed Russian crossing of the Siverskyi Donets on May11, 2022, when significant elements of a Russian motorized rifle brigade were located and destroyed by using aerial reconnaissance and artillery.

Currently, troop density and intensity of the fighting varies considerably along the front. This results in open flanks that need to be secured by other means. Meanwhile, the Russian army is adapting and its reconnaissance-fire complex continues to evolve, becoming highly responsive and with its artillery less vulnerable to counterbattery fire. Russian forces are also increasingly relying on loitering munitions for counterbattery fire and effectively using electronic warfare to counter Ukrainian UAVs. Ukrainian HIMARS strikes are even partially countered by Russian air defenses, while Russian command-and-control infrastructure has become much more resilient. Russian forces also rarely employ armor and infantry in concentrated assaults and in the defense occupy dispersed

positions, while increasingly drawing on artillery to blunt Ukrainian attacks.

Implications for the War in Ukraine and Beyond

We are witnessing the maturation of deep-attack capabilities that were developed during the 1970s and 1980s. As Soviet/Russian military theorists have long understood, these advancements in weapons and sensor technology, over the course of several decades, have made large troop concentrations extremely vulnerable. Additionally, although this has not led to the removal of terms such as FLOT (forward line of own troops), FLET (forward line of enemy troops), and FEBA (forward edge of battle area) from the military lexicon, targets are now being struck throughout the entire depth of the front and beyond. These theorists also recognized at an early stage that there are two possible military solutions to counter this. The first is by improving the effectiveness of their own reconnaissance-fire and reconnaissance-strike complexes, in order to degrade the opponent's deep-attack capabilities. The second is by dispersing formations on the battlefield in order to increase survivability.

However, current battlefield conditions are adding the related difficulty of achieving the concentration of forces necessary for establishing main efforts during offensive operations. This is reducing large-scale engagements and thereby necessitating a concentration and synchronization of effects, rather than a traditional physical massing of troops. In turn, this places an extra burden on command and control, especially when contested by electronic warfare. Only by disrupting the opponent's kill chain can larger formations regain the ability to concentrate and engage in maneuver warfare. During the war in Ukraine, superiority in kill-chain effectiveness has become one of the prime objectives for both sides. In this war and any other characterized by the same dynamics, this superiority becomes an essential condition for victory.

All to Play for: Ukraine's Counteroffensive and its Prospects for Success in 2023

Dale Pankhurst | September 6, 2023

For three months, the much-awaited 2023 Ukrainian counteroffensive ground on, painstakingly slow and yielding no headline-grabbing territorial gains or battlefield successes. But a new breach in Russia's defensive lines near the city of Zaporizhzhia (which Ukrainian forces now seek to build on to effect a major breakthrough) represents the most notable sign of progress since the counteroffensive began in early June. It also offers an opportunity to examine three important questions. Why is it only three months into the counteroffensive that any progress has been made? What will make major success still possible this year? And what are the consequences of failure?

Two Factors Limiting Progress

The inability of Ukraine's counteroffensive to generate notable progress for so long is a function of a number of factors, but two stand out. The first is limited availability of equipment. Between January and December 2022, the United States, the United Kingdom, and Germany donated a combined $25 billion to Ukraine in military aid (the vast majority by the United States). Despite these efforts, it quickly became clear this year that Ukraine needed far more military equipment to initiate a comprehensive and effective counteroffensive against Russian forces. Crucially, the Ukrainian forces were in desperate need of armored brigade columns in order to punch through Russian defensive lines stretching from the northeastern Ukraine to the southwest beyond Kherson. Despite a commitment from the US and UK governments to provide missiles and other military equipment, it was only in late January that an agreement was reached to provide modern, advanced main battle tanks—the US M1A2, UK Challenger, and German Leopard 2. With the decision coming when it did, and given the time required to deliver the vehicles and train Ukrainians to operate and maintain them, the full complement of tanks promised was not available to enhance the counteroffensive when it was launched. The Leopard tanks have arrived incrementally, and the total delivered is still below the full number committed, while the first Abrams tanks will not arrive until this month.

The second factor limiting early progress is Russia's well-prepared defense. Throughout the winter, Russia established heavily armed defensive lines and minefields along a two-thousand-kilometer front that are complex and have so far proven their worth in slowing the Ukrainian advance. These defensive lines contain antitank ditches, minefields, and dragon's teeth obstacles. Ukrainian armored columns have to

navigate through these lines before reaching the first network of zigzag trenches containing Russian troops armed with antitank weapons and heavy machine guns. Beyond these trenches are further minefields and tank obstacles before a final layer of dugouts and bunkers manned by various types of Russian units. The minefields in particular are hazardous for both tank and infantry columns. In some cases, Russian troops are laying mines on top of each other to amplify the explosive yield against Western-supplied Ukrainian tanks when detonated. Further behind these defensive lines are pockets of Russian artillery and rocket units that can concentrate high levels of firepower on a specific location. These layers of Russian defenses have combined to effectively slow the Ukrainian advance. Attempted breakthroughs by armored brigades have resulted in the destruction of some armored columns. The limited ability of the much-anticipated Ukrainian armored columns has placed further emphasis (and stress) upon Ukrainian infantry units who have been tasked with trying to punch through these lines with limited armored protection. Where Ukrainian troops and militias have managed to capture abandoned Russian trenches, they have often encountered complex booby-trap explosive devices throughout the trench networks that have resulted in increased casualty rates among infantry brigades.

Is Major Success in 2023 Possible?

Notwithstanding these setbacks, Ukrainian forces continue to make modest advances in certain areas of Ukraine. They have been successful at damaging Russian supply routes behind the front line with Western-supplied artillery, missile batteries, and explosive-laden drones. Recent attacks on Russian naval and cargo ships have continued to disrupt both military operations and supply routes via the Black Sea. Drone attacks in Moscow and other Russian towns will continue to bring the war to the Russian people (though these attacks may prove counterproductive, with the risk that indiscriminate attacks against disparate populations under authoritarian regimes will allow the Kremlin to claim its own illegal warmongering campaigns are just and noble and that they may encourage limited congealing effects between the Russian regime and its people, something that does not strategically serve the interests of Ukraine or the West). Additionally, the Russians have a major logistics problem. Their defensive positions are roughly two thousand kilometers long, stretching from the Russo-Belarusian border in the north through the Donbas to the Dnipro river in Ukraine's south. Their defensive lines are also unevenly spread. For example, in the Kherson oblast, the trench networks, minefields, and antitank ditches are ten kilometers deep and highly aggregated. In other areas, the defensive lines are less than a kilometer deep and unevenly variegated. The seventy Russian combat brigades currently occupying Ukraine are nowhere near adequate to man every section of the front line. Although Russia's defensive systems are impressive, so too was the French Maginot Line in 1940. When faced with such a large defensive force dug deep within an underground complex of concrete bunkers, antitank obstacles, and large artillery batteries, the Nazi forces simply overran the defensive line at its weakest point and proceeded through the rough terrain of the Ardennes (where the French defenses were at their weakest), encircled the stronger defensive positions to the south, and rendered it obsolete. Within weeks, the defensive line the French had relied on as a permanent buffer between France and Hitler's Germany was rendered useless and Swastika emblems flew over France as Hitler walked the streets victorious.

There is only so much time for the Ukrainian counteroffensive to bear fruit in 2023. Unless the Ukrainians make a significant breakthrough and rout the Russian forces with armored columns in operations akin to the 2022 Kharkiv and Kherson counteroffensives, it is unlikely that any expected territorial objectives will be achieved. Moreover, there will be disappointment in the West that, even with militarily superior tank columns and missile systems, albeit fewer than Ukraine requested and its international supporters promised, the 2023 counteroffensive made less impact than previous campaigns did without the same equipment in 2022. Additionally, both the United Kingdom and the United States (two of Ukraine's largest suppliers of military aid) are on the brink of deeply divisive national elections in 2024, during which the strategic value of continuing to supply arms and equipment to Ukraine—and shouldering the cost of doing so—will almost certainly become a central issue. This does not bode well for Ukraine, which will continue to require large amounts of weapons.

Still, the breach near Zaporizhzhia offers some optimism that success can still be achieved. But the weeks to come will illustrate whether Ukraine has the material resources to consolidate at the point of greatest impact and transform this tactical success into an operational achievement that changes the balance on the battlefield, or even a strategic success.

The Counteroffensive's Far-Reaching Implications

The regime of Vladimir Putin will hope that a continuing war of attrition will eventually sap the will of Western governments to continue depleting their own military resources by arming Kyiv's forces. The Kremlin's plan likely hinges on its belief that Ukraine's international supporters will instead push for negotiations between Moscow and Kyiv. Russia will undoubtedly enter these negotiations with demands for more than Crimea to be formally absorbed into the Russian Federation and crucially, no future NATO or EU membership for Ukraine. And there will be no formal peace while Putin is still in power. The threat of war will continue to dominate Eastern Europe, with implications both regionally, where geopolitical dynamics shaped by an enduring Russian

threat suit the Putin regime, and beyond, including in Asia, where China continues saber-rattling vis-à-vis Taiwan. Although the focus is on Ukraine, the global stakes are much bigger than its territorial integrity.

The Russo-Ukrainian War is at a critical stage. If no large-scale Ukrainian breakthroughs occur before the rainy season arrives and many roads turn to mud, then both sides will settle down for another period of attritional warfare over the winter. And Western governments may have to shoulder some of the blame for any ineffectual results. The slow pace of commitments of tanks and other high-end equipment may have given the Russians crucial breathing space in preparing their defensive lines. Continued military and financial support for Ukraine is crucial in facing down Russian aggression.

At this stage, all is still to play for. Time will tell.

The Army and the New Paradigm of Ground Combat: Lessons from Ukraine's Failed 2023 Counteroffensive

Bryan J. Bonnema and Moises Jimenez | February 18, 2025

The current battlefield is riddled with multiple forms of contact. The combination of indirect fires, efficient and increasingly shortened kill chains, electromagnetic interference, the proliferation of unmanned aircraft systems (UAS)—including, one-way attack UAS, thermal optics, mines, and antitank guided missile favor the defender and impose considerable risk to offensive operations. In May 2023, it is estimated that the Ukrainian Army expended around ten thousand UAS a month to conduct reconnaissance, counter-reconnaissance, and shaping operations. The US Army is working to adapt to these operational realities with, for instance, expanding its *transformation in contact* initiative to include new organizations and move into *transformation in contact 2.0*. But much of what that the Army envisions under that initiative—including its emphasis on short-, medium-, and long-range reconnaissance UAS—falls well short of what current battlefield conditions demand. Even if it could muster a more robust magazine of UAS platforms, the Army has not refined its offensive framework to account for the changing paradigm of ground combat. This paradigm favors the defender; it punishes decisive battle and humbles tactical leaders who believe they can simply suppress, breach, and seize their way to victory. The previous paradigm of maneuver-centric activity massed combat power, massed fires and effects, and required extensive rehearsals and synchronization. The current paradigm requires a framework that accounts for layered, multidomain threats, finite resources, tactical innovation and expedited decision making.

The characteristics of this new paradigm will require tactical leaders to employ a framework that extensively isolates enemy objectives, mutually suppresses key frontline positions and nodes, and selectively disintegrates or destroys enemy formations. To produce battlefield success, this framework must provide a governing logic to UAS employment and fires allocation, and it must fundamentally seek to preserve our most precious resource—our soldiers. The crucible of combat in today's operational environment will expend resources and lives that the US Army, and the American people, have not experienced since the Korean War. As leaders, we owe it to our soldiers and families to assess the palatability, sustainability, and efficacy of offensive operations in today's environment.

Ukraine and the Shattering of the Legacy Paradigm

The current tactical revolution of UAS—and its operational consequences—is illustrated by the attempted large-scale Ukrainian counteroffensive in 2023. This episode in the Russia-Ukraine War deserves its own series of monographs and deeper analysis; however, even a brief description of what occurred highlights the doctrinal gaps and tactical limitations presented to mechanized formations conducting a deliberate breach in today's environment—like the US Army's armored brigade combat teams. To paraphrase the Prussian strategist Carl von Clausewitz, we must do more than retell the actions between belligerents—we must apply critical analysis of Ukrainian tactical leaders and their thought processes as they negotiated challenging strategic and political constraints.

Prior to Ukraine's counteroffensive in the summer of 2023, Russian occupiers constructed one of the "largest and most fortified [defensive lines] in Europe since World War Two." This defensive line consisted of approximately two thousand miles of obstacle effects, layers of antitank ditches, defensive positions, mines, and layered direct and indirect weapon systems. These robust defensive measures led Western

advisors to encourage a counteroffensive along a single axis—in the area of Zaporizhzhia—as opposed to the broad, three-prong attack that the Ukraine Army adopted by adding axes of attack in Berdiansk and Bakhmut, as well. (See here for a graphic representation of the two counteroffensive plans.)

Within each axis, Ukrainian forces encountered deliberate, layered, and integrated resistance. Despite Western material assistance and advising, Ukrainian forces did not achieve operational shock or substantial territorial gains. In fact, Ukrainian advancements did not advance more than approximately 7.5 kilometers along any front.

The Russian defenders, despite arguably poorer quality of troops and training, created a hellish landscape that would challenge any Western force. The tactical dilemma presented was a combined arms nightmare that required droves of platforms, resources, and time. Ultimately this tactical dilemma punished the attacker's attempts at executing exactly what US doctrine calls for—the massing of combat power to penetrate and then exploit the breakthrough of the enemy's defenses. The tactical environment nullified the strengths of a maneuver-centric approach that centered on finite mounted assets.

It is difficult to convey the countless variables that informed Ukrainian decision-making; however, what is certain is that the Ukrainian Army applied a combined arms breach into the problem set described. The combined arms breach—which doctrinally requires a framework to *suppress*, *breach*, and *seize* at a desired point of penetration—failed. Not only did the framework fail to achieve tactical success, but it failed operationally along three distinct axes of advance.

Would the US Army Do Better?

This case study requires careful future analysis; however, as stewards of our profession and resources, we should consider the efficacy of the offensive frameworks the US Army currently has in the context of the tactical environment Ukrainian forces found in 2023. Our discussion leads us to ask whether the task organization and material solutions updated based on transformation in contact 2.0, applied by US Army armored formations, would yield measurably more successful outcomes in this environment. Simply stated—could the US Army do any better than the Ukrainian armed forces given the same operational environment?

The current paradigm of ground combat, made explicit by Ukraine's 2023 counteroffensive, suggests seven variables that will inform the future construct of offensive operations:

1. Battlefield Transparency. UAS and precision fires enable all belligerents to see, sense, and deliver effects well beyond the FLET/FLOT (forward line of enemy troops and forward line of own troops). This new tactical revolution and changing characteristic of war imposes a grave threat to massed formations. If we cannot mass, how we will breach? And if we cannot breach, how will we seize terrain?

2. Mobility. Mines have resurfaced as a major obstacle to offensive maneuver. Our current inventory of plows, rollers, mobile bridges, mine-clearing line charges, and other mobility platforms are not sufficient to reduce the density of mines employed by Russian defensive positions.

3. Combat Power Preservation. Military forces require meaningful ways to generate mass without expending high volumes of mounted platforms and lives. This observation lends further credence to the need for small, plentiful, and distributed drones that could serve as a contact layer across the tactical FLET/FLOT. This could be a way to preserve combat power until conditions are met to seize terrain—but only if the United States invests in the required number of stockpiles required to make this a reality.

4. Changes to the Operations Process. Tactical formations need methods to distribute orders and execute the operations process in faster planning cycles and across dispersed locations. The operations process must keep pace with the modern battlefield. Our current training paradigm conditions us to execute deliberate planning and troop-leading procedures across multiple hours or even days. We then rehearse the plan on a static terrain model before disseminating updates to static command posts. The current operational environment requires formations to execute the operations process through distributed locations and under constant observation. We must not allow the operations process to prevent us from gaining and maintaining the initiative.

5. Battlefield Geometry. UAS, including one-way attack UAS, along with electronic warfare capabilities, a variety of sensors, and weapons standoff will change the scope and scale of division, brigade, battalion, and company responsibilities. Legacy planning considerations for unit frontages and depths must account for extended sensing and strike ranges.

6. Resourcing at the Decisive Echelon. The Army's transformation in contact initiative seeks to improve the lethality of brigade combat teams; however, as a force, we have not defined which echelon will be the decisive command. US Army divisions and brigades of the future will still lack the appropriate mass, resources, logistics, and communications to act independently of their higher headquarters within the emergent operational environment.

7. Information Flow and Decision-Making. We have yet to understand the impact UAS will have on the relationship between information flow and decision-making. Our Army employs a quality noncommissioned officer corps and demands calculated risk taking and initiative; however, an empowered tactical formation assuming independent action

may unknowingly maneuver toward its own demise. Future offensive frameworks should define conditions in which tactical formations exercise prudent risk and initiative under the umbrella of a deliberate offensive framework.

Based on observations of Ukraine's 2023 counteroffensive, and informed by an understanding of these seven variables, we can establish a problem statement:

Given the high efficacy of enemy UAS, mines, and precision fires, how does the US Army manage high volumes of data across distributed locations, and then aggregate combat power in a method that enables operational endurance for follow-on operations while managing risk and preserving combat power?

Toward a Framework for the New Paradigm of Ground Combat

Again, this inquiry deserves a dedicated study supported by the tremendous resources from the Combined Arms Center, Army Futures Command, and the Maneuver Center of Excellence; however, available (unclassified) information suggests that the modern battlefield requires the US Army to reevaluate offensive frameworks if it chooses to maintain operational endurance against a prepared enemy or within a protracted campaign. Based on the variables and problem statement described above, we propose a framework, designed principally for armored brigade combat teams, that respects the defensive layers of the enemy, acknowledges the tactical revolution of UAS, and preserves our most valuable assets until conditions are set: Isolate, Suppress, Destroy.

Isolate

This phase requires the brigade to isolate battalion and company objectives. This phase does not attrit enemy formations, but *degrades*, *dislocates*, *disintegrates*, and *disrupts* key enemy systems (e.g., command-and-control nodes, electronic warfare platforms, fuel and ammunition stocks, and radar and other sensors). This phase requires the brigade to stabilize the FLET/FLOT and cover a frontage of over one hundred kilometers, compared to the legacy planning factors of three to eight kilometers. In this scenario, the brigade synchronizes and orchestrates a collection plan that leverages its organic assets as well as medium-range reconnaissance UAS and the family of UAS that reside at the squadron and battalion level. The brigade, concurrent with squadron security operations, will build the digital common operational picture of the isolated area. Simultaneously, the brigade dynamically retasks the squadron and battalions to deliver collection and fires tasks.

The squadron and battalions will contribute to the digital common operational picture, collect on the enemy, dynamically task companies and troops to deploy medium- and short-range reconnaissance UAS, and rapidly execute the operations process.

The new paradigm will demand much of companies and troops. These tactical formations will cover extended frontages within the brigade FLOT, maintain dispersion, maximize physical and digital concealment, contribute to the digital common operational picture, and be prepared to dynamically deploy UAS or ground combat power. Of note, this phase will require squadron troops to extend their legacy frontages to account for long- and medium-range reconnaissance UAS, as well as the ranges of commercial, off-the-shelf UAS. In the aggregate, these platforms will solidify the brigade FLET/FLOT as isolation occurs.

At the end state of this phase, enemy battle positions are isolated from higher or adjacent communication, are unable to synchronize fires, collection, or effects, and are unable to orchestrate a responsive counterattack or coordinated defense. These activities set the conditions for mutual suppression in zone.

Mutually Suppress

This phase masses the effects of direct, indirect, UAS, and all forms of contact onto select enemy battle positions. The brigade and battalions continue isolation measures; however, this phase should see a commitment of brigade- and battalion-level assets against enemy objectives. The brigade will continue its effects against enemy command-and-control nodes, fire direction centers, and sensors while prioritizing enemy positions. This phase requires battalions to mutually mass on select objectives.

The squadron and battalions will continue to collect on the enemy and disintegrate enemy formations, maintain a digital common operational picture, direct troop- and company-level collection, and mass lethal effects against enemy battle positions.

Companies and troops will continue to cover a frontage of extended distances, maintain dispersion, conduct survivability, contribute to the brigade common operational picture, conduct troop-leading procedures from disaggregated positions, and prepare to rapidly seize terrain.

At the end state of this phase, enemy command-and-control nodes are dislocated from subordinate units and frontline formations, and subordinate units are dislodged from each other. Select enemy battle positions receive massed fires and are severely attrited. Lastly, aggregated effects create the conditions for ground maneuver and selective destruction of critical enemy command-and-control nodes and sensors.

Selectively Destroy

This phase facilitates the point of penetration and offensive seizure. This phase also commits ground combat power—which incurs the greatest risk for the attacker. The brigade will continue to collect, disintegrate enemy counterattacks, destroy enemy command-and-control nodes and sensors, deny the enemy from reinforcing, and dynamically retask subordinate elements.

The squadron and battalions continue to collect on the enemy, mass effects, and synchronize ground maneuver. They could also dynamically retask subordinates in the event of enemy collapse, withdrawal, or consolidation.

Companies and troops should lead with *metal on metal*—with ground unmanned ground systems including robotic breaching assets. These platforms will shape ground objectives through direct fire and will likely absorb enemy direct and indirect responses. Ground maneuver will then quickly aggregate to conduct breaching operations and ground seizure. Formations will continue to contribute to the brigade common operational picture and be prepared to respond to emergent conditions, conduct resupply, and consolidate.

At the end state of this phase, enemy command-and-control nodes are dislocated from their subordinates and unable to orchestrate a coherent response. Select enemy positions are cleared and terrain is seized. Lastly, the brigade FLOT advances while retaining sufficient combat power for follow-on operations.

The Way Ahead

What is required for the Army to truly be prepared for the new paradigm of ground combat and its many inherent challenges—challenges like those Russia presented to attacking Ukrainian forces in 2023?

First, as stewards of the profession we should encourage healthy discourse to address these challenges and emergent threats. We should leverage the work already being done by Army Futures Command, the Maneuver Center of Excellence, and the Maneuver Capability Development Integration Directorate; however, as tactical leaders, battalion and brigade leadership who are implementing emerging capabilities owe bottom-up feedback to employ new material solutions and integrate them into a coherent framework that is palatable to our political leaders, sustainable with Army fiscal resources, and effective against our enemies. We can ill afford an operational setback like the one Ukrainian forces met with during their 2023 counteroffensive.

Second, the Army should consider experimentation with 3D printing to complement the functions of short-, medium-, and long-range reconnaissance UAS. According to a white paper produced by the 1st Multi-Domain Task Force, this new formation successfully 3D printed a series of drones while supporting an exercise in the Philippines. Army leaders and logisticians across the Pacific are beginning to see the merits of harnessing 3D printing and commercial, off-the-shelf acquisitions, which can compound advantages as 3D printing alleviates the burden of push-and-pull logistics, and could serve as an asymmetric advantage. Alongside this effort, the Army should leverage commercial, off-the-shelf small to medium UAS and components. The 1st Multi-Domain Task Force has experimented with and validated both of these modular concepts in the First Island Chain. For example, an experimental fixed-wing UAS—3d printed and built with commercial, off-the-shelf components—was built by members of the formation at a cost of just $7,000 per copy, dramatically less than the purchase prices of the Raven ($60,000) or Puma ($250,000). Future experimentation by the 1st Multi-Domain Task Force will modularize the payload of UAVs to account for evolving electromagnetic threats and operational requirements. Achieving localized mass will require the force to seek similar cost-effective measures.

Third, future dialogue should account for other novel initiatives, such as those explored in the Army Future Command's Project Convergence capstone events. These experiments aggressively seek to advance concepts of combined joint all domain operations. It also ensures that Army future capabilities can integrate with effects from the joint force. In this extended campaign of learning, experiments should dive into the tactical level as we prepare maneuver formations to operate in a new paradigm. The Army's recent willingness to experiment with new capabilities at CTCs (combat training centers) is commendable; however, we must still determine the cognitive direction of maneuver formations as we work to refine our operational approach to fight in the new paradigm.

Fourth, the Army should consider experimenting with tactical offensive frameworks that account for short-, medium-, and long-range reconnaissance UAS, as well as commercial, off-the-shelf systems, in support of brigade and battalion objectives. It should also consider the implications of task organization during breaching, security operations, and all offensive operations given the dynamic revolution of tactical UAS.

Fifth, the Army must refine the geographical scope, scale, and tactical responsibilities of brigade, battalion, and company formations. If a battalion has the capacity to sense 20–40 kilometers beyond the FLOT, then it absorbs a responsibility to deconflict with higher headquarters and other organizations. In turn, the brigade owes targeting priority, routes, timing, and synchronization to multiple battalions to deliver effects in an era of extended sensing and ranging. Lack of a central orchestrator risks target overkill, or worse, a desynchronized offensive effort. Past Army doctrine anticipated that an enemy

"tank or motorized rifle company's attack frontage is 500 to 800 meters" and that an attacking enemy battalion's frontage is "1 to 2 kilometers." The current paradigm, based on observations from the Russia-Ukraine War, suggests that battalions will sense, deliver, and synchronize activity well beyond this legacy range. We must update our offensive planning factors once we firmly establish the governing logic of our offensive framework. We must also account for the added requirements we are placing on our tactical commanders—and find creative ways to enable them to execute what this new environment requires of them.

Lastly, if the Army considers adapting its offensive frameworks, then it must also update unit training requirements; however, the challenge of doctrinal, organizational, and tactical renovation is not new to our service. As an analysis of a major division reorganization that began in the 1970s described it, "the brigaded 4-regiment division of World War I, the 3-regiment division of World War II, the five-sided battle group division of the 'pentomic era,' and the flexible ROAD division introduced in the 1960s [all] resulted from a recognition of obsolescence." If the Army identifies a similar obsolescence in its organization and doctrine today—if they are not optimally suited to the current operational environment—it should take steps toward change similar to those of its past.

The US Army must be prepared for the greatest challenges presented to our nation. And as leaders and stewards of the profession, we have an obligation to play our roles and explore methods to employ emergent technology and develop a framework that will yield battlefield success.

The Kursk Offensive: How Ukraine's Operational-Level Guerrilla Warfare Is Bringing Maneuver Back

Robert G. Rose | September 12, 2024

There is only one principle of war and that's this. Hit the other fellow, as quick as you can, as hard as you can, where it hurts him most, when he ain't lookin'.

— Field Marshal William Slim

Last year, I argued that Ukraine was correct in pursuing an attritional approach against Russia. I had not foreseen, as Russian General Valery Gerasimov also apparently had not, Ukraine's General Oleksandr Syrskyi launching the surprise Kursk offensive and opening a new front in the war. Without having to face the prepared, continuous, defense in depth that characterized the Russian positions on the war's increasingly static front lines, Syrskyi created a new context, which has allowed Ukraine to pursue maneuver as an operational approach.

Bringing back maneuver may be the most important aspect of the Kursk offensive. Many writers have already discussed the strategic-level implications of the offensive—changing the narrative of the war, embarrassing Vladimir Putin, or providing Ukraine with bargaining chips in negotiations. But by finding an alternative to having to break through prepared Russian defenses, this offensive could fundamentally change Ukraine's approach to fighting. By launching surprise offensives across the thinly defended border, Ukraine can pursue operational-level guerrilla warfare to support an overall strategy of exhaustion.

These terms—attrition and maneuver, along with exhaustion and annihilation—are often muddled, but if properly understood, they can offer clarity about the war in Ukraine and its shifting operational contexts. Hans Delbrück explained that a strategy of exhaustion seeks to wear down an enemy across military, political, and economic fronts until they lose the will to continue a war. He contrasted it with a strategy of annihilation, which tries to concentrate a country's power into a single, decisive victory. While exhaustion and annihilation are best seen as opposing strategies, maneuver and attrition are best seen as differing approaches to employing military forces at the operational level of war.

As an operational approach, maneuver uses tempo and surprise to exploit vulnerabilities and prevent enemies from reforming their defenses, repositioning their forces, conducting logistics, and synchronizing their efforts. Their combat systems fall apart, their forces are bypassed or encircled, and they cease to be able to provide effective resistance.

On the opposite end of a sliding scale from maneuver, attrition seeks the material wearing down of an enemy through the efficient and synchronized use of combat power that results in favorable loss ratios. Attrition focuses on cumulative destruction and allows operational simplicity, provides relative predictability, and minimizes vulnerabilities. While attritional approaches prioritize synchronizing friendly forces to

minimize the effects of the fog, friction, and chaos of war, maneuver tries to desynchronize an opponent and exploit the resulting disorder.

Not Quite Dead Yet

Some authors have discussed the death of maneuver. Often such commentators channel Carl von Clausewitz and discuss the changing the character of war, but they myopically focus on technological change. However, Clausewitz discussed his contemporary character of war in political terms and never mentioned Gribeauval cannons or any other technological change. Authors with a technocentric lens miss all the other contexts that influence war: political objectives, societies, economics, mobilization rates, geography, density of forces, and time.

In 2023, once Russia had the time and force density to establish a continuous defense in depth, maneuver became infeasible for Ukraine. Maneuver requires vulnerabilities to exploit and when Russia had time to emplace minefields hundreds of meters deep, overwatched by thousands of drones, and covered by an overwhelming superiority in artillery, Ukraine did not have any opportunities to pursue maneuver.

Some commentators have argued that Ukraine could overcome this problem if it just properly synchronized (or converged) its capabilities. There is a deep-rooted misunderstanding of maneuver being tied to a combined arms, mechanized breach, mostly stemming from the myth of blitzkrieg. Instead of trying to pursue Germany's World War II approach to maneuver, which relied on surprise and speed, such commentators are arguing for an approach similar to the Soviet Union's interwar doctrine of Deep Battle to achieve a breakthrough using overwhelming, concentrated combat power across the depth of a defense. However, Ukraine will not be able to achieve the correlation of forces considered a requirement by Deep Battle theorists like Vladimir Triandafillov and Georgii Isserson. Even if Ukraine did have such advantages, it is hard to find historical examples of armies successfully pursuing a maneuver approach, led by mechanized forces, against a prepared defense in depth backed by operational reserves.

The best example of an army successfully pursuing Deep Battle against a prepared defense was Operation Bagration. However, the Soviet Union succeeded in this case due to deception, surprise, a thinned German line in Army Group Center, and an overwhelming Soviet combat power advantage. Even then, it was not a combined arms breach that created the breakthrough. It was infantry infiltration that identified a gap in the German lines and initiated a breakthrough, which mechanized forces exploited.

During the Battle of France, the most cited case of maneuver, the Germans exploited the thinly defended French center as France concentrated its forces in a rapid advance into Belgium. German infantry created a breach at Sedan and then passed the Panzers into the open fields beyond.

Ukraine pursued a similar approach in Kursk. It conducted small raids to probe for Russian vulnerabilities with the 80th and 82nd Air Assault Brigades and then exploited them with mechanized forces. Ukraine has once again shown that maneuver requires identifying a vulnerability and exploiting it with a speed that prevents the enemy from addressing that vulnerability.

How Maneuver Works

Ukraine has demonstrated how maneuver works as an operational approach. Maneuver has often become a confused, overly theoretical concept going back to the writings of J. F. C. Fuller, who aimed for cognitive paralysis. More recently, Shimon Naveh tried to tie it to "shock." Such thinking makes maneuver overly conceptual. In desynchronizing an enemy, maneuver works in many ways, but it primarily acts through time and physical dislocation. The father of the concepts that led to Germany's doctrine in World War II, Hans von Seeckt, saw it in simple terms: continuously attack at a rate that prevents opposing forces from effectively reforming their defenses.

One of the best examples of how this plays out is with the fate of the French 2nd Armored Division. Armed with some of the world's finest tanks in 1940, it was tasked with counterattacking the vulnerable flank of the XIX Panzerkorps. If it had conducted a successful counterattack, it could have enveloped the overextended German tanks and saved France. Instead, it disintegrated as it received conflicting orders to move to new locations to try to keep pace with the Germans even while its tanks were already moving on rail cars. The division arrived to battle piecemeal, without coherence or a rehearsed plan.

In Kursk, we have seen similar friction among Russian forces. The forces thrown against the Ukrainian attack did not have prepared defenses to occupy, they did not have rehearsed plans, they did not have clearly delineated areas of operations to prevent fratricide, they had not tied into their adjacent units, and they often did not have time to deploy into fighting formations.

This chaos resulted in embarrassing outcomes. The Ukrainians overran command posts, capturing commanders from the elite 810th Naval Infantry Brigade and hundreds of troops. Ukraine has encircled Russian forces and pinned a couple thousand against the Seym River. Ukrainian drones easily identified and targeted convoys full of troops trying to reposition to the front. Russian social media even bragged about strafing Ukrainian convoys, which ended up consisting of Russia's own artillery. In the chaos, Ukraine began capturing Russian vehicles again. Russia has been the largest

provider of tanks to the Ukrainian army, but that generosity had tapered off during the attritional phase of the war. The Kursk offensive brought back the memories of Ukraine's successes in 2022.

Maneuver is enabled by fluid, open battlefields found in Kursk and previously in the defense of Kyiv and the Kharkiv counteroffensive. In those situations, both sides had not been able to solidify their lines and minimize their vulnerabilities. Such contexts play to Ukraine's advantage in maneuver warfare.

Ukraine has an advantage over Russia in maneuver warfare due to the relative initiative of its soldiers and social tendency toward decentralized, self-organization. These traits enable high-tempo operations through rapid, flexible decision-making similar to what the US Army calls mission command. A century ago, Aleksandr Svechin explained that "initiative in the army can only exist on the basis of extensive initiative in civilian society." He noted that during the Soviet invasion of Ukraine, the Red Army factored in "its Cossacks . . . and its characteristic national, autonomic, anti-state, and anarchist tendencies." Contemporary Ukrainians have increasingly used the legend of the self-organizing Cossacks, who inhabited the lawless lands between great powers and fought with elected military leaders, as a constituent point of their society to provide inspiration.

Svechin further wrote that "when a revolution starts, there is no need to worry about private initiative because it is everywhere." While Ukraine has centuries of bottom-up resistance to Russian imperialism, during the Maidan Revolution decentralized, grassroots activism truly flourished. Volunteer units grafted onto the professional army helped force changes to old, Soviet, centralized leadership. These volunteers provided initiative, an entrepreneurial spirit, and a willingness to take independent action and reject impracticable tasks.

Ukraine's leadership reinforces this culture. Syrskyi emphasizes deception, surprise, and decentralized action, which he displayed previously in the defense of Kyiv and the Kharkiv counteroffensive. Ukraine also enables rapid action by decentralizing its assets. For example, artillery provides direct support to battalions and companies. Ukrainian forces employ an Android application, an "Uber for artillery," that flattens fires requests and enables them to be filled by any artillery in range. Like Ukraine, Germany in 1940 also decentralized artillery. Infantry units used accompanying batteries to provide responsive fires during a fluid fight to enable maneuver.

Playing to Ukraine's Strengths

Since 2023, Ukraine has had to accept the attritional context of the war, which played to Russia's strengths. With its overwhelming advantage in fires and expendable soldiers, Russia could focus on creating deep, defensive lines to shore up its vulnerabilities, and then conduct slow, grinding attacks at a pace that prevents is culmination and does not put its leaders or high-value assets at risk. In Pokrovsk, the Russians gradually advanced with a four-to-one advantage in troops and a ten-to-one advantage in shells. Ukraine may have stripped forces from defending Pokrovsk for the Kursk offensive, but like the Germans learned in World War I, placing forces forward in a defense against an enemy with an overwhelming artillery advantage just risks more casualties.

Ukraine has found itself in a position like Finland after the initial period of the Winter War. After some initial spectacular Finnish victories against strung-out Soviet columns that had attempted a quick victory, the Soviet Union transitioned to a methodical, attritional approach that minimized its vulnerabilities for Finland to exploit.

With the Kursk offensive, Ukraine has discovered a way to not suffer Finland's fate. Ukraine can continue to exploit vulnerabilities along its border with Russia. Syrskyi claimed that Russia repositioned thirty thousand soldiers to Kursk. With twice as much frontage to defend, Russia cannot achieve the same force densities it has in Ukraine without a massive, politically unpopular mobilization. Desperate for new recruits, it is already paying soldiers three times the median wage. Russia cannot effectively defend everywhere.

If Russia does establish a force density in Kursk that precludes maneuver, Ukraine should not get too attached to the land it seized. Like some Viking marauders raiding undefended towns and abbeys, or like the English *chevauchées* of the Hundred Years' War that eschewed prolonged sieges to raid deep into France and bypass its castles to exhaust it politically, Ukraine should maintain its forces' flexibility to conduct operational-level raids elsewhere. This approach will play to its advantages and, combined with Ukraine's attacks on Russia's oil infrastructure and military industrial base, will support an overall strategy of exhaustion.

Maneuver is often associated with a strategy of annihilation, and I have argued that the US Army should pursue annihilation through maneuver in the expected context of a future war. However, in its current situation, Ukraine cannot use maneuver to achieve a decisive victory over Russia. What it can do is use maneuver to exploit vulnerabilities, force Russia to overextend, create chaos, encircle Russian forces, and capture Russian equipment. By attacking as operational-level guerrillas, Ukraine will return initiative to Ukraine and not allow Russia to dictate the war's tempo. By continuously hitting the Russians as quickly as they can, as hard as they can, where it hurts Russia the most, and when Russia ain't looking, the Ukrainians stand a chance of exhausting Russian forces. The Kursk offensive's successes make that clear.

How does this End?

Every War Must End (Ukraine Edition)

Chase Metcalf and John Nagl | August 29, 2024

The Russo-Ukraine war rages on, thirty months after Russia expanded its invasion of Ukraine. The largest land war in Europe since World War II continues to consume personnel and materiel at a disturbing rate. While the costs of this war continue to mount, neither side is eager to compromise, and both seek to exhaust the other's political will and capacity to continue.

Even the recent Kursk offensive by Ukraine, while demonstrating an ability to "win" and thus sustaining Western support, does not fundamentally change the strategic correlation of forces or the trajectory of the conflict: Russian President Vladimir Putin appears convinced he can outlast the West. Meanwhile, Ukrainian President Volodymyr Zelenskyy likely believes his ability to compromise is limited, given Russian brutality and the enormous sacrifices Ukraine has made to date. Further, Ukrainians fear that any pause in the fighting will only allow Russia time to rebuild its military and renew the war in the future.

Russia's war on Ukraine is a blatant war of aggression and violation of international norms that is reshaping the geopolitical landscape. This war is leading to increased collaboration between an Axis of Upheaval consisting of Russia, China, Iran, and North Korea, who seek to create an alternative to the existing international order. The recent Commission on the National Defense Strategy has characterized the world we face as "the most challenging and most dangerous international security environment since World War II," and Phillip Zelikow, respected historian and diplomat, argues we face a period of enormous risk, putting the chance of broader global war at 20–30 percent. The threats are real, and the war in Ukraine continues to consume much-needed resources while creating a risk of escalation.

While neither side is eager to compromise, there are signs that this war cannot continue forever. Russia and Ukraine both suffer from manpower and materiel shortages that will only continue to grow as the war drags on. Ukraine has long been dependent on outside support, but Russia increasingly is, as well. Finally, both sides have, at various points, indicated a willingness to negotiate, though they remain far apart on the conditions for those talks. Given all this, it is time to consider what a negotiated settlement might look like. How might this war end?

Why Now

Despite there being little appetite to compromise for either Russia or Ukraine, there are reasons why they may choose to do so. Russia surprised many with its ability to endure economic sanctions, but it cannot sustain the conflict indefinitely. Materiel and manpower costs continue to increase. Russia is reported to have suffered as many as 728,000 casualties through June 2024 and is consuming its stock of Soviet-era weapon systems at a rapid clip. Though experts debate how long Russia can sustain the war, its ability to do so at the current intensity is in large part dependent on Chinese, Iranian, and North Korean support.

While Russia continues to find sufficient manpower to continue the war, expanding mobilization efforts is politically and economically risky. In July, Putin announced a doubling of upfront payments for volunteers to fight in Ukraine, making the minimum pay of a Russian soldier in Ukraine triple the average wage in Russia. This comes as Russia's military spending is already consuming roughly a third of the country's budget, inflation is running at 9 percent annually, and the Russian central bank's chairwoman is warning that "labor force and production-capacity reserves have been almost exhausted."

Ukraine also faces manpower shortages and uncertainty over continued Western support. Under sustained pressure from Russian forces, Ukraine passed a mobilization law in April lowering the conscription age from twenty-seven to twenty-five. Passage of this law followed prolonged political tensions and the firing of General Valerii Zaluzhny, who had called for

mobilizing five hundred thousand troops to sustain the war. Western support also appears unpredictable given the six-month delay in passing the last Ukraine aid bill in the United States and the reality that Germany's proposed budget for 2025 would cut Ukraine aid in half.

Ukrainians have demonstrated an extraordinary will to resist Russian aggression throughout the war. Polls have repeatedly shown that large percentages of Ukrainians remain confident in eventual victory and reluctant to consider ceding territory to Russia. However, a July poll showed that nearly a third of Ukrainians—more than triple as many as a year before—are now willing to cede some territory to Russia to end the war. While a majority remain committed to liberating all Ukrainian territory, political maneuver space may be opening for Zelenskyy.

The administration of US President Joe Biden has repeatedly emphasized that its goal of a sovereign, independent, and secure Ukraine is central to broader European security. However, a recent Pew poll showed that only 34 percent of Americans believe Russia's invasion poses a "major threat" to US interests, down from 50 percent in 2022, and only 48 percent feel the United States has a responsibility to help Ukraine defend itself. More importantly, Pew polling shows the percentage of Americans who believe the United States is providing too much aid to Ukraine has grown from 7 percent in March 2022 to 29 percent in July 2024. This type of polling highlights that public support for American aid to Ukraine has declined over time, and future support is far from certain.

There is also a growing desire to focus on China as America's pacing threat. The 2022 National Security Strategy highlights China as the top security priority for the United States. While American spending on Ukraine is a small percentage of the defense budget, and that spending is enabling the Ukrainians to attrit the Russian military, some call for ending the war to free up resources to focus on China.

The Art of the Possible

Given Russia's blatantly illegal aggression, it is entirely legitimate for Ukraine to remain committed to a victory that restores its pre-2014 borders and avoids Russian escalation. For Ukraine's international supporters, insisting on such a victory as the only acceptable outcome is a morally justifiable and principled position. And to be sure, that outcome would be ideal. But given the current dynamics of the conflict, it is also unlikely. Therefore, it is worth considering how this war might end in a way that supports Ukraine and broader US security interests.

Wars rarely end in the total defeat of an adversary. Instead, wars typically end in some form of compromise. In Ukraine, this will undoubtedly be the case as Kyiv lacks the capacity to march on Moscow and, as long as Western aid continues, Russia lacks the capacity to defeat Ukraine militarily. The details of any settlement must be negotiated between combatants—something that appears remote today. Thus, what follows is not *the solution* to the problem of ending the war, but rather an attempt to spur thought.

As unpalatable as it is given the costs of war for Russia to date, Putin will require something to end the war. Despite being an autocrat, Putin must maintain elite and even some level of public support. If, in return for a Russian withdrawal of all forces from eastern Ukrainian territory, Ukraine were to recognize Russian sovereignty over the Donbas territory it has occupied since 2014 and give up its immediate ambition of joining NATO, Putin could claim victory even as Ukraine put its NATO ambitions on pause until Putin's successor takes charge, whenever that may be. Putin could argue that he had fought NATO-backed forces to a standstill in Ukraine (and thereby checked NATO's eastward expansion), safeguarded Russian nationals in Ukraine, and forced international acceptance of the Donbas as Russian. He could further argue that by forcing Ukraine to rule out joining NATO, he had mitigated the security threat he used at times as justification for invading Ukraine.

Perhaps Putin's most challenging issue would be justifying the return of annexed territories to Ukraine. Some form of sanctions relief, internationally observed referendum, and Ukrainian assurances regarding Russian speakers or portions of the Minsk agreements could serve as a foundation. Ultimately, Putin might justify it as necessary to allow Russia to rebuild its military forces while implicitly leaving open the possibility of readdressing the situation.

Zelenskyy will be rightfully reluctant to compromise, but given the uncertainty about long-term Western support, he may ultimately decide doing so is necessary. In return for renouncing claims on the Donbas, Ukraine would regain Crimea and the annexed territories—areas of Kherson and Zaporizhzhia oblasts—that it likely cannot regain through force of arms while also gaining some form of security guarantees and significant economic support to rebuild its country.

While the 2024 Washington Summit reaffirmed Ukraine's future in NATO, it also noted that an invitation will only be extended once the allies agree and conditions are met. Given the uncertainty of when that might happen, Ukraine may be better off with an alternative security guarantee. For example, a Polish tank division stationed in eastern Ukraine, along with bilateral or multilateral agreements with NATO eastern flank nations that complement the US-Ukraine bilateral security agreement signed in June, would provide increased protection against renewed Russian aggression. Further, the United States could agree to permanently station an American tank division

in Poland. This would both offset the stationing of a Polish tank division in Ukraine and strengthen NATO's deterrent against Russian aggression. It would also provide other NATO nations with time to rebuild their force capacities in the face of increased recognition of the chronic nature of the Russian threat.

Ukraine would also require substantive commitments from the West to help it rebuild its economy and infrastructure. Though the West provides significant humanitarian and financial aid today, much more will be needed. In February, the World Bank estimated that recovery and reconstruction will require around $486 billion over ten years, and those costs will only continue to climb as Russia deliberately targets Ukrainian infrastructure.

What Happens Then

To reiterate, this is not an ideal solution. Ukraine was the victim of an unprovoked invasion and had a war forced on it that has cost the nation dearly. However, a negotiated settlement—along these or other lines—mitigates against the risk of eroding Western will and uncertainty over future Western support. Meanwhile, it would provide Ukraine with the time and space to rebuild its infrastructure and economy, thus encouraging its large diaspora to return to Ukraine. Perhaps, in time, it would allow Ukraine to build a functioning and prosperous democracy that serves as a contrast to the Russian system.

For the West, a settlement reduces the near-term strain on resources and allows some refocus on China. It provides time to build up both forces and a defense industrial base to prepare for future large-scale wars. Perhaps most importantly, it allows the United States to act on the recommendations of the Commission on the National Defense Strategy.

For Russia, this would most likely simply be an opportunity to pause the bleeding and rebuild its military forces. Putin's worldview is such that he will likely just see this as a phase in a larger confrontation with the West consistent with Russia's 2021 Russian National Security Strategy and 2023 Foreign Policy Concept. Given this, he, or his successor, would almost certainly choose to sustain a political or irregular warfare campaign against the West while seeking to work with the Axis of Upheaval to erode US influence globally.

Counterarguments

Of course, no examination of a potential negotiated settlement is complete without due consideration of counterarguments. And given this is a war that has been fought at such cost in blood and treasure, there are bound to be counterarguments because of the sheer challenge of intellectually and emotionally accepting an imperfect outcome. Some will argue that compromise represents a moral failure and further erosion of international norms. There is a substantial element of truth to that claim. However, given the political divisions in the West and uncertainty around sustained support, there would also be a potential moral failure if Western aid were to end, potentially enabling Russia to defeat Ukraine's conventional resistance. Such a scenario would likely result in a prolonged guerrilla war and the brutalization of Ukraine. Similarly, some would argue that absent the West providing Ukraine with the resources needed to win decisively, with the inherent risk of escalation that comes with that, this war will only drag on at an enormous cost in lives.

Others will argue that compromise rewards aggression and would embolden Russia, China, and the rest of the Axis of Upheaval. Again, there is some truth to this. However, the costs to Russia have been high, forcing others to think twice, and the West could use any pause in the fighting to build up its forces and realign resources for the broader global competition. By doing so, the West could deter similar aggression and thus avoid the risks and costs of direct large-scale war.

An Imperfect Peace and a Chance to Prepare

The Kursk offensive is the latest development in a largely stalemated war. Ukraine's operational success will likely force Russia to reallocate resources to its border defenses at the expense of its efforts in Ukraine proper. Given Russia's lack of proficiency in maneuver warfare to date, this will likely involve manpower-intensive fixed defenses. Ukraine may even contest the strategic initiative Russia has controlled through grinding attritional operations since late 2023. However, because the action does not meaningfully shift the war's trajectory, the greatest value Ukraine obtains, if it is able to continue to hold Russian territory, is in the notable strengthening of Kyiv's bargaining position—which brings the discussion back to political negotiations. While the probability of a settlement remains remote—war is, after all, highly unpredictable—it is useful to consider how this war might end, given the costs and risks involved.

If the war in Ukraine were to conclude in the manner described above, the result would be less than satisfying for all involved. Yet, fighting often concludes in unsatisfying ways—like the Korean War, for example, where the combatants fought to a standstill within the context of a broader global competition and potential conflict. A negotiated settlement may be both imperfect and the least bad alternative.

The West now faces the likelihood of a sustained political and irregular warfare campaign by the Axis of Upheaval to undermine US dominance of the international system. Bringing the Ukraine War to an unsatisfying end while increasing NATO unity and deterrence of further Russian

aggression may prove to be not only more feasible than concluding the war on the battlefield, but also a better alternative than a grinding war that continues to cost lives and resources with no end in sight. And it may provide the West with the opportunity it needs to rapidly prepare for the possibility of global conflict.

No Substitute for Victory: How to Negotiate from a Position of Strength to End the Russo-Ukraine War

Robert G. Rose | February 25, 2025

When I was in NATO's headquarters in Kabul, a belief emerged that negotiations with the Taliban would inevitably produce a lasting peace deal. That deal never emerged. The Taliban knew they had the momentum. They had completely undermined the state apparatus in rural Afghanistan. Negotiations just served as a tool for their final victory. We were negotiating from a position of weakness.

As we enter into negotiations to end the Russo-Ukraine War, we need to negotiate from a position of strength. With the appropriate support, Ukraine still has the opportunity to achieve a decisive victory. For too long, Ukraine's supporters have provided enough for Ukraine to survive but not enough for it to win. As General Douglas MacArthur declared, "War's very object is victory, not prolonged indecision. In war there is no substitute for victory."

Unless Vladimir Putin faces defeat, he will not be pressed into a reasonable peace. Any deal he would accept would serve only as a means for the eventual subjugation of Ukraine. He already violated the Minsk I and II agreements. Just as the Taliban used negotiations to secure their final victory, when Putin decides Russia's grinding offensive has culminated, he can seek a ceasefire to solidify his lines, obtain sanctions relief, rebuild his forces, and then fabricate an excuse to launch a sequel to his special military operation. To achieve a lasting peace that puts to an end Russia's attempts at imperial conquest, Putin needs to see that continuing the conflict with Ukraine will exhaust Russia and risk the collapse of his regime.

How Theodore Roosevelt Negotiated an End to Russian Expansion

Over a century ago, an American president successfully negotiated the end of centuries of Russian expansion in Asia. In 1905, Theodore Roosevelt orchestrated the Portsmouth Peace Conference to conclude the Russo-Japanese War.

Russia's empire building in Asia concerned Roosevelt. In 1900, Russia had seized control of Manchuria. In 1904, at the outbreak of the war, he worried that "Russia's course over the past three years has made it evident that if she wins she will organize northern China against us." After Japan's initial success at the Battle of Mukden in March 1904, Roosevelt wrote that he was "thoroughly . . . pleased with the Japanese victory, for Japan is playing our game."

At the onset of the war, Roosevelt had sought to mediate a deal. However, Japan declined his efforts and stated that they would regard "any attempt at mediation as unfriendly because . . . Russia is simply striving for delay and intends to take advantage of every delay to perfect her preparations." Even after repeated setbacks and facing economic collapse, Russian military leaders wanted an opportunity to press on for victory and did not desire a lasting peace. The American ambassador to Russia reported that the tsar would not consider any peace discussions until Russia's Baltic Fleet engaged the Japanese. He informed Roosevelt that the Russians were bluffing about their strength and were concerned with their domestic crises.

But then in May 1905, at the Battle of Tsushima, Japan annihilated the Russian Baltic Fleet. A few days later, the Japanese ambassador to the United States sent Roosevelt an overture to mediate peace. While Russia still had much more manpower and industrial capacity than Japan, it now recognized that acquiescing to Japan's terms was preferable to exasperating its internal issues with greater mobilization. Meeting in Portsmouth, the negotiators only required the month of August to agree to a peace deal. Even though Japan did not obtain all its demands, it put a halt to Russia's conquest of Asia.

Ukraine is Not Yet Lost

It may seem that the prospects of Ukraine achieving a decisive victory like Tsushima are remote. During the last year, Russia has made slow, relentless advances, but the terrain it has seized is strategically useless. Its progress has come at enormous costs that outstrip its capability to sustain its forces. Russian casualties have climbed to over 1,500 a day, which

Russia's strained military recruitment cannot sustain. Russia is starting to exhaust its stockpile of Soviet equipment. Putin continues this unsustainable push to present a picture of inevitable victory to scare the West into forcing Ukraine to accept a ceasefire before his economy collapses. He has created a mirage of military and economic strength to increase his negotiating position.

Much like the tsar's bluff a century ago, Putin has crafted an elaborate facade of economic resiliency. Obscuring military spending by means such as state-mandated loans from private banks to defense contractors, which may represent a majority of Russian defense spending, he has distorted the Russian economy and risks a cascading credit crisis. Putin's precarious facade could collapse at any moment.

As his offensive races against economic collapse to produce a parallel phantasm of military success, Russia's army will eventually outstrip its sustainment capabilities and culminate. At that moment, Ukraine will have a fleeting opportunity for a decisive counterattack. Ukraine needs to be ready to seize that opportunity. To see how Ukraine could capitalize on Russia's culmination, we can look to the Hundred Days Offensive during World War I.

The 1918 Spring Offensive: How to Exploit Culmination

In 1918, Germany and its allies faced economic exhaustion, while the battered British and French armies would eventually be reinforced by millions of fresh Americans. But, after Russia's surrender, Germany had a window of advantage as it moved fifty divisions from the Eastern to the Western Front. On March 21, 1918, Germany opened fire with 4,000 artillery pieces on Britain's southern front. Using infiltration tactics, it penetrated twelve miles on the first day and inflicted forty thousand casualties. Within a week, it had pushed forty miles, an incomprehensible distance on the Western Front, where advances were normally measured in yards.

"We were beaten," British Field Marshall Douglas Haig reportedly said at the time, "and it would be better to make peace on any terms we could." The Germans continued to advance, and by July, the French feared Germany would seize Paris and the British planned contingencies to retreat to the channel ports.

However, Germany had bled through its temporary numerical superiority, the Allies had gathered forces for a counterattack, and French General Ferdinand Foch had learned how to defeat the German tactics. On July 15, at Reims, the Germans culminated as they failed to break French lines. With their logistics overextended and far from the prepared defenses of the Hindenburg line, the Germans were vulnerable. With the forces he had harbored for just such an opportunity, Foch immediately launched a counterattack before the Germans could solidify their position. For the next one hundred days, the Allies relentlessly pushed the Germans until their army collapsed, and they sued for peace.

Foch identified an opportunity for victory and seized it. The Allies had planned an offensive in 1919, but he did not wait. Waiting would have allowed Germany to reestablish its defenses and mobilize a fresh class of conscripts.

The Opportunity for Victory will be Fleeting

Just as the Allies did in 1918, when Russia culminates and before it can reestablish the defensive lines it built in 2023, Ukraine needs to be ready to counterattack, break through weakly held Russian lines, and achieve a decisive victory by exploiting their penetration deep into Russia's rear areas.

Ukraine was unable to break through Russia's prepared defense in the 2023 counteroffensive. It is hard to find examples of armies penetrating enemy defenses when the enemy has sufficient density of troops and time to emplace minefields and dig multiple lines of entrenchments. However, in the Kharkiv and Kursk Offensives, when Russia had not established a defense in depth, Ukraine demonstrated how it could conduct campaigns using maneuver warfare. Russia will present Ukraine with a fleeting opportunity for such a counterattack when its offensive culminates. Like the Germans in 1918, far from the Hindenburg Line, the Russians will be vulnerably strung out in hasty defenses and not ensconced in the multiple layers of the Surovikin Line.

Ukraine needs to be ready to conduct a counterattack at a much larger scale than in Kharkiv or Kursk to decisively defeat Russia and force a peace deal on its terms. Fortunately, Ukrainian forces have the right mindset for such an attack. I have seen Ukrainian staffs studying modernized Soviet doctrine descended from Deep Battle, which revolved around achieving deep, rapid penetrations of enemy lines to prevent them from reestablishing an effective defense. The concepts are there. Ukraine just needs help realizing its full potential.

How to Support Victory

First, Ukraine needs equipment for such a counterattack. Recently, the West became too distracted by debates about high-end capabilities for Ukraine such as the F-16 or whether to allow strikes on Russian territory with ATACMS. There is no silver bullet technology to win this war. Ukraine needs mass. It has done phenomenal work to increase drone production. It has been addressing its manpower deficiencies. But to sustain a breakthrough, it needs artillery, infantry fighting vehicles, and tanks.

As the Germans spectacularly demonstrated against France in 1940, after infantry achieve an initial breakthrough, tanks maintain the momentum of an advance to exploit a breakthrough and achieve a decisive victory. In its unwillingness to provide tanks to Ukraine, the United States

reveals its lack of commitment to Ukraine ending the war. Even though the United States has 3,700 Abrams tanks in storage, it has only provided thirty-one to Ukraine. In fact, Russia has been the lead contributor of tanks to Ukraine. The United States only announced it would provide Abrams to Ukraine on January 25, 2023, eleven months into the war. Of course, it would be months until Ukrainian forces received and trained on the Abrams, which provided ample time for Russia to prepare to defeat those few tanks. The United States has provided a more significant three hundred Bradley Fighting Vehicles from its stockpile of six thousand, but those three hundred would not even fully outfit three brigades. While many of those vehicles need maintenance, that should not be an obstacle. After all, Russia has been sending museum pieces into battle.

On a promising note, the United States increased artillery round production so that Ukraine is approaching parity with Russia, which will be essential for achieving a breakthrough. To prevent Russian operational reserves from counterattacking to seal a breakthrough, the United States should increase donations of Remote Anti-Armor Mine System rounds to allow Ukraine to create minefields deep behind Russian lines to fix reserves in place. Ukraine is already using drones to remotely emplace minefields in Russian rear areas, which have restricted Russian forces' movement.

Advising for Victory

In addition to providing capabilities to allow Ukraine to win, the United States also needs to assist Ukraine with appropriate advising. The United States has already trained almost twenty thousand Ukrainians under the umbrella of the Security Assistance Group–Ukraine (SAG-U), while the European Union Military Assistance Mission has trained sixty thousand. While these efforts have assisted Ukraine in mobilizing additional recruits, training soldiers on new equipment, and teaching staff the NATO planning process, they have largely been uncoordinated. NATO is in the process of taking over SAG-U, which should standardize advising efforts.

I observed a Ukrainian brigade that had members whose members had separately learned Ukrainian, German, Canadian, and American planning processes. They admitted that they would revert to Ukrainian methods when they returned to the front, because that is what the rest of the army used, and it was more suited for rapid decisions for their smaller staffs.

Compared to other armies that I have advised, the Ukrainian staffs I observed proved committed and quick learners. After a couple of weeks of instruction, they understood the US Army's Military Decision-Making Process as well as American staff officers. The Ukrainians just needed to understand the logic of a planning technique.

Unfortunately, these advising efforts have not prepared Ukraine to win. The US Army trains Ukrainian brigades on scenarios that do not replicate the problem set they will face. NATO's new advising mission needs to align its training with a theory of victory. It should prepare Ukrainian forces to conduct a decisive counterattack.

Future advising efforts need to better understand Ukraine's existing processes and techniques. Ukraine has a robust system for collecting battlefield lessons and publishing them, but few of the American soldiers training the Ukrainians were familiar with these products. This problem mostly stems from the United States using an ad hoc approach to its advising efforts.

One of the consistent critiques of our recent campaigns in Iraq and Afghanistan was the constant turnover of troops, which precluded the development of deep expertise. The problem is exasperated with our efforts with Ukraine. SAG-U is largely filled with borrowed military manpower, which only serves SAG-U for a few months. Meanwhile, most units that conduct training for the Ukrainians conduct it as an additional duty. With no time to fully assess Ukrainian units and optimize training for the context that Ukrainian units will face, the training mostly regresses to teaching American techniques.

In reaction to its shortfalls in advising during its recent wars, the US Army established six brigades of specially trained advisors. Inexplicably, these advisors have done little work with Ukrainian forces, either inside or outside the country. If the United States desires to end this war, it needs to get serious about its advising effort and prioritize its advising experts to assist Ukraine by better assessing its requirements, understanding its theory of victory, and tailoring US security force assistance to help Ukraine achieve that victory. With Ukraine mobilizing additional brigades, now is the ideal time to prepare those brigades to conduct a counterattack just as Russia culminates.

Unfortunately, those brigades have so far performed poorly. The French-trained 155th Mechanized Brigade experienced "systemic shortcomings" according to Major General Mykhailo Drapatyi, the commander of Ukraine's ground forces. Even though it was supposed to be a model brigade equipped with the latest weaponry, it reportedly had 1,700 soldiers desert before reaching the front. When it engaged Russian forces, it suffered heavy casualties. The brigade has been broken apart and Ukraine has launched investigations. Effectively placed advisors could have mitigated such a debacle. Advisors assess partners, provide an understanding of their shortcomings, and ensure problems are solved before a disaster. They provide the connective tissue so that security force assistance programs do not fail.

Establishing Divisions and Corps

In addition to assisting in training brigades, advisors should help Ukraine in establishing division and corps headquarters. In February 2025, the Ukrainian Army announced the formation of up to twenty corps headquarters to provide a more effective command structure for its brigades. As soon as Russia invaded, Ukraine was in survival mode, and it has remained so for the three years since, raising a multitude of expedient units without a unified command structure. The transition to a corps system is an important step forward.

Currently, Ukrainian brigades are the primary tactical echelon. They are subordinate to operational-tactical groups and operational-strategic groups, which are regional commands with makeshift structures and no organic units. They can have over a dozen brigades assigned to them—far too many units to effectively control. The shortfalls of the operational groups mean that the Ukrainian General Staff often micromanages fights instead of focusing on strategic planning to win the war.

Division headquarters will be essential to setting conditions for a breakthrough, coordinating between brigades to maintain an attack's momentum and managing the deep fight to disrupt Russian attempts to organize counterattacks or new defensive lines. Ukraine must prioritize building cohesion within its divisions with dedicated brigades. Divisions need to build shared mental models of how they fight to act with the tempo necessary to conduct maneuver warfare. Ukraine has been too quick to break apart brigades to meet emergencies, which shatters cohesion and shared understanding between staffs and commanders. This is yet another consequence of the survival mode that has characterized key aspects of Ukraine's war effort. Divisions should be flexibly organized under regionally aligned corps to react to battlefield circumstances. As the German Army organized its corps in World War I, Ukrainian corps should focus on sustaining the fight and consolidating logistics elements far from the vulnerable front.

To assist Ukraine in establishing divisions and corps, the US Army will need advisors who can tailor their approach to Ukraine's needs and not force on them the US Army's onerous battle rhythm and targeting process, which is optimized to win Warfighter simulations, not wars. The advisors will need to support Ukraine in establishing adaptable systems to facilitate the transition from the defense, to breakthrough, and finally to exploitation.

For example, Ukraine has decentralized its artillery architecture to provide responsiveness in the defense. To achieve a breakthrough, it will need to briefly concentrate its artillery under division control to suppress Russian troops along the depth of its defenses, and then it will have to return artillery to decentralized control to provide responsive fires to its battalions as they rapidly exploit gaps in the Russian defense and overrun enemy positions before Russian forces can reestablish a defense. This transition between centralization and decentralization of artillery was a major innovation of Germany during World War I and enabled its forces to maintain momentum during the Spring Offensive. For Ukraine, maintaining the tempo of its counterattack will be paramount.

Timing is Everything for Victory

Time is the ultimate currency in war. Now is the time to quietly and quickly build the capabilities that Ukraine needs for a decisive counterattack to end this war.

During the Korean War, in May 1951, General James Van Fleet led the US 8th Army to a crushing victory over the Chinese in Korea. The Chinese had launched a massive offensive to capture Seoul. Van Fleet's 8th Army broke the Chinese at the outskirts of Seoul. Before the Chinese could withdraw to defensive positions, Van Fleet launched a counterattack, which left the Chinese in chaos, with over one hundred thousand casualties, a third of their forces. He saw an opportunity to continue his counterattack deep into North Korea and annihilate Chinese forces in Korea. However, Washington, worrying about escalation and placing hope in negotiations, which China agreed to that June, denied Van Fleet's request. The United States lost an opportunity to negotiate from a position of strength.

When negotiations did not produce a ceasefire, Washington allowed a limited attack, but Van Fleet recognized that China had exploited this delay to reorganize its forces and establish a defense in depth. He protested that during the thirty days of dithering, the situation on the ground had completely changed. In hoping for negotiations, the United States let victory slip from its grasp. The war dragged on for two more bloody years, with tens of thousands more American casualties, and resulted in a peninsula that is still divided.

The leader of the armistice negotiations, Admiral Turner Joy, wrote, "I feel certain the casualties the United Nations Command endured during the two long years of negotiations far exceed any that might have been expected from an offensive in the summer of 1951. The lesson is: Do not stop fighting until hostilities have ended, not if you want an armistice with the Communists on acceptable terms within a reasonable period of time."

Korea demonstrated that even if we are talking, we should not stop fighting. Like Roosevelt with the Portsmouth Peace Conference, we have an opportunity to end Russian imperialism, but only if we remember that there is no substitute for victory.

Security Force Assistance

The United States is Sending Billions in Military Aid to Ukraine—Just Not the Systems It Needs

Andrew Milburn | May 20, 2022

Twisted metal, still smoldering; the eviscerated hull of a vehicle, its top half ripped off—this is what the Turkish Bayraktar TB-2 leaves in its wake. There were two such drones involved in this attack on a Russian armored column north of Kyiv—quite a bargain for the West at just under $2 million a platform.

By contrast, the much-vaunted Javelin and NLAW, both man-portable antitank guided missiles, belong to a previous era. They require an operator (or two, in the case of the Javelin) to ambush armored vehicles within the adversary's weapons engagement zone. Their high success rate here in Ukraine owes everything to designer defects in Soviet-era armor.

The Russian BRDM armored reconnaissance vehicles are made of aluminum alloy, which burns incandescently after contact with a high-explosive round. And the manufacturer of the T-72 tank overlooked one fatal design defect: the tank's ammunition is stored below the crew spaces without a hardened bulkhead for insulation. Even a rocket-propelled grenade fired from the flank will result in a catastrophic kill more often than not. Both these flaws are a result, in part, of the corruption and incompetence endemic throughout the Russian military procurement system—and have proven to be a great benefit for the defenders of Ukraine.

Why doesn't the United States produce a blue-collar drone like the TB-2 for export? The answers are complex. Since July 2020, there have been no legal restrictions on the export of such a platform. But the US defense industry has no incentive to manufacture a low-cost drone with similar capabilities to the TB-2, and the Pentagon has yet to send a demand signal. As a result, Turkish and Israeli firms dominate the market—two countries whose national interests do not always overlap neatly with those of the United States.

While the United States has so far provided the Ukrainians with few drones, it has provided heavier weapons and tens of billions of dollars in aid. But the provision of military aid to Ukraine does not appear to be aligned with battlefield requirements. Instead, the United States is throwing money at the problem in the hope that sheer expenditure will bring results. It is a mistake to conflate expenditure and resources with targeted capability. Military aid should be focused on actual requirements—and it is here where US policy breaks down.

The need for long-range precision fires is one example. The United States has made little attempt to meet this requirement, beyond the much-heralded M777 howitzer, which is in fact obsolete. The M777 is outranged by Russian rocket artillery, which has a proven ability to respond with counterbattery fires within five minutes—less time than it takes a battery of M777s to displace. There has been no serious discussion of providing the Ukrainians with the Multiple Launch Rocket System or long-range strike drones such as the MQ-9 Reaper or even its older cousin the MQ-1 Predator, perhaps because both these platforms cost considerably more than the TB-2—the unit cost of an MQ-9 is over $30 million.

Nor has NATO fielded logistics drones to meet the Ukrainian military's requirement to resupply units cut off by Russian forces. Cargo drones such as the US K-MAX or the British Maloy T150 could well have prevented the fall of Mariupol's garrison. Ukrainian helicopters did made it through the gauntlet of Russian air defense systems, but the risk of losing air crews made this method of resupply prohibitively expensive. It would have been a relatively simple task to flood the air with decoys such as

cheap commercial drones, like the various models manufactured by DJI, overwhelming Russian air defenses, while a handful of logistics drones delivered vital supplies that would have allowed the garrison to fight on indefinitely.

Moreover, a policy that simply pushes logistics without any "pull" or supervision to ensure distribution according to prioritization of need simply does not work. A handful of US contractors in country could have made a world of difference in this regard—and it is hard to imagine that the deployment of a few personnel tasked with coordinating distribution would constitute a red line triggering World War III. Instead, the Territorial Defense Forces, the Ukrainian reserves in the west of the country, are often well-equipped while units on the front line go short of everything. Is this corruption? Perhaps—but from what I have seen it is simply a case of commanders trying to take care of their own, not realizing that there is only a limited amount of US largesse to go around.

The United States needs to reassess the equipment it plans to provide under its recently announced $37.4 billion aid package. The proposed package includes towed howitzers, Soviet-era helicopters, armored personnel carriers, and surveillance drones. This equipment is intended simply to replace Ukrainian losses but will make relatively little difference on the battlefield. It is as though Washington is deliberately avoiding giving Ukraine a qualitative military edge over Russia by providing its military what it really needs: squadrons of strike and logistics drones (along with counterdrone systems), battalions of rocket artillery with counterbattery radar, and anti–air defense systems.

There are clearly concerns about escalation at play, but there is little logical distinction between a weapon that kills tanks one mile away, as man-portable systems such as the Javelin are capable of doing, or fifty miles away, as only a long-distance strike drone can do with certainty. The difference to the operator, however, is significant. And Washington needs to understand that in any conflict between democracy and autocracy of the sort playing out in Ukraine, US interests are at stake. It needs to embrace the real prospect of Ukrainian victory—and to understand that such an outcome is the only one acceptable, not just for Ukraine but for global perceptions of the rule of law between sovereign nations and of the role that the United States plays in upholding such a thing. A Ukrainian victory will bring with it the opportunity for a massive international reconstruction program, EU membership, a buffer against further Russian aggression, and a totemic watershed for the global rule of law.

A ceasefire or stalemate, by contrast, would leave Ukrainians under Russian occupation, subject to torture, rape, and execution. It would enable the Russians to regroup and rearm. It would allow Putin to claim victory, to posture and reposition for further offensive action. In short, it would be a de facto defeat—sending the world a message about the power of autocracy on the global stage, and a sobering reminder that a partnership with the United States can, in real terms, mean very little indeed.

More Bang for the SFA Buck: Improving US Security Force Assistance in Ukraine and Beyond

Jahara Matisek, William Reno and Sam Rosenberg | February 15, 2023

Russia's full-scale invasion of Ukraine was a strategic disaster for that aggressor, triggering a flood of security assistance from the United States and other international supporters of Ukraine. In 2022, the United States provided Ukraine over $20 billion in security assistance, a massive increase from the $2.8 billion in military aid from Washington between 2014 and early 2022—and this is on top of $9.9 billion in humanitarian aid and financial assistance of $15.5 billion. European Union institutions and countries provided over $51 billion of military, humanitarian, and financial assistance in 2022. Western political leaders responded with all the major instruments of national power—diplomatic, information, military, economic—to help Ukraine.

Practically every few weeks the administration of President Joe Biden asks US lawmakers to authorize billions in security force assistance (SFA) for Ukraine to fight Russian occupying forces. This overall effort encompassing training, advising, assisting, and equipping (TAAE) has translated into remarkable Ukrainian battlefield victories to reclaim territories in southern and eastern Ukraine. For most of 2022, TAAE was largely cobbled together by staffs at the US embassy in

Ukraine, US European Command, the 4th Security Force Assistance Brigade (SFAB), 18th Airborne Corps, Joint Multinational Training Group–Ukraine (JMTG-U), and other organizations. The November creation of the Security Assistance Group–Ukraine (SAG-U) at Wiesbaden aimed to address this fragmented approach to Ukrainian SFA and streamline US efforts alongside those of NATO allies. Meanwhile, the Ukraine Security Assistance Initiative allows the president to circumvent US military stocks by funding the direct industry purchase of armaments, such as the thirty-one brand-new Abrams main battle tanks the White House recently announced would be sent to Ukraine this year.

In December, our DoD Minerva team traveled to Germany to observe and assess current Western SFA efforts to make the Ukrainian armed forces more militarily effective and to understand the trajectory of SAG-U and its implications for this war and future strategic competition. We observed positive effects of recent policy changes but found more needs to be done. American SFA needs to become better aligned and unified to ensure Ukrainian forces can perform as well as it will need to as the conflict transitions from the comparatively static war of attrition that has taken shape during the winter months to one likely characterized by combined arms maneuver as anticipated spring offensives begin.

Unity of Command or Unity of Effort?

The intensity of security assistance to Ukraine is remarkable. Its effect in enabling Ukraine's defense against Russian aggression has challenged assumptions that widely reported corruption in Ukraine's political system inevitably undermined Ukraine's military effectiveness.

Retired Lieutenant General Mark Hertling provided insight into why Ukraine has outperformed many prewar expectations when he described how Ukraine's military professionalized and reformed many of the Soviet-era institutions it inherited. It is clear that Ukraine escaped the "Fabergé Egg" army problem. Unlike what occurred with the infusion of tens of billions of dollars and expensive military equipment to Iraq and Afghanistan, highly motivated Ukrainian forces put massive amounts of assistance to effective use rather than building an outwardly proficient yet hollow military—like a Fabergé egg, very pretty and expensive yet easily broken. Ukraine's leadership has also demonstrated high levels of political will, which was lacking in Kabul and its armed forces.

The activities of both SAG-U and JMTG-U are predicated on long-term relationship building, which is difficult to measure and quantify, but is crucial in achieving the shared interests of Ukrainian and US leaders. For instance, the US National Guard's State Partnership Program has maintained a relationship between Ukraine's military and the California National Guard since 1993. Our team observed how Guard units have been a force enhancer and enabler in understanding personal and professional networks in Ukraine. They helped identify the right Ukrainian officials to work and liaise with to optimize American TAAE.

According to some US military advisors the team met, SAG-U is a good organizational step to consolidate the US-led TAAE effort. But in its current configuration, SAG-U is a temporary tool in a long-term process. While SAG-U has spearheaded equipment deliveries to Ukrainians, it is still finding its footing. Having recently replaced the 18th Airborne Corps, SAG-U is cobbled together with personnel from units across the joint force, many of whom have little or no SFA experience or firsthand knowledge about Ukraine. If the United States is to excel in efforts to help Ukrainian forces outperform their Russian adversaries, improved organizational efforts are needed to ensure that SAG-U aligns with integrated deterrence and is properly manned with the most qualified personnel from the joint force, interagency partners, and allied and partner militaries.

JMTG-U, formed by the US Army in 2015 to train and equip the Ukrainian military alongside advisors from Britain, Canada, Lithuania, and Poland, is a bright spot in American SFA efforts. Originally based in Ukraine, JMTG-U now operates in Germany, providing platform-specific training and, now, collective training for Ukrainian battalion-sized units. Operationally controlled by SAG-U and managed primarily by Army National Guard units, JMTG-U has been instrumental in Ukraine's battlefield successes, providing critical training on artillery systems and targeting processes that have inflicted a significant toll on the Russian military. Task Force Orion, composed of a New York National Guard brigade combat team, currently runs the program. Many of the task force's soldiers volunteered for the assignment and have previous experience working with the Ukrainian armed forces on an earlier JMTG-U rotation at the Yavoriv training center in western Ukraine before last February's Russian invasion. Their knowledge of the Ukraine mission and familiarity with Ukrainian forces has proved essential in making the current incarnation of JMTG-U successful.

While SAG-U and JMTG-U have made important contributions, their efforts sometimes are at loggerheads with other units permanently stationed in the region. Unlike SAG-U and JMTG-U, units based in Europe are not solely focused on strengthening Ukraine's military. They must attend to their own training and readiness. Tasked with little notice to provide maintenance training or instruction on artillery pieces to the Ukrainians, assistance can come at the expense of these units' own readiness. More importantly, the hodgepodge of units working on SFA for Ukraine has created confusing command relationships and task organization. Many officers our team met expressed bewilderment at the command arrangements in

Europe, lamenting that the United States is "building the plane in flight." It is critical that US SFA moves beyond this ad hoc approach. The focused articulation of strategic interest on the part of political leadership and the operational intensity of the mission allow these organizations to overcome inefficiencies and friction, at least for now, but a more optimized method of organizing SFA efforts is necessary for it to be sustainable.

Moreover, hanging over all of the assistance Ukraine has received, since the invasion, have been natural concerns about escalation. Russia is a nuclear-armed power acting within what it defines as its core sphere of interest, and the United States and other Western supporters of Ukraine are challenging Moscow's assumption that it has the right to do so. Because Russia possesses nuclear weapons, its leaders have the capacity to inflict intolerable pain upon the West. They periodically issue threats, veiled and direct, to do just that if various red lines are crossed. This is what Thomas Schelling called "nuclear diplomacy" in his Cold War classic, *Arms and Influence*, published in 1966—an effort to harness fear to coerce an opponent to bend to one's will. Western assistance inevitably operates under this nuclear shadow. This is not a reason to pull back in fear, and instead argues for greater coordination of assistance. Doing so would signal greater Western strength and resolve—and can be more carefully managed to reduce chances of inadvertent escalation.

Institutionalize American and Allied Assistance

The fact that it took almost ten months and $20 billion of security assistance to create a mission dedicated specifically to militarily helping Ukraine is representative of the US military's fixation on large-scale combat operations (LSCO). Such a LSCO paradox exists because while the US armed forces want to train for conventional warfare against a near-peer adversary, they have been involved more in irregular warfare—which includes missions like SFA—than LSCO over the last century.

There are a number of individual SFA reforms that can be rapidly implemented and, collectively, would improve outcomes. After two decades of disappointing results in Iraq and Afghanistan, the Pentagon should deliberately evaluate the ability of specific units and staffs to train foreign forces. The US military already has made progress in institutionalizing advising with the creation of the Army's SFABs. But often, the job of working with foreign forces falls to regular army units that lack formal SFA experience. In Germany, Ukrainian soldiers frequently receive training from the 2d Cavalry Regiment soldiers on artillery or maintenance operations—not from SFAB advisors—largely because of proximity. But conventional units like these that are permanently stationed in Germany are not directly evaluated on their ability to teach or operate with partner forces. Many individuals we spoke to like helping Ukraine, but also worry that doing so reduces their own readiness. Asking soldiers to work on things outside of the mission-essential tasks fundamental to their unit's readiness has to happen from time to time, but it is not an ideal situation, and in this case is a problem that can be addressed through support for well-resourced, dedicated training units.

The Way Forward

The United States and Ukraine have much to be proud of in the effort to defeat Russia's full-scale invasion. SAG-U and JMTG-U are still evolving, but their battlefield impact so far is clear. If SAG-U can get its manning sorted and both organizations can deconflict the task organization in Europe, the United States will be better positioned, along with its NATO allies, to support Ukraine's spring offensive.

Achieving SFA unity of effort among allies and partners will also be a force enhancer for the Ukrainians. For example, Australia just deployed military advisors to the UK to participate in Operation Interflex (successor to Operation Orbital), bringing to a dozen the number of countries contributing personnel to the British-led training mission of Ukrainian forces. However, a complaint from many Ukrainian troops is a lack of consistency among advisors in the way they advise, train, and teach. US forces utilize the Military Decision-Making Process, the Canadians teach the Operational Planning Process, and the British military instructs its 7 Questions combat estimate method. There would be a tremendous payoff to all Western military advisors in establishing common instructional methods, learning objectives, programs of instruction, and assessment tools to improve consistency and unity of effort.

The United States should also pursue smaller, more impactful goals like integrating SFA into national training centers more formally. After two decades of struggling to build partner forces, the US military must devise more systematic ways to evaluate the ability of units and their staffs to do so.

Finally, analysts and planners should consider the interplay between SFA and geography. When Russia invaded, it did so with simply too few troops to achieve its apparently expansive initial objectives in Texas-sized Ukraine. Moreover, Ukraine's shared border with multiple NATO members—most notably Poland, a leading contributor of aid since the invasion—enables the delivery of SFA. In a future crisis, a similar effort to deliver assistance to Maryland-sized Taiwan—an island about three hundred miles away from US bases at Okinawa—would involve dramatically different considerations. Thus, as US policymakers fund approximately $10 billion in future security assistance to Taiwan, military advisors and planners will need to adapt to these harsher realities and rethink the organizational structure to training and equipping the Taiwanese military.

Despite the US military's hard pivot toward LSCO after its expensive, years-long struggle to build up partner forces in Iraq and Afghanistan, Russia's invasion is a stark reminder that SFA will remain essential to securing US interests. US assistance so far has contributed to Ukraine's remarkable performance in the face of Russian aggression. But doing so in a more efficient and sustainable manner, and leveraging SFA in pursuit of US strategic objectives elsewhere, requires a deliberate effort to optimize the planning and delivery of US military assistance.

What Does European Union Advising of Ukrainian Troops Mean for the Bloc's Security Policies? An Inside Look at the Training Mission

Jahara Matisek, Sascha E. Ostanina and William Reno | June 11, 2024

Visiting a German Army base in the vicinity of Berlin, we watch five Ukrainian infantrymen assault a neatly arranged trench, again and again. It's two o'clock in the afternoon, and they have been practicing this skillset for five hours that day already. Tired and hurried faces, we watch this small group of Ukrainians practice a trench assault, with an energetic German noncommissioned officer shouting out corrections and coaching the troops alongside a German soldier translating it into Ukrainian. We walk around the densely forested training site watching other similar small groups repeat the same trench assault maneuver, seeing signs of exhaustion among some as they move past the halfway mark of the required eight hours of training for the day.

This exercise is part of a forty-day basic infantry course meant to convert Ukrainian soldiers into assault teams capable of confidently taking over Russian trenches. The course constitutes the European Union Military Assistance Mission to Ukraine (EUMAM), the first ever EU training mission organized on EU territories. Since November 2022, the EU has trained over fifty-two thousand Ukrainian troops, with twenty-four EU member states providing military personnel and training modules to Ukrainian forces. EUMAM is one of three multilateral training programs for Ukrainians. Collectively, over 130,000 Ukrainians have been trained by the international community at eighty locations around the world. The US-led Joint Multinational Training Group–Ukraine (JMTG-U), including rotational US forces, has trained over nineteen thousand Ukrainians since 2022. The British-led Operation Interflex and its predecessor Operation Orbital have trained over sixty thousand Ukrainians since 2015. The disparity in the number of trained Ukrainian soldiers between the US training mission and those led by the UK and EU is a function of US prioritization of military readiness requirements, training exercises, and deployments across eastern Europe to deter Russia and reassure NATO allies.

During our travel, we visit several other training locations around Berlin. We arrive at a Bundeswehr urban training ground with modified trench systems to watch an eight-man Ukrainian trench assault team clear fifty meters of trenches. It's a slow, tough slog, as the lead Ukrainian throws a training grenade about every two to three meters to clear each corner. The observing group of training officers share that each Ukrainian soldier should carry ten grenades for this type of an assault. In the harsh reality of the Russo-Ukrainian war, an experienced Ukrainian soldier laments that they're lucky to have two grenades for trench clearing operations. The soldier declares they wouldn't assault a trench without a supporting drone to surveil, allowing them to conserve grenades.

If things weren't bad enough for Ukrainians assaulting trenches, the trainers mention that the Russians intentionally abandon booby-trapped trenches to wipe out Ukrainian assault teams. They recommend Bangalore torpedo explosives to preemptively clear Russian trenches due to the possibility of booby-trapping. In other cases, Russian forces use tunneling techniques to breach Ukrainian trenches. The trainers shrug about how to adapt their trench warfighting curriculum for these emerging trends. One says, "No doctrine or manual exists in NATO for this type of war."

Training for a War you Haven't Experienced

The training we observe near Berlin involves military advisors from various European countries. Training modules include Ukrainians being taught on Leopard 1A5 tanks and various infantry tactics for trench and urban warfare. We meet three US National Guard troops who are helping teach the EUMAM advanced assault sapper course. We see and talk to Ukrainian troops as young as nineteen and as old as sixty-nine.

According to one German training officer, the average age of Ukrainians in training cohorts was thirty-four when training began in earnest in 2023, but in 2024 they report that the average age now varies around mid-forties.

With Kyiv recently passing a new mobilization bill, which lowers the draft age from twenty-seven to twenty-five, Ukraine will form four new infantry brigades. The addition of these soldiers couldn't come at a better time: Russia's assault on the city of Kharkiv with five battalions forced Ukrainian retreats in some sectors due to a lack of experienced soldiers. These Russian territorial advances and evidence that Russian forces have incorporated organizational changes and new technologies underscore the urgency of deploying more capable Ukrainian troops to counter these heightened threats. These developments have even caused NATO member states to consider sending advisors to provide training inside Ukraine.

The ultimate form and intensity of this assistance will depend upon agreements between NATO members, based on their assessments of the urgency of this mission and the risk of escalation attending the positioning of NATO member states' personnel on Ukrainian territory. But it is worth noting that Ukraine's supporters stand at a strategic crossroads. Growing political fatigue and a renewed Russian offensive test the credibility of Western commitments. Ukraine needs the right quantity/quality mix of equipment and properly trained personnel, as it is estimated that the Ukrainians "may have lost over 70% of their combat experienced personnel since 2022." The American political struggle to approve the $61 billion aid package for Ukraine signals that the long-term US commitment to support Ukraine has become less certain. These developments tested Europeans.

The EU was able to partially replace US aid to ensure the training and arming of Ukrainian soldiers, but more is needed to stave off Russian offensives this summer. Results of this test are rather disheartening. Earlier this year, the EU failed to deliver a promised one million 155-millimeter artillery shells to Ukraine, failing short by almost 50 percent of the declared target. The Czech initiative to procure eight hundred thousand shells outside the EU is facing similar delays, partially due to an unwillingness of some EU member states to chip in funds. The recently unveiled European Defense Industrial Strategy and its financial leg, the European Defense Industrial Program, aimed at encouraging greater cooperation among European defense manufacturers, are yet to be approved and receive at least minimal funding.

We have found in our field visits there are numerous challenges and adaptations going on across Europe to properly train and equip Ukraine for the emerging "cyberpunk form of warfare" that "is blending old fighting styles with new technology." Speaking to dozens of different European military advisors, we ask about how trainers keep the curriculum current as battlefield conditions in Ukraine change—something most of the trainers have never experienced firsthand. Some trainers respond that they watch open-source videos on social media on a regular basis to observe Russian and Ukrainian battlefield adaptations. Other advisors visit museums and libraries to dust off old doctrine and tactical manuals from World Wars I and II to understand how to provide appropriate techniques for trench warfare training. Most EUMAM personnel tell us that as teachers, they are now being trained by the trainees when it comes to understanding what modern warfare looks like.

There are other serious challenges in the current efforts to train Ukrainian soldiers. The most consistent among those EUMAM trainers cite are language and culture issues. We find the same is true based on our other visits with American, British, and Canadian military trainers. Some of the older German officers mention that their knowledge of East German military institutions helps them understand most of the organizational and doctrinal issues the Ukrainians face due to their shared Soviet legacies. The other common problem is a lack of Ukrainian transparency. Western trainers and apparently Ukrainian military leaders do not have adequate mechanisms to assess the effectiveness of specific training efforts, in terms of direct battlefield effects or on training efforts inside Ukraine. In other cases, Ukrainian authorities do not send soldiers that are appropriate for training programs across Europe. One Ukrainian soldier enrolled in the sapper course complains about how he was randomly thrown on a bus for this course even though he is a trained FPV (first-person view) drone operator with a year and a half of experience. These conversations are a common feature in all of our visits.

Visiting the training base for Leopard tanks, we are greeted by the Danish commanding officer that tells us all about the twelve Ukrainian tank crews his combined Danish-German unit is training. He shows us across the training compound, to include the virtual tank training facility where we observe dozens of highly motivated Ukrainian soldiers sitting at computers with Leopard gunnery wheels attached. Using an upgraded version of the commercially available Steel Beasts, we watch Ukrainian crewmembers fight enemy tanks on their digital battlefield. Elsewhere, we see the Ukrainian tank drivers receiving basic maintenance training.

As the day with the Danish commanding officer wraps up, he tells us how the Ukrainians want to integrate drones into the Leopard tank training. He laments that the six-week course is about mastering tank maneuver and tactics, and the addition of drones would further complicate Ukrainian training. However, without drones, Ukrainian soldiers, trained in Europe to quickly maneuver these tanks in formation, return home to continue using their tanks mainly as artillery. The Danish commanding officer hopes the Ukrainians will use the

Leopard tank for its speed, boasting that "these tanks are meant to purr quickly across the battlefield." Yet, this degree of maneuver has been absent from battlefields in Ukraine since the end of Ukraine's fall 2022 counteroffensive and the onset of Russian defense in depth. Those of us who have visited Ukraine can confirm that indeed tanks are used more as fixed artillery: as these expensive pieces of equipment are vulnerable to attack from relatively cheap drones, Ukrainians are seeking to preserve Western military kit to avoid testing their allies' generosity.

Ramifications of Training the Ukrainians

In speaking with numerous European military personnel, most admit that their own training and readiness has gone way down, as their militaries have made it their highest priority of assisting and equipping the Ukrainians. A British Army officer at Land Operations Command estimated that the UK's landpower service had sacrificed up to 75 percent of its own training and readiness to assist the Ukrainians. Most European military personnel we speak to mention that their leaders have decided to focus largely on them teaching and equipping the Ukrainians at the expense of their own military preparedness, in part because they believe they are applying their comparative advantages in training and advising to advance the common effort to support Ukraine's resistance against Russian aggression. In the early months of the Russo-Ukrainian war, some European militaries decided to sacrifice their military readiness, preparedness, training, weapons, and ammunition stocks because they believed that the United States will aid them in a crisis under the NATO Article 5 umbrella. Political uncertainty in the United States, however, is forcing Europeans to develop security policies flexible enough to either leverage US assistance or manage without it.

Several broad policy questions emerge concerning American and European security assistance as the Russo-Ukrainian War is well into its third year. First, is the EU willing to pursue its elevated security ambitions regardless of the continuity and level of US commitment going forward? Surprised with the strength of its own response to Russia's full-scale invasion of Ukraine, Europe is more able than at any time in recent decades able to at least fathom a greater degree of self-reliance on European defense. Yet, European security requires investment in these countries' defense if the EU seriously plans to fulfill its military ambitions.

Second, what does EU assistance to Ukraine mean for the EU security posture? Formal EU involvement in the conflict has opened new avenues of collaboration, as the non-NATO militaries of Cyprus and Ireland contribute forces to train Ukrainians. Divisions exist: Hungary, a NATO and EU member, partially opposes EUMAM, and Austria, an EU member but non-NATO state, supports the mission but is not actively part of it. The EU parliamentary elections and elections in specific EU countries impact collaboration, a fact that is integral to Russia's strategic calculations.

Finally, what does European strategic autonomy look like, and how does assistance to Ukraine (re)shape that concept? While visiting the EU Military Planning and Conduct Capability strategic headquarters in Brussels, it became apparent that the politics of the conflict are reshaping European unity and consensus. Some EU member states are more comfortable considering what it means for the EU to exercise strategic autonomy, outside the orbit of NATO, to more forcefully oppose Russia's imperial ambitions in Ukraine. Other EU military staff and planners reluctantly mention that European strategic autonomy should be unified around consensus in Brussels, and not be as provocative as Paris is with its attempt at steering the EU toward confrontation with Moscow.

NATO and EU assistance to Ukraine since the 2022 invasion is reshaping Europe's strategic environment. Europeans who previously did not have to think deeply about either their own countries' military capacities or strategic ends find these issues unavoidable in the face of growing Russian belligerence and imperialism. Ukrainian assistance missions and collaborations are gateways for addressing these issues in tandem, as they grow out of the long-term NATO and now EU frameworks. At the same time, Ukraine's partners must learn the right lessons from the Russo-Ukrainian War, which increasingly points to needing more flexible military institutions that can quickly adapt. The training of Ukrainian forces will continue, but the bigger question is when Western militaries will start introducing lessons learned from this experience into their military doctrine, manuals, weapon systems, and tactics.

The Ukraine Dividend: Return on Investment of US Security Assistance

Steven S. Lem | April 17, 2025

After the 2021 collapse of the Afghan military, the value proposition of security force assistance in the twenty-first century was weak, at best. So, when Russia launched its 2022 full-scale invasion of Ukraine, the impact that US assistance to Ukraine might have on the conflict's outcome was debated. Three years and nearly $70 billion of military support later, the debate continues. But one consideration is often ignored. While security assistance provided to Ukraine has made a real difference in Ukraine's defense, there is also significant value from the expenditure of American taxpayers' dollars, in the form of the insights the US military can gain to prepare for the next conflict in Europe, the Indo-Pacific, or the homeland. This is a return on investment from security force assistance that involves gathering lessons learned and understanding how technology is changing the battlefield. This will pay dividends as the American military transforms, which means this assistance will save American lives if deterrence fails and the nation finds itself in twenty-first-century large-scale combat operations.

There is a real cost to conducting security force assistance. The Afghanistan Security Forces Fund exceeded $82 billion over fifteen years. As the US military withdrew in the summer of 2021, it appeared the return on investment made in building the Afghan military was null as the Taliban quickly overran security forces. Now the Taliban brandish US-made equipment like M4s and HMMWVs left behind.

Only a few months later, the Department of Defense would again be called upon to provide security assistance. The costs to train, equip, and advise the Armed Forces of Ukraine would mount quickly. Training and equipping Ukraine is even more costly than Afghanistan. The amount of security assistance provided to Ukraine in three years approaches the cost of training and equipping the Afghanistan military over fifteen years, largely because Ukraine is using some of America's most expensive and advanced capabilities, like HIMARS (which has cost a total of $1.1 billion) and ATACMS (the missiles for which cost $1.5 million each). But supporting Ukraine has a return on investment that cannot be easily counted and was not seen in Afghanistan.

To be clear, context matters. The boots-on-the-ground nature of the US involvement in Afghanistan meant an emphasis on partnering and training, whereas discussions about US support to Ukraine have largely focused on weapons and other materiel provided to Ukrainian forces. And there are important definitional distinctions, as well. While security force assistance generally focuses on training and advising of partner forces, security assistance is a broader term that covers a broader set of aid and support activities. Yet the two go hand in hand. When the United States provides Ukraine with weapon systems, it also offers training, not just on how to operate each new system, but how to maintain it, incorporate it into planning processes, and integrate it into a combined arms framework. As a result, providing materiel means sustained contact between dedicated US personnel and Ukrainian forces using US systems in combat—an invaluable learning opportunity.

As the Department of Defense transforms itself from a force that was incrementally optimized for counterinsurgency operations over nearly two decades into a military oriented toward large-scale combat operations, the insights gained from Ukraine will pay dividends. Deployed advisors are able to discover lessons learned from primary sources, on everything from tactics to technology. Thus, assistance provided to Ukraine can help the Department of Defense transform its fighting force and the defense industrial base.

While the US military is larger, more advanced, and at a higher level of readiness than those of its allies and partners, it has not fought a near-peer adversary in decades. For three years, Ukraine has paid the price to show how unprepared the American military would be for modern war. For example, decades of air superiority masked the fact the Department of Defense does not have enough of—or the right mix of—air defense capabilities to defend itself from large-scale drone, glide bomb, cruise missile, and ballistic missile attacks. What the US military can learn from Ukraine—about modern air defense or in a range of subjects—is not just useful in preparing for a similar conflict scenario in Europe, but can be applied to defending the homeland or allies and partners in the Indo-Pacific and Middle East, as well.

The US defense industrial base has spent billions developing and fielding equipment like main battle tanks, precision-guided munitions, and exquisite air defense systems. However,

the Russian military has shown that the Abrams is vulnerable to cheap drones, that GPS-guided Multiple Launch Rocket Systems can be jammed, and that the Patriot interceptor requires software updates against evolving Russian missile threats. Ukraine is paying the price in blood and territory to help improve US legacy systems. Using the same air defense example, what Raytheon, the manufacture of Patriot systems, can learn from Russia's employment of the newly fielded Oreshnik ballistic missile may save American lives in future wars. The defense industrial base can learn how to increase US warfighters' lethality globally by studying its applications in Ukraine's security assistance today.

These lessons are only harnessed when American advisors take an active approach to learning how Ukraine is defending itself from Russia's full-scale invasion. While the security assistance provided to Ukraine is helping defend "freedom, rules, and sovereignty", there is immeasurable value in gaining insights from this modern war. While the US military is providing advice to the Armed Forces of Ukraine, it is also the Ukrainians who are advising the America of how to wage modern warfare. There is an adage—the more you sweat in training, the less you bleed in war—that effectively means what we do before a war pays dividends when one breaks out. This is true of security assistance, as well. By delivering it to Ukraine today, we are better prepared to win—and save American lives—on the battlefield tomorrow.

The issue raised by critics, of course, will be that learning the lessons of the war in Ukraine does not inherently require the delivery of billions of dollars in weapons. This is true—there are other methods of learning. The US military has a long history of sending observers to bring back lessons from ongoing conflicts. This criticism, however, misses two fundamental points. First, without US weapons and materiel, Ukraine likely would have struggled to fight as long as it has. If the early expectations of many experts—that Ukraine would be quickly defeated—had been fulfilled, there would not have been much of an opportunity to learn at all, and certainly not learning about how specific US systems perform in this war. And second, because security assistance is a broad framework, it encourages a more holistic appreciation of the many lessons to be learned than ad hoc studies. Moreover, with security assistance organizationally well established within the institutions of the joint force, lessons learned within this framework are more likely to disseminate across the US military and effect organizational adaptation throughout the force. In any case, this is not an argument that learning from the war is sufficient logic to underwrite all security assistance to Ukraine, but rather that it is a return on that investment that is too often ignored.

To maximize this return, the Department of Defense needs to embrace learning as a core function to feed insights back to the fielded force and defense industrial base. The character of warfare is constantly changing. In Iraq and Afghanistan, the US military had to adapt to insurgents' innovations in employing roadside bombs, from command-wire, to radio-controlled, to victim-operated, to infrared detonations of improvised explosive devices. Today, it needs to similarly learn and adapt. In drone warfare, for instance, long-range drones now use Starlink for navigation and smaller drones use fiber-optic wire to evade electronic warfare capabilities. As the US military works to integrate drones into its operations even down to the small-unit level, organizations advising Ukraine have an opportunity to improve the way it does so. Establishing deliberate feedback mechanisms into how the force fights and trains is a way of demonstrating security assistance's return on investment.

The Department of Defense can reinforce this understanding of the value proposition for security force assistance by following three recommendations. First, elevate the value insights can have within an organization. While the US military places emphasis on intelligence and operations for its fielded force, security assistance organizations should place emphasis on its lessons learned, doctrine development, and concepts development. Second, understand the value in technology demonstrations and continuous improvement in fielded equipment. The Russo-Ukrainian War is the ultimate battle lab for developing more lethal capabilities; operators and industry need to be engaged in collecting these insights. Third, include learning as a security force assistance activity to support the joint force. Army doctrine on security cooperation does not discuss insights, but does highlight other activities like building access, presence, and influence. Making learning a part of the way return on investment is understood demonstrates comprehensively the value of security assistance. A down payment in Ukrainian security assistance now and into the future will pay dividends for Americans.

Learn or Lose: Lessons from Ukrainian Training in Germany

Joshua Hood, Jahara Matisek and Anthony Tingle | August 5, 2025

In the American Revolutionary War, British soldiers employed orderly, neat formations that they had perfected in European battlefields, but that were worthless against colonial rebels. More than two centuries later, NATO faces its own version of the redcoats' problem. Like the British Army two and a half centuries ago, NATO risks irrelevance by training Ukrainians for idealized battles, not their chaotic, drone-heavy, attritional war.

Ukrainian units are not facing conventional battles of the form NATO plans and prepares for. They contend with artillery barrages, drone swarms, chemical munitions dropped from the air, and trench warfare, a sort of cyberpunk warfare resembling parts of both World War I and World War II, mixed heavily with modern technology. While the Ukrainians have adapted to these conditions with creativity, resilience, and speed, Western training programs remain mostly rooted in prewar doctrine, ignoring the radical evolution of battlefield dynamics.

Based on fieldwork in Ukraine and our observations at German bases under the European Union Military Assistance Mission–Ukraine (EUMAM UA) and US-led Joint Military Training Group–Ukraine (JMTG-U) at Grafenwoehr, along with internal documents from the Security Assistance Group–Ukraine (SAG-U), we argue NATO must lose outdated training models, and learn from Ukraine's frontline innovations to prepare for future wars.

The Battlefield Reality: What Ukrainians Actually Need

Three years of grinding attrition have rewritten the rules of modern combat in Ukraine. According to a SAG-U report, Ukrainian troops endure harsh "zero line" conditions—long foot movements under constant threat from first-person-view drones and precision-guided munitions. Movement itself is a hazard, demanding pattern avoidance, camouflage, and terrain adaptation—skills often absent from Western infantry training. Effective training must prepare Ukrainians to counter drones enabled by fiber-optic cable, build deeper bunkers, and counter tunneling threats. Moreover, Ukrainians tell us they need battlefield medicine adapted for high-casualty environments, where evacuation may take up to a week via a motorbike.

Ukrainian soldiers also operate under relentless surveillance from drones, to include drones dropping chemical munitions. Yet Western training rarely includes battlefield stress inoculation, preparation for maneuvering at night, or how to dismount during a mechanized assault. Valerii Zaluzhnyi, Ukraine's ambassador to the United Kingdom and former top general, has emphasized decentralization and mental resilience as vital for survival, a cultural shift NATO must study. Still, Ukrainian requests for drone countermeasures and trench fortification training are sidelined in curricula built for conventional or peacekeeping operations, despite their proven effectiveness.

JMTG-U instructors from the Pennsylvania National Guard (2024–2025 rotation) brought experience and passion, but often struggled against institutional limits: outdated software, poor doctrinal translation, limited resources, and unrealistic rehearsal timelines. As their commander noted to us, planning cycles were difficult to schedule because they were dependent on borrowing equipment from other US units to improve training quality for the Ukrainians.

In interviews, Ukrainian soldiers voiced frustration that NATO instructors often push textbook solutions, like deliberate planning cycles, to nontextbook problems such as surviving drone swarms and coordinating maneuvers in an environment characterized by a highly contested electromagnetic spectrum. Russian and Ukrainian soldiers adapt new tactics on the front line faster than NATO can update its courses, a challenge compounded by restrictive safety regulations on Western training grounds. Unfortunately, Ukrainian training derived from NATO doctrine does not fully prepare them for battlefield changes and adaptations, which occurs every two to six weeks.

The urgent priority is to reverse the flow of lessons—taking the field experience of Ukrainian units and using them to transform how NATO trains its own forces for the wars of tomorrow. To continue training Ukrainians as if they will fight NATO's next conventional war rather than their current existential one risks more than irrelevance—it risks building paper battalions while Ukraine bleeds, and it threatens NATO's credibility.

Training Gaps and Cultural Mismatches

Western training programs, while professional, falter on cultural and doctrinal mismatches. Language barriers persist: JMTG-U uses Ukrainian interpreters to build trust, but EUMAM UA sites rely on Russian-speaking interpreters, risking friction given Ukraine's desire to promote the Ukrainian language and encourage English proficiency in its security forces. Cultural disconnects also erode cohesion. For example, Ukrainian soldiers refused to use a command post known as Building 200 due to Ukrainian forces' use of the number 200 to indicate a fatality (300 is also a loaded term because it's used to refer to wounded personnel). German instructors dismissed their concerns, ignoring this symbolism, which would be much like overlooking an American aversion to a thirteenth floor. Cultural respect isn't a nicety—it's a requirement for effective training and cohesion.

Doctrinally, NATO's rigid planning models assume resources and time Ukrainian units lack. As Zaluzhnyi noted, success demands rapid adaptation, not bureaucratic templates. These gaps hinder not just training but NATO's ability to learn from Ukraine's front lines. Unfortunately, many trainers from NATO countries insist on rigid adherence to doctrinal templates, even when they do not align with battlefield realities. The German-led brigade staff training standard operating procedure developed under EUMAM UA draws from NATO APP-28 and emphasizes formal planning steps such as mission analysis, course-of-action development, and decision-making, along with supporting activities like wargaming and synchronization. While sound in theory, this approach often struggles under wartime constraints where Ukrainian have minimal time with degraded communications and incomplete staff structures. A senior German colonel we interviewed, who helped design this standard operating procedure, explained that although it incorporates battle rhythm discipline and standardized staff roles, it assumes organizational capacity that Ukrainian brigades often lack.

By contrast, the US Army's MDMP, outlined in ATP 5-0.2, emphasizes iterative commander-driven planning, tailored for formations with extensive intelligence, surveillance, and reconnaissance and support infrastructure. The German-Ukrainian standard operating procedure, while more NATO-aligned, attempts to account for partner nation constraints—adding emphasis on electronic warfare, resilience training, and rapid course-of-action formulation. Yet even with these adaptations, it remains too rigid for the tempo and improvisation demanded on the Ukrainian front lines. This reflects a deeper issue: training focused more on making Ukrainians look like NATO units than on equipping them to win their current war. In fact, the German colonel running the staff training program for Ukrainian staff officers used a wargame scenario straight out of the Cold War, refusing to add drones and other modern weaponry.

Ukrainian commanders face a dilemma: aspire to NATO's professional, interoperable standards or embrace the improvisation needed to survive. Western trainers, particularly under EUMAM UA, push structured planning doctrines ill-suited for Ukraine's chaotic battlefield, where plans must be formed rapidly. NATO's templates, requiring extensive documentation and rehearsals, create bureaucratic fatigue for units of mobilized citizens with limited training time. As Zaluzhnyi emphasized, Ukraine is forging its own way, blending professionalism with adaptability. Without a feedback loop to capture these realities, NATO risks training a Ukrainian Army in its own image, not the military Ukraine needs.

Until training missions internalize the reality of Ukrainian battlefield conditions, they will keep training for theoretical wars. Without cultural attunement and doctrinal humility, even the best-intentioned Western assistance generates friction, misunderstanding, and missed opportunities.

The Army NATO is Creating or the Army Ukraine Needs?

Ukrainian commanders today straddle a complex divide. On one side is the aspiration to become a NATO-style military: professional, hierarchical, and interoperable. On the other is the urgent need to wage a brutal, cyberpunk war of survival. Western advisors often focus on building the former, but battlefield necessity demands the latter. This disconnect is especially clear in brigade and battalion staff training.

Under EUMAM UA, Western trainers introduce Ukrainian officers to advanced planning doctrines focused on synchronization and full-spectrum staff processes. But Ukraine's battlefield reality rewards improvisation, rapid decisions, and decentralized execution. As one brigade commander noted about his unit receiving staff training in a SAG-U report: "We appreciate the instruction, but we plan our fights in three hours, not three days." This has been a primary point of contention over the last three years, where the Ukrainians are caught between surviving in the moment and building a resilient and coherent force for the long-term.

At JMTG-U, the commanding officer cited delays driven by incompatible software, incomplete annex templates, and unrealistic rehearsal requirements. Staff were buried in documentation—producing operations order annexes and matrices often irrelevant once the battle began. The result: bureaucratic fatigue and rote planning that failed to shape actual operations.

European instructors often emphasize deliberate battalion-level planning and combined arms integration. Yet most Ukrainian units are composed of mobilized civilians with little time to train. Officers rise through battlefield merit, not staff college credentials. Doctrine must be translated—not just linguistically, but operationally—to reflect the force Ukraine

has. As Zaluzhnyi himself emphasized, "Changes will be required in the doctrine that promotes and facilitates the adaptability of the armed forces."

This is the *golden middle* dilemma, between professionalization and improvisation. As Zaluzhnyi recently stressed, "We are no longer copying others—we are learning to fight in our own way." NATO must train for that future, not its own past.

NATO's training lacks a critical component: a feedback loop linking battlefield outcomes to classroom instruction. Trainers assess success through classroom performance, not combat effectiveness, leaving them blind to whether skills translate. A Ukrainian officer noted that some NATO tactics were impractical due to terrain or equipment shortages. Structural barriers—outdated simulations, mistranslated doctrines, and limited polling tools—compound the issue. Senior US officials, per a SAG-U report, worry that reduced Ukrainian feedback undermines assistance efforts. When JMTG-U's drone course was redesigned after Ukrainian critiques, it proved the value of frontline insights. NATO needs a battlefield-to-classroom pipeline to capture these lessons, setting the stage for reverse advising.

The Problem of Training Feedback Loops

Despite years of instruction and assessment, trainers often lack visibility into whether their lessons are used—or useful—on the battlefield due to a lack of feedback loops. This creates a blind spot where validation is anecdotal, delayed, or entirely absent. Or in many cases, improving the quality of training is dependent on a proactive instructor staying in touch with Ukrainians they've trained, usually via a Signal chat room.

A SAG-U report described this disconnect as "training in a vacuum," where trainers assess success based on classroom performance and doctrinal adherence, but rarely see how those skills perform under fire. One Ukrainian officer noted that some NATO tactics, techniques, and procedures (TTPs) were theoretically sound, but unusable due to terrain, tempo, or equipment constraints.

The lack of battlefield feedback has strategic consequences. According to a SAG-U officer, some Washington policymakers have lamented how Ukrainian officials were sharing less feedback on battlefield development, prompting them to question whether security assistance was worth it if the Ukrainians weren't sharing tactics and lessons. Without clear messages reaching the Pentagon, it becomes harder to advocate for needed support and to adapt programs to the evolving fight.

The commanding officer at JMTG-U also identified multiple structural obstacles: insufficient data collection infrastructure, broken simulation platforms, lack of resources, and missing or mistranslated doctrinal documents. Even basic tools like wargaming support and course-of-action comparison tables were sometimes incomplete or delivered too late to matter. In his final evaluation, the JMTG-U commander recommended integrating Ukrainian officers into the curriculum development process to improve realism and close the loop between instruction and implementation. In one case, when JMTG-U instructors developed a drone course, Ukrainian trainees "ripped up" most of the training program because it did not match their battlefield experience, a common complaint of many Ukrainians we interview. Ukrainian inputs led to a complete redesign—producing a far more realistic training module based on frontline drone TTPs, which was finally demonstrated in June 2025 by the new Tennessee National Guard rotation at JMTG-U.

Finally, some digital polling tools for improving tracking are being beta tested, which is a step in the right direction. Such platforms allow Ukrainian soldiers to rate training modules and provide post-training feedback. However, they remain limited in scale and primarily measure satisfaction rather than tactical efficacy. To go further, NATO needs a battlefield-to-classroom pipeline—a formal structure for gathering after-action reviews, combat observations, and tactical innovations from Ukrainian units and pushing them into training course development. Scholarship has described the US military's historical reluctance to absorb operational lessons in real time. NATO now has a chance to prove it can evolve faster, not just smarter. We can no longer risk allowing after-action reports of Ukrainian training to be uploaded into a blackhole SharePoint website, never to be read again.

Reverse Advising as the Strategic Imperative

Security force assistance has traditionally been a one-way street: Western advisors arrive, impart doctrine and TTPs, and leave. Ukraine challenges this model: Ukrainian troops create new drone tactics, develop underground command bunkers, and decentralize reconnaissance-fire networks that are survivable in a sensor-rich and electronic warfare–intensive battlespace. Such battlefield adaptations are not just wartime improvisations—they are sources of institutional knowledge.

This is why NATO must embrace *reverse advising*—not as a rhetorical flourish, but as a structural transformation. Ukraine is a laboratory for modern warfare; adaptation, as much as technological supremacy, defines the current fight. Zaluzhnyi has noted that Ukraine's early battlefield experiences with AI-enabled systems represent "a profound and relevant change in the characteristics of warfare." War-winning capability lies not just in hardware, but in the agility to employ it creatively under pressure. For instance, the French Army appears the most poised to learn and innovate from the Ukrainians. Interviews with French trainers indicated that they were developing a new infantry-drone manual based on

feedback from Ukrainians they had trained. This development suggests why the French recently designed and developed 3D printing labs, which are highly mobile and allow their soldiers to produce ten drones every three hours.

To systematize reverse advising, institutions such as NATO's Allied Command Transformation and the new NATO-Ukraine Joint Analysis, Training And Education Centre must be empowered to capture frontline innovations and rapidly integrate them into allied doctrine and training. Battlefield TTPs from Bakhmut and Robotyne should be analyzed and integrated within weeks—not studied abstractly years later. NATO should adopt mechanisms used by the Ukrainians themselves: crowdsourced battlefield intelligence, iterative TTP updates, rapid-turnover rehearsal drills, and integration of open-source intelligence like Telegram posts and chats.

As the JMTG-U commander recommended, future training cycles must be codesigned with "Ukrainian veterans and leverage Ukrainian planning software like Kropyva and Delta as standard instructional tools." This level of interoperability is not a luxury, as it's the only way to ensure Western support actually enhances battlefield survivability.

The Russo-Ukrainian War has revealed an uncomfortable truth: Ukraine may be advising NATO more than the reverse. Recognizing this—and institutionalizing the flow of frontline lessons—will determine whether NATO remains doctrinally relevant. Achieving this shift also depends on building strong advisor relationships with Ukrainian units. By institutionalizing reverse advising, NATO can evolve from advisor to student, ensuring its relevance in future conflicts.

Ukraine's war exposes NATO's challenge, an echo of the problem that plagued the redcoats during the Revolutionary War: a reliance on outdated doctrine ill-suited for modern, drone-saturated warfare. From Bakhmut's chaos to Robotyne's trenches, Ukraine proves that tactical agility—not just technology—defines victory. As Zaluzhnyi warned, rigid command models falter in today's fights. NATO must transform advising into a two-way street. Reverse advising must be codified to capture frontline lessons, ensuring that NATO doctrine and TTPs remain relevant and flexible.

The next war—whether in the Baltics, Black Sea, or the Indo-Pacific—will likely resemble Ukraine's current fight more than NATO's past ones. As Zaluzhnyi argued, "Political leadership in the conducting of war is the most critical factor . . . defining the objectives of the war, providing the material conditions for defense, and strengthening cohesion."

If NATO continues to export Cold War–style training, it risks irrelevance. NATO can no longer treat advising as a static export function. It must become a feedback loop—driven by humility and urgency—that captures frontline innovation and institutionalizes it across the alliance. Reverse advising is a strategic necessity, and NATO must not rely on what it teaches, but on what it learns. Otherwise, the United States and its allies will train for the last war and march confidently (and blindly) into the next: disciplined, doctrinal, and defeated.

Innovation

Ukraine's Fight on the Front Lines of the Information Environment

Peter Schrijver | September 12, 2023

In early August 2023, residents of Russian-annexed Crimea received phone calls containing a recorded message urging them to avoid military infrastructure, naval bases, and assembly areas for military equipment in Crimea. The unidentified speaker warned of missile strikes and ongoing drone attacks against Russian forces. It was yet another example since Russia's invasion last year of the innovative strategies in the information environment for which Ukraine has earned praise. Specifically, Ukraine has gained admiration for its effective communication of messages to both domestic and international audiences, as well as for its robust cybersecurity measures, which have enabled the prevention of and response to cyberattacks on its networks and systems.

Of course, success in war is often a function not only of innovation, but also of a willingness to borrow tactics, techniques, and procedures that have worked well elsewhere, in other conflicts. Indeed, the phone calls in Crimea bear a resemblance to similar warning calls and text messages received by Israeli citizens and Gaza residents over the past fifteen years during periods of tension between Israel and the de facto rulers of Gaza, Hamas. But this is not the only example that appears to have influenced the development of Ukrainian operations in the information environment. Unsurprisingly, these operations have also borrowed from Soviet and Russian concepts of information warfare. They have also incorporated Western ideas about strategic communications. In some instances, the learning pathways are clear and evident, while in others they are less so. But regardless of how deliberately Ukraine has emulated others' successful approaches, it is clear that effective practices migrate across both time and geography. Tracing that migration not only enables observers to better understand Ukraine's operations in the information environment, but also equips them to leverage such migration in future conflicts. For NATO countries, that likely means learning from Ukraine in the same way it has learned from others.

Soviet and Russian Influences

The legacy of Soviet and Russian ideas about information warfare is natural, and Russia, as the dominant state in the Soviet Union, has had a profound and deep influence on Ukraine.

An example can be found in the activities of the Ukrainian military intelligence service, HUR (*Holovne Upravlinnja Rozvidky*). This service uses intercepted phone calls of Russian soldiers to family members and regularly releases excerpts of these calls on social media. In particular, fragments are used in which Russian soldiers express discontent, disappointment with their leadership, or confessions of (war) crimes. This highlights the twenty-first-century possibilities of technology. However, it is not a new idea to use the personal communication of opponents for influence operations. During the German invasion of the Soviet Union, the Red Army's Political Directorate, responsible for all political propaganda by the military, targeted German army members with specific messaging. After the Battle for Moscow, in December 1941, the directorate started an operation analyzing captured letters from German soldiers to their families. These letters, in which German soldiers expressed dissatisfaction about their circumstances in winter, provided insight into the morale and psychological stamina of the enemy. This information was used to specifically tailor messaging to German forces via a wide array of delivery methods. The themes—*You* are *lost, forgotten, and doomed in an endless Russian winter*; *The dead are calling to the ones still alive*; *The ones who surrendered do not suffer anymore*—are reminiscent of today's HUR operations on social media.

Another example is the extensive use of personal celebrity to enhance individual messages. For the Soviet Union, this took the form of employing well-known authors and poets as war correspondents. These prominent writers—like Ilya Ehrenburg, Konstantin Simonov, and Vasilii Grossman, who all wrote for the military newspaper *Krasnaia Zvezda*—followed Red Army units in their battles against Nazi Germany. Ehrenburg was one of the leading anti-German

publicists and became legendary, the single most read journalist of the war, adored by the population. Ukraine has adopted a different approach, but one that still leverages celebrity. Instead of relying on prominent authors with a large, preexisting following, it grants ordinary Ukrainian soldiers the ability to send out a continuous stream of messages on social media about their daily activities on the frontline, giving their audiences an up-close view of the military's experience. This has made some of them celebrities on TikTok and YouTube, with several—like Lieutenant Olga Bigar (callsign "Witch") of the Ukrainian Territorial Defense Forces and Operator Starsky—attracting large numbers of followers, just as Ehrenburg did eight decades ago.

It is noteworthy that social media publication policies are guided from Kyiv, ensuring that messages revolve around key themes—bravery, resilience, and defiance—and are consistent and aligned with overarching goals. Other than that, Ukrainian content creators hardly face any restrictions, unlike their Soviet predecessors, who operated under harsh guidelines from Moscow. Humorous content and interaction with animals, particularly cats and dogs, are recurring themes in videos of Ukrainian military personnel on social media. Additionally, blatant failures and alleged crimes of Russian armed forces are frequently emphasized.

Ukraine has also adopted—and adapted—more modern Russian ideas, like the concept of information confrontation. Russian military thinking separates this concept into two main categories: informational-psychological confrontation and informational-technical confrontation. The former consists of efforts to influence the enemy's population and military forces, while the latter involves the physical manipulation or destruction of information networks. According to Russian military doctrine, state actors handle implementing this concept, but nonstate actors also play a key role.

Ukraine has in recent years felt the effects of Russian information confrontation firsthand. Russia ratcheted up a multifaceted campaign of information warfare in 2014 with the intention of undermining Ukrainian sovereignty. This included a range of strategies, including physical acts, online attacks, and efforts to sow disunity in Ukrainian society. Russia specifically attacked the physical and digital information infrastructure of Ukraine. The goal was to weaken Ukraine's defenses by stimulating reactions like confusion, disorganization, and a sense of helplessness.

Inadvertently, civil society in Ukraine during the years 2014 and 2015 aligned with Russia's paradigm of information confrontation, which accentuates the involvement of nonstate entities. Nongovernmental organizations and initiatives such as Information Resistance, StopFake.org, Ukraine Today, and the Ukraine Crisis Media Center assumed a critical function in counteracting propaganda and extending media-bolstering efforts. This involved the provision of services conventionally attributed to governmental authorities. Presently, these Ukrainian nongovernmental organizations persist in their consequential roles, wherein they—along with fundraising collectives—continue to have substantial influence on the communication landscape of wartime Ukraine.

After the events of 2014 and 2015 Ukrainian researcher Mikolay Turanskiy described the consequences of Russia's operations and the necessity to improve his country's approach. "The establishment of an independent Ukraine has been associated with persistent psychological and informational pressure," he wrote. "To mitigate the effects of such pressure, Ukrainian scientists, and experts in the field of information and psychological warfare must make concerted efforts to expose manipulative and propagandistic actions and prevent hostile information and psychological campaigns from being conducted on Ukrainian soil." Concurrent with Turanskiy's recommendation, Ukraine's military-scientific establishment studied the Russian approach and developed strategies to counter it. This has led to a series of measures to improve the resilience of Ukraine in the information environment.

Learning from the Israeli Experience?

Despite the combined government and civil society efforts to thwart Russian influence, Ukraine faced a bleak situation after the dust somewhat settled with the Minsk agreements in 2015. Russia had annexed Crimea and an uneasy ceasefire in the east of Ukraine was established. The National Institute for Strategic Studies in Kyiv concluded in a postmortem report that Ukraine had lost the battle in the information environment.

In this respect, Ukraine faced similar challenges as Israel had in the past. This is exemplified by an archetypical event during the Second Lebanon War in 2006. During that war, Hezbollah fired an Iranian-supplied Noor antiship cruise missile at the Israeli corvette INS *Hanit*. The attack killed four crew members and caused considerable damage to the ship. Although the strike had a minimal impact on Israel's naval operations, it had a profound psychological effect. Hezbollah used its media platform, al-Manar, to broadcast a video that claimed to show the attack, accompanied by a triumphant speech by Hezbollah's leader, Saeed Hassan Nasrallah. The video was intended to create a powerful impression on both domestic and international audiences and to achieve several objectives: demonstrate Hezbollah's capability, emphasize the group's resolve, and boost its image and legitimacy It was an event that showed Hezbollah's skillful use of information warfare as a strategic tool and how nonstate actors can challenge state actors in asymmetric conflicts by exploiting their weaknesses. Considering instances like this, analysts

credited Hezbollah with a decisive victory in the information environment, which Israel failed to achieve at that time.

However, six years later, in 2012, during Operation Pillar of Defense in Gaza, Israel showcased that it had learned to use the information environment to its own advantage, specifically social media. A central focus of Israel's social media campaign was the portrayal of the precision and potency of its weaponry, alongside shedding light on the difficulties endured by Israeli citizens in the face of Hamas rocket barrages. A distinct hallmark of Israel's digital engagement during the operation was its mobilization of domestic and international supporters via platforms such as YouTube, Twitter and Facebook. By disseminating messages and testimonials across online platforms, Israel succeeded in fostering a sense of unity, solidarity, and patriotism among its backers. A distinctive facet of Israel's social media approach was its decentralized and bottom-up orientation, which included giving young, media-savvy officers of the Israel Defense Forces the lead in the social media campaign.

Both Israel and Ukraine have launched dedicated online ventures tailored to supply their respective supporter bases with resources for information dissemination and advocacy. An example of this transpired in the initiation of the Israel Under Fire project on social media in 2012. This citizen initiative, reinforced by government endorsement, provided live updates and information about attacks on Israel. The campaign aimed to raise awareness and support for Israel's right to defend itself. Ukraine has embraced comparable tactics, shaping platforms and campaigns to not only diffuse accurate information but also to rectify any misinformation, while concurrently fostering international awareness of the circumstances faced by Ukraine, its military, and its people. An example is #SnakeIslandStrong, a campaign designed to spotlight the valor and tenacity exhibited by Ukrainian soldiers during their defense of Snake Island against a Russian attack in 2022. Additionally, Ukraine's adept use of social media to express gratitude toward international partners for their (military) aid packages further illustrates its strategic approach to fostering support and solidarity.

Although there is no record of official contact between Ukraine and Israel regarding an exchange of knowledge on operations in the information environment, there are more than just superficial similarities between the approaches of the two countries. Both nations have rallied domestic and international support by capitalizing on the reach of social media. Furthermore, Ukraine has extended beyond this trajectory by incorporating initiatives for crowdfunding goods for the army and the needs of citizens who are not able to help themselves, thereby broadening the scope of engagement. A notable case in point is the recent crowdfunding effort undertaken by several Ukrainian entities—the government program United24, nongovernmental organization Come Back Alive, and private company Monobank. This cooperative initiative, aimed at procuring ten thousand first-person-view drones and ammunition for Ukrainian forces, emerged as an illustrative instance of mobilizing financial support from the public. Within a span of five days in August 2023 the crowdfunding organization collected 235 million Ukrainian hryvnia, equivalent to 6.3 million US dollars, through contributions from over three hundred thousand individuals and companies from Ukraine and abroad.

The Israel Defense Forces, and Israel's broader experience more than ten years ago, demonstrated that combat operations, coordinated with activities in the information environment, can have significant impacts. Like Ukraine in 2014, Israel had learned from a previous situation (the Second Lebanon War in 2006) that a compelling narrative is required, one that explains why its forces were on the battlefield and solidifies support from its own population and foreign sympathizers. After the experiences of 2014 and 2015, the Ukrainians seem to have taken these lessons to heart and are applying it in their ongoing operations.

Strategic Communications as an Integrator—Facilitated by Ukrainian Networks

A third apparent external influence on the Ukrainian approach to operations in the information environment is the NATO strategic communications concept. In 2014, a report from the National Institute for Strategic Studies in Kyiv recognized the active role of civil society in countering Russian influence, while at the same time noting that this positive development was set against the backdrop of the government's tame media response toward the Russian campaign. The institute's experts attributed this to the absence of a solid national strategy for sharing information with both local and international audiences. There was also a shortage of resources and skilled personnel in this area.

Given these challenges, the report's authors advised that it was necessary to "implement and institutionalize the practice of the strategic communications". This idea gained more traction as time went on. Ukrainian scholars Tetiana Popova and Volodymyr Lipkan outlined the core features of this concept as a coordinated effort involving both state and nonstate actors to manage information, including by using various methods to shape public opinion, safeguard information sovereignty, and advance national identity and interests.

In 2015 Ukraine teamed up with NATO. This collaboration resulted in the NATO-Ukraine Strategic Communications Partnership Roadmap. The roadmap, signed by NATO Secretary General Jens Stoltenberg and Ukraine's National Security and Defense Council Secretary Oleksandr Turchynov, aimed to boost Ukraine's strategic communications abilities. It also sought to cultivate a culture of strategic communications

in Ukraine and maintain standards of accuracy and ethics to ensure the credibility of government communication.

An important aspect of Ukraine's strategic communications culture is the strong ties among specialists from various departments in charge of information-related tasks in Ukraine's ministries and civil society representatives. These horizontal personal connections were forged in the years before the 2022 full-scale Russian invasion, fostered by instructive training sessions and seminars on strategic communications. Consecutive Ukrainian deputy ministers of defense have been leading figures in these recurring events, which covered diverse topics, exposing participants to collaborative work under pressure, networking, and joint problem-solving. This collaborative atmosphere involved a range of actors, such as military and intelligence personnel, civil servants, academics, journalists, and public figures. Consequently, a culture of continuous networking and informal communication flourished.

In essence, Ukraine's investments in strategic communications reflect a concept based on international alignment with NATO mixed with strong internal Ukrainian networks that developed in the years leading up to the invasion. This approach has leveraged networking as a method for success.

Activities in the information environment, often facilitated by cyberspace, bring together previously separate activities such as mass communication and intelligence. In Ukraine, this has resulted in impactful outcomes—the observations of which should not be disregarded by anyone searching for lessons. Ukraine has grasped the importance of collaboration among government ministries, military actors, and civil society.

But this effort has developed entirely organically. External influences have played a role in shaping Ukraine's strategies for operating in the information environment. Influences from the former Soviet Union and Russia have had a lasting impact. Clear parallels can also be drawn between Ukraine and Israel, wherein initial failures in the information environment led to enhanced interagency cooperation and the involvement of tech-savvy personnel who understand the dynamics of the online world. And notably, Ukraine has also eagerly embraced the strategic communications concept of NATO, albeit with a Ukrainian touch that emphasizes networking over rigid doctrine.

It would be wise to take note of Ukraine's approach in the ongoing conflict with Russia. Despite being outmatched by Russia in 2014, Ukraine has transformed into a nation that steadfastly defends itself against the Russian onslaught, rallying Western and other allies for support and setting a strong model for a government's use of the information environment in times of conflict.

Frontline Innovation and Domestic Production: The Keys to Ukraine's Journey Toward Defense Self-Reliance

Paul Schwennesen and Olena Kryzhanivska | March 13, 2025

"Yes, we build them ourselves. We have no other choice." Three of us—all American veterans—stood spellbound inside a repurposed potato shed as an elite Ukrainian drone team explained how they hand-make their own explosive payloads for the drones that have been instrumental in forcing the Russian war machine into a grinding slog.

A lanky soldier with dirty fatigues and a curled mustachio grins and explains: "We usually take apart Soviet antitank mines and boil out the explosives. We 3D print our own casings, fill them with explosive charges and shrapnel, then arm them with our own handmade detonators." He lightheartedly tosses a brick of raw explosive our direction. We cringe and shake our heads.

As American warfighters, we've been brought up within a culture of war that views combat operations through a *combined arms* lens that leans heavily on air supremacy and a logistics system of unparalleled proportions. The idea of frontline units literally building their own weapons is as foreign to us as Cyrillic.

And yet that is precisely what is happening at the front lines of the war in Ukraine these days. Ukrainians are building purpose-made precision munitions from scavenged weapons, developing an astonishingly effective resistance in a spontaneous, bottom-up process that is scrappy, ingenious, and above all fluid. Inside the shed, we watched our hosts tear down a malfunctioned NLAW, removing the expensive guidance package to get at the explosives inside. The payload would be refitted that night to destroy the kind of armored

target it was designed to kill but riding on a $300 drone instead of a $33,000 single-use launch tube. Ukrainians are evolving the modern battlespace at warp speed, holding back one of the largest conventional militaries on earth, largely through their own resourcefulness.

During their recent Oval Office showdown President Donald Trump repeatedly told Ukrainian President Volodymyr Zelenskyy, "You're not in a good position. You don't have the cards right now. With us, you start having cards." While it is certainly true that Ukraine benefits substantially from US arms, it is also true that Ukraine has grown out of its wholesale dependence on them. The fundamental misperception held by many outside observers does not appreciate the dramatic steps Ukraine has made toward providing its own defense capability domestically over the war's three years.

Currently, one-third of the weapons used on the battlefield are produced domestically, and an additional 30 percent are supplied by Europe. The capabilities of the Ukrainian defense industry have grown astronomically over the three years since the large-scale Russian invasion—from $1 billion in 2022 to $35 billion in 2025. In some areas, Ukraine has completely covered its own needs, particularly in unmanned platforms—not only drones, but also unmanned ground vehicles and naval systems. According to the commander of the Ukrainian military's Unmanned Systems Forces, 100 percent of the drones attacking Russian military targets are of Ukrainian manufacture.

We witnessed this self-reliance firsthand: for the drones, everything down to the chips and flight controllers can be made in Ukraine, backing up existing but tenuous Chinese supply channels. Ukraine is at the forefront of introducing innovations such as laser technology, AI, and drone swarms on the battlefield—capabilities that even NATO lacks. It plans to manufacture up to four and half million military-use drones in 2025. Additionally, Ukraine produces armored vehicles, artillery systems, mortar shells, and other ammunition and has launched domestic production of long-range missiles. The battlefield is no longer defined solely by Western weapons.

With additional financing mechanisms established to support the Ukrainian defense industry—such as the utilization of $300 billion in frozen Russian assets, which some countries have already begun using—and substantial financial commitments from European nations, including tapping sovereign wealth funds as seen in Norway, the absence of American support would not be nearly as catastrophic as it would have been at earlier stages of the war.

Ukraine is transitioning from reliance to self-sufficiency, but the process isn't instant and still requires specialized Western input. The reliance on American materials, technology, and support remains high, to be sure, but is not indispensable. While Ukraine can (and will) slog on regardless of the degree of US backing, the fact is that the job will be far easier with the right tools.

The drone team we met will continue building their lethal payloads and killing aggressors daily. Whether it will be enough is anyone's guess. President Trump is right—Ukraine is not in a "good position." But any observer who fails to fully appreciate the significance of Ukraine's capability to adapt will inevitably underestimate a fundamental truth: Ukraine has many cards to play yet. And the way it has played its cards over the past three years—namely, fostering frontline innovation and dramatically boosting its industrial capacity—offers deeply meaningful lessons for any military preparing for large-scale conflict and the realities of the modern battlefield.

Innovating Under Fire: Lessons from Ukraine's Frontline Drone Workshops

Jorge Rivero | March 25, 2025

Over the past three years of war, footage from Ukraine spread on social media has become a daily reminder of the outsized—and growing—role drones play on today's battlefield. This footage emphasizes the centrality of unmanned aerial vehicles (UAVs) in the ongoing Russia-Ukraine War, in particular, while also signaling their transformative role in modern warfare more generally. Drone strikes account for approximately 70 percent of Russian casualties and, in some parts of the front, 90 percent of Russian military equipment losses in engagements with Ukrainian forces. Advanced UAVs have given Ukrainian commanders unparalleled situational awareness, significantly enhancing operational effectiveness during offensive and defensive operations. Drones hasten effective force coordination and employment by enabling persistent surveillance of enemy movements. Additionally, drones play a critical role in mining Russian logistical routes,

adjusting artillery and missile strikes, and easing the burden by providing logistics and, in some cases, medical support to Ukrainian forces. This integration of drone capabilities provides real-time aerial intelligence, allowing for tactical decisions executed with precision and responsiveness unattainable ten years ago.

In part, this expansive role for drones in Ukraine's war effort is a testament to the remarkable growth in Ukrainian domestic manufacturing capacity. But building these platforms is not enough on its own. With millions of UAVs on the front lines, Ukraine utilizes significant resources to ensure these systems stay in the air. The operational effectiveness of top Ukrainian drone units is deeply linked to the efficient maintenance and functionality of their UAVs. This requirement highlights the critical role of Ukrainian drone engineer workshops and electronic laboratories. These facilities function as vital centers for innovation and repair, ensuring that drones are continuously operational and capable of executing missions on the front lines. These workshops provide emergency repair and maintenance in hours, not days or weeks, a crucial factor in a conflict where technological advantages can change rapidly. As the US military seeks to integrate drones into its organizational structure, it is imperative to learn from Ukraine's complex approach to drone warfare, which prioritizes the incorporation of modern technology, adaptable operational concepts, and decentralized support systems positioned directly at the front lines. In future conflicts, US forces may find themselves operating thousands of miles away from the manufacturers of critical equipment, all while fighting an adversary with persistent intelligence, surveillance, and reconnaissance capabilities. And much like in Ukraine, they will be unable to rely on traditional models of resupply to match the speed of consumption. This makes it imperative to learn lesson from how Ukraine deploys and maintains its drone fleets and delivers the support necessary to keep them flying on the front lines.

Ukrainian Drone Workshops: What They Do

Drone workshops are typically integrated within the organizational structure of UAV battalions operating under Ukrainian brigades. These engineering workshops serve as the forward-most resource for addressing technical challenges that could hamper UAV operations. Comprised of ten to twelve specialized Ukrainian soldiers, these units focus on UAVs' modernization and combat readiness, engaging in developing and innovating new technologies while testing existing equipment. They also cultivate an atmosphere of continuous improvement, essential on a rapidly evolving technological battlefield. The personnel involved are often skilled engineers or technicians, deeply familiar with drone technology, propulsion systems, sensors, and software interfaces. Their expertise encompasses various functions, including diagnostics, repairs, upgrades, and integrating new components into existing UAV platforms.

In-house capabilities, particularly in 3D printing, play a crucial role in these workshops. The workshops can produce on-demand critical drone components with access to advanced additive manufacturing technology. This capability is especially valuable in a conflict where supply lines can be disrupted, and the need for rapid repairs can mean a difference in operational success. By modeling and fabricating parts, these teams significantly reduce reliance on external suppliers and ensure that drones can quickly be restored to operational status after sustaining damage.

Additionally, these small teams conduct thorough maintenance of batteries, which are vital for powering UAV missions. The operations include not only the assembly of new battery packs but also the testing and quality assurance of existing battery systems. Such maintenance tasks are essential to avoid failures during flights, as UAVs heavily depend on reliable power sources to perform their surveillance, reconnaissance, and combat roles effectively—even more so after adding additional weight in the form of munitions like mortars and PG-9 antiarmor rounds and systems like Starlink.

Moreover, the workshops enable a feedback loop between frontline operators and engineering teams, allowing for rapid problem-solving and innovation in response to battlefield demands. Any technical issues encountered by remote operators can be communicated back to the workshops, where engineers work to devise solutions that enhance the operational capabilities of the UAVs. For example, suppose a Russian electronic warfare system is actively jamming a particular frequency along the front line. Instead of going through a lengthy bureaucratic process, these operators can mitigate these problems in-house, often changing tactics and frequencies in hours, not days or weeks. By being embedded within the battalion structure, these workshops demonstrate exceptional agility, recalibrating their focus based on the immediate needs of combat units in the field.

At an even lower level, drone workshops within Ukrainian battalions are also equipped to perform various tasks. They repair and redesign drones, which includes updating or enhancing components such as antennas, remote controls, and batteries. The arrival of 3D printing technology has transformed the repair process, allowing specialists to print necessary parts and spare components to meet the immediate operational requirements of frontline units. This capability is crucial, especially considering the rapid pace at which drone technology evolves. These workshops are essential to deploying advanced software designed to enhance the survivability of drones in hostile conditions. By implementing software updates, technicians can make drones less detectable to enemy systems. This includes modifications that increase

drone ranges and altitudes and further adaptations that remove features that transmit identification or locations information, which helps to minimize the risk of interception. Such measures taken by the drone workshop significantly increase the effectiveness of drone missions, allowing units to operate with a lower profile on the battlefield. Additionally, having specialized troops working in the drone workshop eliminates additional burdens on the drone pilots, who are already taxed with flying multiple daily missions.

The drone workshops also have engineering teams, which provide critical but dangerous explosive ordnance disposal expertise. This includes adapting existing munitions for drone delivery and developing improvised explosive devices tailored for use with UAVs. They are responsible for testing and enhancing explosives to ensure maximum effectiveness, which is vital for the ongoing drone campaign in the conflict. As a result, Ukrainian operators can integrate lethal munitions into their drone caches, thereby boosting their combat capabilities.

Vulnerability and Adaptation

Despite their importance, these workshops are not without vulnerabilities. Positioned close to the front lines, they are exposed to risks from Russian artillery, loitering munitions, and missile attacks. The need to maintain these workshops near combat zones is a double-edged sword; while it ensures rapid service support for drones, it also places them within the crosshairs of enemy fire. To counter this, Ukraine has initiated an approach involving deploying high-mobility vehicles equipped with workstations and essential electronic equipment to enable drone repairs as close to the front as possible without compromising safety. These vehicles have capabilities such as routers, storage racks, welding equipment, and assembly areas, stressing the critical role of these mobile units in sustaining drone operations along the front lines.

Moreover, the ongoing support from international partners has allowed for the expansion of mobile drone repair capabilities. The Lithuanian Riflemen's Union, a state-sponsored paramilitary organization involved in Lithuania's total defense concept, has taken measures to develop mobile drone repair shops that can accommodate two technicians. These vehicles are outfitted with 3D printers and soldering stations, enabling them to operate independently anywhere in Ukraine for up to two days without external power. These innovative solutions represent a concerted effort to bolster Ukraine's drone repair infrastructure, ensuring the military can maintain its aerial surveillance and combat capabilities under increasingly challenging conditions. Priced at approximately $36,000, these mobile workshops reflect a cost-effective method to enhancing drone survivability on the modern battlefield.

The consistent appearance of videos showcasing Ukrainian drones effectively striking Russian personnel and equipment highlights the critical juncture militaries find themselves at as they prepare for modern warfare. As military analysts, particularly those focused on the integration of drone technologies into US military strategy, adopt a comprehensive perspective on Ukrainian drone operations, it is imperative to recognize the crucial role of drone workshops within this operational framework. While Ukraine's rapid innovation in drone manufacturing is admirable, the operational capabilities and continuous improvements achieved at these workshops are pivotal to sustaining drone effectiveness and countering Russian advances.

Understanding and integrating this model could represent a significant opportunity for the US military to mitigate the logistical challenges inherent in modern operations, where US forces could easily find themselves operating in areas thousands of miles away from manufacturing hubs. Without a shift toward a more responsive and agile maintenance approach, US forces risk becoming entangled in inefficiencies characterized by lengthy logistical lines and cumbersome bureaucratic processes that are ill-suited to the speed of today's battlefields. Now is the critical moment to redefine our approach to the maintenance and operational readiness of the extensive fleet of UAVs. Delaying this transformation could prove detrimental, as future conflicts may demand capabilities that our current structures are ill-prepared to deliver, ultimately endangering lives and operational success. It is essential to heed these lessons from Ukraine to maintain a competitive edge in the evolving warfare landscape.

From Georgia to Ukraine: Seventeen Years of Russian Cyber Capabilities at War

Ketevan Chincharadze | July 30, 2025

In August 2008, as Russian tanks rolled into Georgia's Tskhinvali Region, not self-proclaimed South Ossetia, Georgian government websites were under cyber siege. Distributed denial-of-service (DDoS) attacks, defaced portals, and data theft disrupted communications as Georgian officials tried to urgently reach Western leaders, some on vacation, others attending the Beijing Olympics opening ceremony.

For the first time in history, a state had unleashed coordinated cyberattacks along with military operations. In post-Soviet, developing Georgia, with limited digital infrastructure and nascent social media, the attacks received little public attention and had minimal impact on combat operations. Seventeen years later, however, technological advancement and growing digital dependency have dramatically amplified the scale of cyber threats. The ongoing war in Ukraine illustrates this trend.

Russia's Cyber Experiment in Georgia

In the weeks leading up to the Russo-Georgian War, Russian hackers attacked Georgia's digital ecosystem to sow chaos within the Georgian government and society as Russian troops were amassing along the northern border. This marked the dawn of modern hybrid or gray zone warfare, which blends conventional military force with unconventional tactics, such as cyberattacks.

In July 2008, millions of DDoS requests overwhelmed Georgian websites in an attempt to disable both government and civilian servers. Close to the invasion, hackers began using techniques such as SQL injections, a more advanced assault, which enables attackers to bypass website protections and directly penetrate servers with malicious queries.

Numerous websites were defaced, and some even used photo manipulations to compare Georgia's then president Mikheil Saakashvili to Adolf Hitler. Hackers targeted key political, governmental, and financial platforms, including the websites of the Georgian president, the National Bank of Georgia, and the Ministry of Foreign Affairs. They also exploited lists of public email addresses and infiltrated government networks to extract potentially sensitive information.

Experts have suggested that Georgian internet traffic was rerouted through Russian telecommunications firms, whose servers also hosted malware used in the attacks. Additional evidence indicates that attackers manipulated an informal online poll on CNN's website to portray Russia's combat operations in Georgia as a legitimate peacekeeping mission. Russian bloggers then rapidly spread the poll across the country, urging their readers to visit CNN's website and select the response supporting Russian intervention. As a result, 92 percent of predominantly Russian participants voted in favor of the peacekeeping narrative before CNN ultimately removed the poll.

In 2008, according to the World Bank, only 10 percent of the Georgian population used the internet, compared to 82 percent in 2023. With such limited public reach at the time, the attacks were primarily aimed at demoralizing the government, diverting attention from military operations, and stealing intelligence. However, as internet access expanded across the country, so did Russia's influence on the public.

Moscow started using disguised, low-profile content to subtly shape public opinion and obtain user data without informed consent. In 2020, for example, Facebook removed News-Front Georgia, a Kremlin-linked outlet that had been actively spreading pro-Russian and anti-Western sentiments through an organized network of inauthentic accounts. According to the International Society for Fair Elections and Democracy (ISFED), the network included twelve fake profiles that disseminated pro-Russian content in thirty-one Facebook groups with over 521,000 members, in a country of just 3.7 million.

ISFED also uncovered twenty-six fake Facebook accounts and pages, disseminating Kremlin-backed Sputnik Georgia's content across forty-one public groups, reaching 1.2 million users. The operation used so-called *soft* content, such as posts about gardening, astrology, or local celebrities, to build trust with users before inserting links to Sputnik's articles with Kremlin-aligned narratives.

Russia has been steadily expanding its overt and covert operations since 2008. The annexation of Crimea and the ongoing war in Ukraine further demonstrate Moscow's continued advancement of its digital arsenal for modern warfare.

Advanced Cyber Operations in Ukraine

Strategically, the Kremlin began small in Georgia and significantly scaled its military and cyber warfare in Ukraine. The 2008 rudimentary attacks were an experimental foundation, evolving into broader assaults on Ukraine's communications and energy sectors in 2014, and ultimately escalating into a global threat targeting Ukraine and its allies during the full-scale invasion. However, much of Russia's strategy still follows a familiar playbook first tested in Georgia.

Just like in Georgia, Russia's first wave of cyber operations predated the 2014 annexation of Crimea. The attacks on the information systems of Ukrainian state institutions and private enterprises came during the 2013 mass protests that would become known as the Maidan Revolution. In mid-2013, Operation Armageddon targeted Ukrainian government, law enforcement, and military officials to steal sensitive information through phishing emails that tricked victims into clicking malicious links. Just three days before the Crimean status referendum, on March 13, 2014, Russia launched an eight-minute DDoS cyberattack on Ukrainian computer networks and communications to distract public attention from its military presence in Crimea.

Unlike in the Russo-Georgian War, Russian cyberattacks extended beyond the annexation of Crimea. In 2015, Ukraine experienced two assaults on three regional power distribution entities, also known as oblenergos, which impacted approximately 225,000 customers. In a US context, this would be proportionate to attacking the Omaha Public Power District, the Nebraska Public Power District, and MidAmerican at the same time. The US Cybersecurity and Infrastructure Security Agency concluded that the oblenergo "unscheduled power outages" were perpetrated by "Russian nation-state cyber actors."

By 2015, researchers had identified two prominent Russian hacking groups involved in Russia's cyberattacks against Ukraine: APT29 (also known as Cozy Bear, Cozy Duke, or Nobelium) and APT28 (also known as the Sofacy Group, Tsar Team, Pawn Storm, or Fancy Bear). These groups also played an important role during Ukraine's full-scale invasion in 2022.

Following the pattern established in 2008 and 2014, Russian hackers intensified reconnaissance efforts in Ukraine far ahead of the invasion. This included actions by APT29, which has been linked to the SVR, Russia's foreign intelligence service. In the lead-up to the invasion, government and university websites were defaced, spear-phishing campaigns targeted the energy sector, and DDoS attacks hit the Ministry of Defense and major banks. At the same time, coordinated disinformation campaigns portrayed Ukraine as an oppressor of the Russian-speaking majority in the country's east, echoing the CNN poll manipulation in 2008 aimed at framing Russian troops as peacekeepers in Georgia's breakaway South Ossetia.

Hours before the invasion, GRU Unit 74455, also known as Sandworm, the same Russian military intelligence group behind the 2017 NotPetya attacks, deployed a wiper malware called FoxBlade against Ukraine's digital infrastructure. Victor Zhora, a prominent Ukrainian cybersecurity official, called the attack "a really huge loss in communications in the very beginning of the war."

Hacking communication infrastructure to gain a military advantage is central to Russia's war strategy in Ukraine. In the weeks following the Sandworm incident, Russia made another attempt to shut down Ukraine's internet access by targeting three major telecommunications providers—Triolan (March 9), Vinasterisk (March 13), and Ukrtelecom (March 28). SpaceX's early delivery of Starlink terminals helped restore communications across Ukraine, and Russian forces quickly responded by trying to hack, jam, and disrupt Starlink's operations, though with limited success.

Russia's assaults also extended beyond Ukraine's borders to its allies—a significant step up from earlier practices. According to Microsoft, "By mid-2021, Russian actors were targeting supply chain vendors in Ukraine and abroad to secure further access not only to systems in Ukraine but also NATO member states." This practice intensified as the war escalated.

A coordinated cyberattack on Viasat satellite modems disrupted satellite communications across Ukraine and parts of Europe on February 24, 2022, the day of the invasion. The operation crippled Ukrainian communications, including internet access for thousands in Ukraine, and disrupted the KA-SAT satellite internet service across Germany, France, Hungary, Greece, Italy, and Poland. In Germany alone, more than 5,800 wind turbines were affected due to the loss of satellite connectivity. The EU publicly linked the attack to Russia.

Microsoft reported an increase in Russian cyber espionage throughout 2023 in at least seventeen European countries. It also identified a new GRU-linked threat actor, Cadet Blizzard, active since February 2023, which targets organizations in Latin America and Europe, particularly in NATO countries supplying military aid to Ukraine.

From Georgia in 2008 to Ukraine in 2022, Russia transformed its cyber experiments into a sophisticated global threat. In July 2022, eight distinct Russian malware strains were deployed to breach forty-eight Ukrainian government agencies and enterprises, averaging two to three attacks per week.

Since the war, Moscow has used nine new families of wiper malware and two new ransomware variants, targeting more

than one hundred Ukrainian government and private sector entities, including the Prestige ransomware, deployed in October 2022 in Ukraine and Poland. By late April 2022, Microsoft had recorded 237 cyber operations targeting Ukraine, including destructive attacks, service disruptions, espionage efforts, and coordinated disinformation campaigns.

But this is just the tip of the iceberg. In 2023, Shane Huntley, a senior director of Google's Threat Analysis Group called Russian cyber operations "aggressive" and "multi-pronged," while the general manager of Microsoft's Threat Analysis Center, Clint Watts, cautioned that Russia was continuously innovating with new malware. Further reports indicate that the Kremlin complements these cyber operations with extensive disinformation campaigns, blaming the West for the war in Ukraine and pushing pro-Kremlin narratives through more than one hundred thousand social media pages and Telegram channels.

The ongoing war in Ukraine, so far, represents the most vivid example of how cyber capabilities can complement activities in other warfighting domains. However, the overall impact of cyberattacks on Russia's ongoing war in Ukraine is still uncertain.

Can Cyberattacks Win Wars?

Despite the significant expansion of Russia's cyber operations from Georgia to Ukraine—even earning Russia a reputation for having some of the world's most formidable hackers—cyberattacks have not yet had a decisive impact on the war in Ukraine.

When Russian forces wanted to disrupt civilian infrastructure, they routinely bombed hydroelectric plants and other critical energy and water facilities across the country. In March 2024, Russia launched eighty-eight missiles and sixty-three Iranian-made Shahed drones against Ukraine's largest dam, leaving over one million people without electricity. The most severe internet disruptions have also resulted from such missile strikes rather than cyberattacks on Viasat satellite modems. Therefore, conventional kinetic operations continue to dominate Russia's operational approach to warfighting.

The cases of Georgia and Ukraine, however, show that cyberattacks can effectively disrupt government operations and sow uncertainty even if they do not yield decisive results on the battlefield. Disinformation campaigns can further sway public opinion in Russia's favor. The Kremlin effectively exploits the lingering anti-Western sentiments of Cold War generations, who still represent a significant portion of the electorate and political leadership in the post-Soviet zone. These sentiments are also reflected in a recent Friedrich Ebert Stiftung survey, which shows that more than a quarter of Ukrainians blame the United States for the war, 15 percent blame the EU, and 66 percent think Ukraine should avoid international involvement.

Russia, of course, is not alone in developing advanced cyber capabilities. Other major powers are closely observing and learning. China, for instance, is augmenting its government-based cyber arsenal and hiring a private network of hackers, which can be a growing threat to the United States. The US Justice Department has already charged twelve Chinese contract hackers and law enforcement officers for their involvement in global computer intrusion campaigns in March 2025.

In less than two decades, wartime cyber operations have evolved from rudimentary disruptions to sophisticated attacks on critical infrastructure and coordinated efforts aimed at undermining Ukraine's defense capabilities. While the digital domain may not yet determine the outcome of war, it has increasingly blurred the line between civilian and military targets—from disinformation campaigns targeting ordinary citizens to espionage infiltrating government institutions. And because cyber operations do not begin or end when the shooting does, this is the war front that never really goes offline.

Lessons

How Ukraine's Roving Teams of Light Infantry Helped Win the Battle of Sumy: Lessons for the US Army

Michael G. Anderson | August 17, 2022

When Russian forces invaded neighboring Ukraine on February 24, one of the first places they crossed into was the northeastern Sumy oblast. Thirty-nine days later, after intense fighting across the province, Sumy's governor announced that all Russian forces had withdrawn from Sumy. Ukraine had won the battle. How?

Ukraine's military had mounted a noncontiguous strongpoint defense of Sumy oblast. While static defense forces held strongpoints that centered on urban and other key terrain, light infantry roamed the gaps between these strongpoints. This combination—particularly the contributions made by the mobile light infantry—first delayed, then disrupted, and finally turned back key Russian supporting efforts along critical ground lines of communication. This effort, in both Sumy and the adjacent Chernihiv oblast, denied consolidation, resupply, and mass for Russia's main effort to encircle Kyiv. Russia's inability to secure its lines of communication through eastern Ukraine to its forward forces around Kyiv forced Russian commanders to divert troops and exposed their vulnerable road-based logistics to threat. Ultimately, this led to an operational shift in Russia's focus from Kyiv to the eastern and southern theaters of the conflict, abandoning large swaths of territory Russian forces had tentatively seized in their thrust toward Kyiv.

For US ground combat forces preparing for operational environments fundamentally different from those of nearly two decades of America's post-9/11 wars, the defense of Sumy highlights an important lesson. It demonstrates how mobile light infantry—armed with antitank guided munitions, supported by loitering and unmanned aerial vehicles, and with robust communication infrastructure—are key to a successful strongpoint defense against a combined arms attack on the modern battlefield. The defense of Sumy offers empirical evidence of this fact. But understanding *why* this is the case—and in particular why mobility, survivable platforms, and the right munitions are so important—requires an exploration of the concept of strongpoint defense, its evolution on the twentieth-century battlefield, and the unique ways in which Ukrainian defenders applied new and innovative approaches to the concept.

Drawing on the Lessons of History

Germany developed a concept of elastic defense in the closing years of World War I in response to the casualty rate it was experiencing and the German Army's overextension in the face of renewed, massed offensives by the Allied Powers. By pivoting from the idea of holding every inch of ground, Germany was able to reduce the length of its front and build in redundancy in its defensive sectors to contain Allied breakthroughs at minimized loss. This became a prototypical defense-in-depth concept. The German defensive doctrine of elastic defense carried over into the next world war. Three pillars formed this defense doctrine: dispersal and depth, counterreconnaissance, and mission command flexibility.

A strong lesson Germany drew from elastic defense in the context of trench warfare was that "casualties, fatigue, and confusion debilitated assaulting infantry, causing the combat power of the attacker steadily to wane as his advance proceeded." This very closely mimics what occurred to Russian forces in Sumy oblast during their penetration toward Kyiv. As forces penetrated they became slowed, distracted, consumed, and ultimately reduced in a series of limited, small-scale engagements from outposts to the layers of defensive positions and independent counterattacks.

In the interwar period, German defense doctrine and training evolved to address the threat of developing armor in the penetration, sparking a lively debate over whether to prepare principally for positional warfare or maneuver warfare, and if elastic defense was still appropriate. This seeded the Germans' future adaptation of elastic defense into the strongpoint-centric hedgehog defense. This modification centered on the separation of the enemy's infantry from its armored formations. If infantry could be separated then the tanks,

"rampaging through the German defensive zones like rogue elephants," were isolated and eliminated by specialized antitank elements. Ukraine took this further in the defense of Sumy. Beyond targeting and separating the infantry from the tanks in isolation, Ukrainian forces also took the fight directly to Russia's vulnerable truck-based logistics. The effectiveness of Ukraine's defensive approach was further amplified by Russia's dearth of infantry forces. Russian infantry units were woefully understrength before they even made contact with the roving bands of Ukrainian fighters. With this thin line of infantry support, and Ukraine's deliberate effort to target and separate infantry from the armor, the Russian advance was headed for exhaustion, disruption, and confusion, allowing the small, dispersed Ukrainian kill teams to target isolated and vulnerable armor in splintered combined arms tactical groups.

The German strongpoint defense concept emerged to mitigate a weakness. Whereas a desire to limit casualties in 1917 led Germany to modify its defense concept, in 1941–42, reversals on the Eastern Front against the Soviet Union led to new adaptation. This change emerged from Adolph Hitler's December 1941 no-retreat/stand-fast order. Now German defending forces had to find a way to hold their extended frontage against massing Soviet Union offensives without the benefits elastic defense offered in shortening their lines to allow for the developed depth of redundancy. Where the strongpoint defense fell apart for Germany was in the Soviet mass ability to flood around the various strongpoints, bypassing, isolating, and leaving them behind to capitulate or be reduced by the less mobile Soviet follow-on forces.

Where the brutal weather, Hitler's stand-fast order, and the overextension of their lines forced the Germans to concentrate around villages and turn them into strongpoints—villages that were naturally astride critical ground lines of communication like roads, bridges, and railways—they used this economy-of-force method to disrupt and hinder Soviet offensives, to a degree. In contrast, Ukraine applied a similar approach in Sumy, but one based on a more critical analysis. The Ukrainian response derived in part from a strong understanding of Russian doctrine, tactics, and methods. But it was especially enabled by the fact that, unlike the Germans on the Eastern Front, Ukraine was defending its homeland with its Territorial Defense Forces fighting for their homes, towns, and cities alongside the active forces of Ukraine's conventional military. With these advantages on their side, the Ukrainian defenders went a step further than the Germans in World War II, focusing on denying the use of railroads, bridges, and roads to the Russian forces. This in turn had a significant impact on the overall assault on Kyiv to the west of Sumy. In short, tactical disruption in Sumy became operational disruption of the broader Russian aims in the northeastern theater. And it was achieved, as the Institute for the Study of War's reports from March 3 to April 6 reveal, through a nuanced application of a modified strongpoint.

Of course, Germany's hedgehog defense ultimately failed. As German commanders learned, strongpoints alone are vulnerable to encirclement and exploitation tactics of attacking forces. In Ukraine, invading Russian maneuver forces likewise sought to penetrate gaps between the Ukrainian strongpoints, bypassing them in their thrust toward Kyiv. This is where Ukraine's critical modification comes into play. Ukrainian resistance in Sumy oblast, particularly in late March, used small, mobile light infantry forces to disrupt Russian logistics elements, which were vital both to support the movement toward Kyiv and to sustain deliberate fire and maneuver efforts to encircle and reduce the strongpoints. These light infantry forces were equipped with strong and extensive antiarmor capabilities and worked in the gaps between the deliberate defensive strongpoints, conducting raids on Russian lines of communication and hit-and-run spoiling attacks on concentrating forces and convoys. These teams managed to limit Russian operational reach by interrupting their tempo and demoralizing Russian forces, particularly sustainment forces. The Ukrainian resistance, largely local Territorial Defense Forces, with advanced antitank guided munitions provided by the West, contributed to an ideal economy-of-force concept built on overlapping and mutually supporting strongpoints.

The days between March 21 and March 24 represented a particularly high-intensity period of Ukraine's hedgehog defense and the activity of its mobile light infantry. The combination of determined resistance denying the Russians control over cities and key terrain that Ukrainian forces defended as strongpoints and the roving light forces disrupting the Russian attempts to mass combat power and support any encircling forces was decisive in the fight for Sumy. On March 29 the Sumy axis saw a significant reduction in Russian offensive efforts due to the successful Ukrainian tactical disruption, leading to a lessening of Russian pressure on the key strongpoints. Russia's inability to exploit the gaps in the Ukrainian noncontiguous defensive front seems to be largely because of the efforts of the mobile, light infantry forces. The overall effect of this—as well as the defense of Chernihiv, Kharkiv, and other areas east of Kyiv—was the dis-integration of the Russian offensive operational effort in the first week of April and the abandonment of the Kyiv axis and a complete withdrawal from northeast Ukraine.

Lessons for the US Army

In a 2014 paper, retired Lieutenant Colonel Raymond Millen made a persuasive case for a modern, adapted take on the elastic defense-in-depth concept, which he called "resilient defense." The key principles of Germany's World War II elastic defense concept—"dispersal and depth,"

"establishment of the 'vacant battlefield,'" and "tactical agility"—remain applicable today, Millen argued. His resilient defense concept is formed of multiple layers: an outpost sector to deny enemy reconnaissance and break up enemy cohesion, and a main line of resistance (first and second echelon) to attrit enemy forces, thereby facilitating a deliberate counterattack. Key to this approach are terrain anchor points, reinforced antitank strongpoints to counter enemy armor. All of this sounds familiar and would comfortably fit within current US Army doctrine for the defense, particularly in area defense and the concept of a security area, a main battle area, and a forward edge of the battle area.

Where the Ukrainian adaptation to the hedgehog defense contrasts with US Army defense doctrine is in the use of mobile, mounted, light infantry as opposed to mechanized or motorized infantry. "Dismounted infantry forces facing an armored enemy force," US Army doctrine states, "are primarily used in static roles." There involves significant risk for the US Army's infantry brigade combat teams, however, especially when the war in Ukraine has shown the decisive impact mobile light infantry can have against motorized and armored formations in a properly conducted hedgehog defense.

How do we get US Army light infantry proficient in this type of modified defense? Flexibility, coordination, and synchronization between defensive strongpoints and mobile light infantry are required. Simple and reliable communication is a critical capability to support dispersal and concentration, allowing the roving bands of marauding light infantry to act in a similar manner to German U-boat operations during the Battle of the Atlantic. As land-based wolfpacks, communications enable the dispersal of forces to support survivability and counterreconnaissance while also ensuring the ability to concentrate to exploit identified opportunities before dispersing once again.

The current composition of armored brigade combat teams and even Stryker brigades lacks the number of infantry dismounts needed to organically conduct the deliberate and sustained roving aspect of the hedgehog defense to the degree effectively demonstrated in Ukraine. The demands placed on their infantry for platform operation and support, and signatures from these vehicles, preclude them from achieving the mobility and survivability that small, hunter-killer, light infantry teams need to operate between strongpoints. Even Stryker infantry units still emit a large signature limiting their mobility and survivability in the face of an enemy combined arms attack. Such units are better employed in direct support to the strongpoints, while light infantry roam between them or concentrate temporarily as a counterattack or exploitation force. A study to validate the current force structure of US armored formations for methods to increase infantry dismounts in US armored and Stryker formations could yield important insights, and it might also prove effective to return to a cross-organization method of mixing light infantry with Stryker infantry and armor. Optimizing light infantry for this purpose is key. To that end, equipping strictly light infantry forces with platforms like the Infantry Squad Vehicle to enhance mobility holds promise, but even this raises questions. How much is too much, how big is too big, and where should the mobility requirement lie? These are all important discussions. However, the most important factor for this analysis is that light infantry need mobility to conduct this sort of defense.

Light infantry formations should train using the adapted hedgehog defense at the Army's combat training centers, focusing on light, mobile infantry force activities outside of the deliberate defensive positions. This will also likely require a shift in the balance during each training rotation between light and heavy formations. Additionally, the opposing forces at the combat training centers should continue to learn and refine lessons on the application of small, light infantry forces against an attacking armored force to train armored brigade combat teams and Stryker brigade combat teams against this type of flexible defense, while the rotational units should also be led to practice employing mobile infantry formations in the defense.

Mobility, survivability, and lethality are foundations to successful close combat actions and cannot be taken for granted on the future battlefield. Likewise, fighting in the defense on a linear front against an enemy force cannot be assumed in a sustained, high-intensity, large-scale combat operation. This is a gap in current doctrine. The US Army may find itself in a particular portion of a theater or line facing an opponent who has mass, fires, and combined arms superiority—a situation Germany confronted on the Eastern Front and Ukraine did in Sumy. In a major conventional war, somewhere, even if only on a secondary front for the US Army, an infantry brigade combat team may find itself overextended, unable to effectively practice elastic defense and facing a locally superior opponent. In that event, those infantry forces will need to be proficient in adopting the practice of the hedgehog defense so effectively illustrated by Ukraine in the defense of Sumy.

Urban Operations in Ukraine: Size, Ratios, and the Principles of War

Louis DiMarco | June 20, 2022

In late February 2022, a company-sized Russian airborne column of armored personnel carriers and armored reconnaissance vehicles made its way south on Vokzalnaya street through the Kyiv suburb of Bucha. The forces were part of the Russian airborne brigade that had captured the important airport at Hostomel. The column was intercepted and ambushed by a Ukrainian force equipped with Anglo-Swedish Next-generation Light Anti-tank Weapons (NLAWs). In the ensuing firefight, the bulk of the Russian force was destroyed on the narrow two-lane road. This short, dramatic fight represents the type of combined arms battle in dense urban terrain that has happened throughout Ukraine and promises to continue to be typical of the fighting in the Russo-Ukrainian War. The fighting in Ukraine thus far has verified trends in urban combat demonstrated in other urban battles since World War II and confirms the increasing importance of urban combat in modern war. While much of the reporting from Ukraine is one-sided, and thus prone to bias, there appears to be enough evidence to help illuminate these trends.

Size

Size matters in urban operations. An urban area's size dictates the means necessary to support any operation to defend or attack it. Two factors play into a city's size: its population and its physical footprint. More people mean more buildings, streets, and infrastructure to secure or to defend.

Kyiv and Kharkiv, with urban populations of 3.5 and 1.2 million, respectively, are extremely large urban areas. They are similar in population size to the Iraqi cities of Baghdad and Mosul where US and Iraqi forces conducted urban operations. Kyiv's population is larger than Berlin's population of 2.8 million during the climactic battle of World War II in 1945. Kharkiv's population is also comparable Manila's during its 1945 urban battle, and to Seoul's during the fighting in that city during the Korean War. Thus, urban combat in Ukraine is occurring in cities with populations that rival the largest urban battles in military history.

Population is only one measurement of urban size. A city's physical footprint is the other. Kyiv's official size is 839 square kilometers while Kharkiv's urban footprint is about 350 square kilometers. By comparison, Baghdad is 673 square kilometers and Mosul is approximately 180 square kilometers. In 1945, Berlin was approximately 884 square kilometers. In contrast, Seoul in 1950 was only approximately forty-nine square kilometers. Similarly, Fallujah is also very small, only covering thirty-five square kilometers.

Size of the urban area is critical to determining the size of the force necessary to conduct an operation there. The history of urban combat indicates that cities of the physical size and populations of Kyiv and Kharkiv, even accounting for manpower-reducing advances in technology, will require significant force structure to control. Looking at the forces Russia initially committed to the war indicates that there was not nearly enough troop strength to conduct successful urban operations when Ukraine mounted a competent defense.

Force Ratios

A military axiom is that an attacking force should outnumber defenders at the tactical level of war by a ratio of 3:1 to have a reasonable chance for success. Some analysts, including those responsible for US Army doctrine, believe a ratio as high as 6:1 is sometimes necessary to achieve success in urban operations because of the increased strength of the defense on urban terrain. Regardless of the actual requirements, force ratios are relevant for urban planners.

Force ratios at the outset of the war did not favor Russian forces. On the aggregate, the Russian military with an active duty strength of over 900,000 military personnel greatly outnumbered the Ukrainian forces who numbered approximately 196,000. The force ratio, in its most simplistic terms based on manpower, was 5:1. But absolute ratios do not tell the full story. Russian active duty ground forces strength was reported to be approximately 490,000, with Ukrainian army strength at 125,000. These figures reduced the force ratios to approximately 4:1. The total numbers of ground forces engaged on both sides within Ukraine at the beginning of the conflict were roughly 200,000 Russians and about 90,000 Ukrainians. This gave the Russians a force ratio of only slightly better than 2:1. Further enhancing the Russians' ability to create favorable force ratios is their ability to mass at the time and place of their choosing while the Ukrainians must defend everywhere.

Again, absolute numbers do not tell the full story. Good tactical intelligence helped the Ukrainians anticipate Russian attacks. Furthermore, mobilizing the Ukrainian

reserves, in all the various forms that took, changed overall force ratios and brought Ukraine's ground strength to more than 200,000, a figure not including the mobilized civilian militias and local volunteers. The force ratio between Russian and Ukrainian ground forces upon mobilization approached equilibrium.

Other factors alter the complex calibration of force ratios. The Russians have great superiority in helicopters, surface-to-surface missiles, conventional artillery, tanks, and other armored forces. The artillery and missiles in particular offer Russia considerable standoff capability and do positively offset the force ratios based strictly on manpower. To the Ukrainians' advantage, defending on urban terrain greatly enhances the combat power of the defender. Additionally, close combat on urban terrain places a premium on motivated, well-trained small units—a strong point of the Ukrainian army. Also complicating the force ratio issues is the fact that the Ukrainian government has issued small arms to civilians, increasing the total defenders in urban areas by as much as tens of thousands. Thus, though the Russian forces in total may have a combat power advantage, overall, they lack the combat power to engage in large-scale combined arms urban operations. This point was validated by their unsuccessful effort to capture the capital of Kyiv. It may prove to still be the case as combat shifts to eastern Ukraine.

Bold Maneuver

The best way to conduct successful offensive operations against an urban center is to capture the urban area before it is defended. This was the key to the successful capture of Seoul through the surprise Inchon landings in 1950. It was also the key to the successful capture of the city of Hue by the North Vietnamese during the Tet Offensive of 1968. Bold strikes are a high-risk endeavor. Russia planned rapid ground attacks synchronized with bold, deep air assaults designed to seize critical urban terrain before it could be defended. The Russians largely failed in northern and eastern Ukraine because of a lack of surprise, insufficient weight in the attacking forces, and competent and aggressive Ukrainian defenses and counterattacks.

Due to the success of the defenders and their own shortcomings, the Russians have been forced to switch to a measured conventional approach—the absolute worst way to attack an urban area. This approach is time consuming, allows the defense to be prepared in depth, and is often costly to the attacker, the defender, the civilian population, and infrastructure. So far, this approach has failed to capture Kyiv, Kharkiv, and Odesa, and resulted in the costly siege of Mariupol.

Isolating the City

If a rapid tempo fails to capture a city from the march before the defense is prepared, isolating the city becomes an essential task for the attacker. This has been Russia's objective in the operations against Kyiv, Kharkiv, and other major urban centers after the failure of the initial invasion. In 1945, Manila and Berlin were both isolated as part of the successful assaults on the cities. Smaller-scale urban battles such as Aachen in 1944, Hue in 1968, and Fallujah in 2004 also illustrate this operational necessity. Historically, acknowledging the potentially negative effects of being isolated in an urban area, armies have sometimes chosen to withdraw to avoid destruction in the urban area. The North Korean and Chinese armies both abandoned Seoul in 1950 and 1951, respectively, to avoid being trapped and destroyed in the city.

Likewise, keeping a lifeline to the city open is the key to a successful defense. In World War II, the successful defenses of both Stalingrad and Leningrad hinged on the ability of the Soviet Red Army to continue to supply and reinforce those cities' defenders. In Korea, Pusan was successfully defended in 1950 because of the United Nations forces' ability to reinforce and resupply through the port and by air.

Once isolated, the defender will lose the city unless a counterattack breaks through to relieve the garrison. In December 1942, the German counterattack to break through to the surrounded 6th Army in Stalingrad failed. Less than two months later, the 6th Army was forced to surrender. Historically, a key to urban operations' success or failure depends on the isolation of the city and its garrison. In Ukraine, the Russian military did not have the manpower to isolate Kyiv. Attempts to surround Kharkiv have also failed. A key component in the Russians' strategy to shift focus to eastern Ukraine is to create situations where they have sufficient forces to isolate the cities as they did at Mariupol.

Russian Tactics and Operational Options

Given the obvious Russian operational approach aimed at isolating cities, the Russian military still faces the problem of how to gain control of an isolated urban area. There are three general tactical approaches that the Russians can choose from.

The first is a systematic, combined arms, block-by-block assault to destroy defending forces and establish control of the city. This approach is costly in terms casualties to the attacking force. Likely costs are particularly noteworthy in light of the high casualties the Russian ground forces have suffered in Ukraine. Collateral destruction, in terms of civilian casualties and destroyed infrastructure, would be high as well. Furthermore, a methodical attack plays to the Ukrainians' strengths of small-unit tactics and morale. Given what has been seen of Russian tactics to date, such an approach would challenge the small-unit training and the morale of Russian

infantry and armored forces. It would also require a significant infantry force ratio advantage to overcome the defensive advantages of the urban terrain, even if that terrain is mostly reduced to rubble.

A second operational approach would be to slowly and systematically seize small areas of the urban terrain and then hold them against Ukrainian counterattacks while preparing to take another bite of the city, requiring less combat power than an all-out assault. Precision attacks by artillery and air support, combined with overwhelming force ratios at the point of attack, would ensure the quick success of these individual operations. Still, this requires that Russian forces meet the Ukrainian military where they are strongest: in close combat in urban terrain. Taking bites of the city would be a slower operation but require less manpower. Speed and casualties have become of significantly less concern to Russian commanders as the war has progressed and gone badly. Because this type of approach is slower, it would make the war last longer. The "bite of the apple" approach has not been tried on a large scale in a conventional combat situation recently.

A third approach would be to reduce the city defenses by fire. This plays to the Russian advantages in artillery and airpower. It avoids the close fight until the very end when presumably the Ukrainian forces would be much weakened and Russian casualties could be significantly reduced. In exchange, however, civilian casualties and infrastructure damage would likely be markedly higher than other approaches. Furthermore, relying on fires to reduce the defenses would take more time than either of the more aggressive options..

This is the type of approach used by the Russian army in the capture of the Chechen city of Grozny from late 1999 to early 2000. Sustained heavy artillery and aerial bombardment preceded a slow and systematic assault on the city. Thermobaric weapons and cluster munitions were abundantly used. The city was captured in a three-month battle at the cost of over a thousand Russian soldiers. Grozny was mostly destroyed in the process. Between five thousand and eight thousand civilians were killed in the battle even though most of the city's population had evacuated. Estimates for the number of civilians left in the city when the fighting started vary from fifteen thousand to fifty thousand. Using the extremes of these numbers, civilian casualties in the battle ranged from 10 to upwards of 50 percent of the population. Similar tactics were used by Russian-supported Syrian troops to capture the city of Aleppo in 2016. This approach, given the current operational situation in Ukraine and the history of Russian urban operations, appears to be the one the Russians chose in the siege of the city of Mariupol.

In modern warfare, all levels of war—tactical, operational, and strategic—meet in the urban environment where vital military, economic, and political infrastructure exist in the same space. Both the Russian and Ukrainian political and military leaders recognize this and thus controlling Ukraine's urban centers have been the primary objectives of both sides. The war has also verified many of the lessons learned since World War II about the importance of urban warfare and how to successfully conduct it. The future operational details of the war in Ukraine are unknown. What is known is that urban combat will continue to dictate the operational and strategic choices that both sides will make. Also not in doubt is that from the beginning of the war, urban combat has been the key to the tactical, operational, and strategic military and political planning and decision-making. The war between Ukraine and Russia has reaffirmed that urban warfare is central to modern war and will continue to be so.

The Battle of Novodarivka, Part I: Armor's Promise and its Limitations

Joshua Ratta | September 10, 2025

The past three and a half years of the Russo-Ukrainian War has sparked much professional discourse regarding the difficulty of executing combined arms maneuver against a prepared defense on the modern battlefield. Images of shattered armor in places most of us had barely heard of prior to the war—outside cities like Vuhledar, Bakhmut, Mariupol, and Bucha, as well as along the Siverskyi Donets River—serve as stark examples of the impact of mature precision-strike systems on attacking formations. For Western militaries, and for the US Army in particular, the difficulty of combined arms maneuver under such conditions was even more dramatically illustrated by the failure of the Ukrainian Armed Forces during the failed summer 2023 counteroffensive, where, despite extensive equipping and training by the West, a twelve-brigade Ukrainian assault force found itself rapidly impaled on the Russian defensive line.

Unsurprisingly, the offensive's initial failure and subsequent devolvement to a grinding campaign of attrition has sparked deep examination among military professionals and acrimonious disagreement between Ukrainian leaders and their Western partners. Much of this specifically revolved around the Ukrainian Armed Forces' transition from a high-tempo, armor-centric concept of operations to one predicated on small infantry formations, supported by even smaller armor elements, slowly chewing their way through successive Russian defensive lines. Ukrainian military officials argued that only such small, combined arms formations could survive inside a highly proficient Russian sensor-shooter network without unacceptable losses, while American military officials believed that the high casualties associated with the commitment of larger formations were an acceptable sacrifice in return for a rapid breach of the Russian defensive line and subsequent transition to a less costly war of maneuver.

Some two years later, while the debate regarding Western and Ukrainian decision-making remains unresolved, the offensive, combined with the larger characteristics of the conflict, is nonetheless generating extensive commentary challenging current US Army combined arms maneuver as practiced by its armored brigade combat teams. An especially effective way of extracting lessons from the counteroffensive—and its failure—is by approaching it from both the micro and the macro level. By examining it through the lens of a small tactical engagement outside the village of Novodarivka in June 2023, and subsequently placing it within a larger context offered by historical armored offensives, it is possible to gain a more nuanced understanding of just what the US Army should learn from this episode of the war.

On the Ground: The Battle of Novodarivka

The village of Novodarivka lies approximately equidistant between the Ukrainian cities of Zaporizhzhia and Donetsk. Otherwise unremarkable, in the summer of 2023, it served as a forward outpost within the initial Russian defensive position opposing what would take shape as a supporting Ukrainian axis of advance running directly south toward the city of Berdiansk along the coast of the Sea of Azov. The main axis of advance for Ukrainian forces attempting to break through Russian defenses along the Surovikin line, which extended from Orikhiv south toward Melitopol, was located some thirty kilometers to its west.

Although the exact deliberations and planning considerations are still hidden behind prudent operational security measures, it is clear that the Ukrainians envisioned a traditional mechanized assault on the Russian defensive line, as practiced by American armored brigade combat teams at combat training centers and executed successfully during the 1991 Desert Storm invasion. At Novodarivka, the first objective for the Ukrainian brigade advancing along the Berdiansk axis, the initial assault consisted of a company of mounted infantry and engineers advancing behind a section of tanks. Supported by artillery, electronic warfare assets, and drones, the armor/infantry column would enter a narrow breach lane blown by the attached engineers and advance toward the objective. Unfortunately, despite the destruction of a reserve Russian tank company by Ukrainian drone strikes, a section of surviving Russian armor would unmask itself and rapidly engage and destroy the advancing column. This sent surviving Ukrainian infantry running either forward to the village in a desperate attempt to gain an initial foothold and escape the kill zone or back toward the safety of Ukrainian lines. A second company team of combined armor and motorized infantry sent to reinforce the initial lodgment met a similar fate, canalized in another breach lane before succumbing to a combination of antitank fires and mines. Only with the commitment of a third company, infiltrating in two platoon-sized elements via a tree line to the west and through the wreckage of the first two companies' destroyed vehicles, would the Ukrainians finally have sufficient dismounted strength to seize the western half of the village.

However, to continue the advance and take the remaining Russian strongpoint on the eastern side of the village, the Russian company occupying Novodarivka's neighboring village of Rivnopil, just a couple kilometers to the east, and another company positioned forward of that village would have to be destroyed. Conscious of the heavy equipment loss at Novodarivka, the Ukrainian plan to destroy the forward company was specifically designed to minimize any such additional loss. The sole section of armor committed to the assault was relegated to an attack-by-fire position from which the tanks could engage Russian positions at a distance, while the actual seizure of the objective would fall to dismounted infantry platoons moving through parallel tree lines bordering the position. The eastern platoon established an attack-by-fire position to further fix Russian attention and manpower, while the western platoon, last in the order of movement, would conduct the final assault. Under heavy contact from both flanks and the front, the surviving Russian elements quickly retrograded back to the main position at Rivnopil, which was subsequently seized by a trailing brigade.

While the Battle for Novodarivka was just one of hundreds of tactical actions occurring throughout the entirety of the Ukrainian summer 2023 counteroffensive, the transition from a mechanized-centric concept of operations to one centered on the advance of small, dismounted infantry formations would be one echoed across the front. Ukrainian brigades nearly universally chose to lead with infantry rather than armored fighting vehicles. They accepted the consequently slower operational tempo to reduce equipment losses and casualties. This tactic emphasized Ukrainian advantages in dismounted maneuver and small-unit leadership while mitigating the

difficulty of executing combined arms maneuver at scale and a troubling dearth of critical systems such as short-range air defense and engineering equipment.

The Battle of Novodarivka and the Counteroffensive in Context

Like many members of the profession of arms, I have watched the ongoing conflict with great interest. And as an armor officer, I initially reacted with a degree of confusion upon seeing the transition in Ukrainian tactics in early June 2023. Years of professional development and education, repeated articles in *Armor* magazine, and impromptu discussions from motor pool to field exercises all reinforced one message: Where tanks advance, victory follows. The unequaled combination of firepower, protection, and mobility in the tank—honed to lethal effectiveness in the US Army's M1A2 SEPv2 and SEPv3 platforms—enable armored forces to rapidly break through an adversary's most fortified defense and into his rear area. They then deposit accompanying infantry formations, the sole element of the Army's ground combat team capable of holding and seizing terrain, at their objectives while continuing a destructive rampage through what General George S. Patton called the happy hunting ground of armor—an enemy's rear.

However, emotion and orthodoxy cannot be allowed to trump rational military analysis and the cold facts of history. For while famed German General Heinz Guderian may have spoken of tanks carrying victory forward, it was the audacious wet-gap crossing of the Meuse at Sedan by his infantry that enabled their subsequent breakout. Though like in Poland and Russia, such infantry would still be called upon to seal the gaps in any great tank encirclement, liquidate any remaining resistance, and collect vast hordes of prisoners. Similarly, General Patton may have visualized deep plunges into the enemy's rear such as that of his Seventh Army across Sicily in July 1943 or his Third Army's drive across France in August 1944. But even he and his troops were not immune to a bloody slog through a prepared defense like that they encountered at the fortress city of Metz, which from September to December 1944 rebuffed the previously onrushing Third Army.

Objectively, this contrast between expectation of armored success and frequent armored reality when encountering a prepared defense is a construct that holds true in the Army today as well. While Army leaders may continue to speak of armor's "gusto and panache," it is something rarely seen in simulated combat at the National Training Center. In twenty-one months as an opposing force mechanized infantry battalion commander and assistant regimental operations officer within the 11th Armored Cavalry Regiment, not a single armored brigade combat team I have observed has been able to surpass an average rate of advance of six to seven kilometers per day—hardly a blistering pace. And on days that include fierce fights around key pieces of terrain such as the Siberian Ridge, the Snow Cone hill mass, or the pass complex west of Barstow Road, armored brigades' progress can, at the frequent cost of its near complete culmination, be measured in the mere thousands of yards.

Although sobering, especially when an entire rotational force-on-force period may consume the equivalent of multiple brigade combat teams for only some fifty kilometers of ground, such high losses are not uncommon. Even the lightning defeat of Poland cost the Germans some six hundred tanks, only 70 percent of which could be replaced in the subsequent seven months preceding the invasion of France due to limitations in German industrial production. And the invasion of France was itself another victorious armor-centric campaign that nonetheless saw total German tank availability due to combat losses and maintenance drop to half by the end of just the third week of fighting. Likewise, during Operation Goodwood, the disastrous British breakout attempt from Normandy in July 1944, the British would lose over four hundred tanks in just two days for a mere thirty-four square kilometers of ground. It was only due to the heroic efforts of British maintainers and the Allied support apparatus that all but 156 of those tanks would be repaired and put back into action within a week.

Indeed, it is that fact—that tank-centric offensives frequently suffer from extremely heavy tank losses, even if such tanks are able to be repaired and replaced more easily than an infantrymen—that exposes the most serious and most misunderstood factor in Ukrainian decision-making during the summer of 2023. For all the emphasis on concentration as a characteristic of the offense, within the armor community concentration must be thought of not only in terms of combat power, but also in terms of Army and national support capabilities for tank repair and regeneration. This was among Ukraine's most serious deficits in 2023. For while the Ukrainians could amass some 1,500 tanks that summer, the bulk were not only old Soviet models, but also tied up in ancillary operations. This left the core of the twelve-brigade counteroffensive force centered around just a battalion of Leopard 2 tanks and a company of Challengers. The former of these required lengthy repair lines stretching all the way back to Germany and Poland, while the latter was provided in such limited numbers as to be of questionable benefit following any amount of loss.

Likely compounding Ukrainian unwillingness to use such limited tanks in large quantities was the reality that massed tank employment is often the quickest way to lose tanks. This fact is proven by history and was abruptly discovered by Ukrainian units when the Russian defensive line contained the offensive's initial thrust. The failure of the initial push, combined with persistent Russian intelligence, surveillance, and reconnaissance coverage across the front, meant that once

offensive operations had begun the multiple Ukrainian axes of advance were rapidly able to be identified and massed against. This eliminating any element of surprise that may have remained after horrendous Western security measures had given the Russians advance warning of Ukrainian plans and intentions.

When placed in its proper historical context, the true surprise of 2023 was not that the Ukrainian Armed Forces would struggle to breach the Surovikin line, but that such a struggle was apparently unanticipated by an array of American military officials and thinkers. Equally unanticipated, it seems, was the resulting change in Ukrainian operational concepts. Perhaps more critically, this lack of historical appreciation for the difficulty and realities of penetrating a prepared defense suggests that the US Army must seriously investigate long-standing concepts of armor employment to ensure their continued validity in light of modern battlefield conditions.

Evaluating US Strategy for Ukraine: A Pre-Postmortem

Chase Metcalf | January 9, 2025

Beginning in February 2022, the world watched as the largest land war in Europe since World War II consumed men and material at a prodigious rate. Since the beginning of the war, the administration of President Joe Biden clearly stated that Russia's unprovoked aggression would not stand and that the United States would support Ukraine "as long as it takes." As the war approaches the end of its third year and with speculation about a possible negotiated settlement, it is appropriate to assess the US strategy. Since much depends on the conflict's final outcome, consider this a pre-postmortem.

Joint doctrine defines strategy as "a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives." The US Army War College defines it as "the alignment of ends (aims, objectives), ways (concepts), and means (resources)—informed by risk—to attain goals." Regardless of which definition we use, there is a fundamental truth: ultimately, strategy serves policy, and thus, the most obvious way to assess strategy is by asking whether it achieves the policy outcomes at acceptable cost and levels of risk.

The Strategy: Ends

At the Army War College, we teach students that strategy begins with an understanding of national interests. The US National Security Strategy identifies a number of interests directly tied to the Russian war in Ukraine. These include the defense of democracy and countering of autocracies globally, upholding and promoting a rules-based international order that respects the sovereignty and territorial integrity of all nations, and the maintenance of a strong and unified NATO as part of a global network of alliances and partnerships. Of course, the war and its outcome also have real implications for strategic competition and the balance of power—not only regionally, but globally, as well. One of the most frequently cited concerns is what lessons President Xi Jinping and the People's Republic of China are learning from this conflict and how that might impact Beijing's decisions about invading Taiwan.

Since 2022, these *national interests* have informed US *policy objectives* for Ukraine. These policy objectives can be summarized as: Ukraine able to defend itself and Russia denied strategic success, further Russian aggression deterred, and direct conflict between Russia and the United States or NATO avoided. In a 2022 op-ed in the *New York Times*, President Biden stated clearly: "America's goal is straightforward: We want to see a democratic, independent, sovereign and prosperous Ukraine with the means to deter and defend itself against further aggression."

In 2022, the chairman of the Joint Chiefs, General Mark Milley, described the US strategic objectives (or ends) as:

No. 1: "Don't have a kinetic conflict between the U.S. military and NATO with Russia."
No. 2: "Contain war inside the geographical boundaries of Ukraine."
No. 3: "Strengthen and maintain NATO unity."
No. 4: "Empower Ukraine and give them the means to fight."

These strategic objectives align with the desired policy outcomes and further clarify the priorities. Before the failed 2023 Ukrainian offensive, the United States appeared supportive of Ukraine's desire to drive Russia from the occupied territories. However, since the failed offensive, it appears increasingly focused on better posturing Ukraine for a negotiated settlement.

The above policy and strategic objectives are laudable and have remained relatively static throughout the conflict—certainly since the 2023 failed Ukrainian offensive. Thus, implementation has appeared to prioritize avoidance of a direct conflict with Russia and preventing Russian success. This prioritization is almost certainly due to concerns with the risk of escalation—something that will become more evident as we look at the ways and means in the next section. Notably, this prioritization has led critics to argue the strategy lacks a clear vision or end-state, setting conditions for a prolonged war.

The Strategy: Ways and Means

The United States has employed multiple elements of national power—diplomatic, information, economic, and military—to pursue these ends. Summarizing work by retired Major General Mick Ryan and Dr. Kori Schake, the main elements of the US approach (ways) are:

1. providing military and economic assistance to Ukraine;
2. rallying international military and economic support for Ukraine;
3. imposing economic sanctions and isolating Russia diplomatically; and
4. deploying forces to assure allies and deter further Russian aggression.

The Biden administration has marshaled significant resources (means) to support the strategy. This includes the deployment of additional forces to Europe, the use of the presidential drawdown authority and working with Congress to pass the Ukraine Security Assistance Initiative, and the use of diplomatic capital to isolate Russia economically and diplomatically. Let's now examine strategy implementation and assess its success.

Direct Military and Economic Assistance for Ukraine

As of September 2024, the United States Congress had authorized $175 billion in aid to Ukraine, and Europe another $253 billion. This aid has been instrumental to Ukraine's ability to sustain the war effort, something acknowledged by President Volodymyr Zelenskyy when he noted that Ukraine would lose the war without US aid, and prevented Russia from achieving a rapid victory. Additionally, the military support for Ukraine is revitalizing the defense industrial base and enhancing the US capacity for waging great power conflict. As of October 2024, for example, the Ukraine Security Assistance Initiative and the Biden administration's use of presidential drawdown authority have resulted in at least $46.3 billion in obligations to defense industry partners and around $5 billion in direct investment to improve defense industry capacity across the United States. Finally, this aid has directly contributed to the imposition of 600,000–700,000 Russian casualties and the destruction of large portions of Russia's strategic material reserves.

However, this aid has proven insufficient for Ukraine to push Russian forces back, and Russian forces continue to make slow, if costly, gains. Critics of the strategy highlight its incremental approach and restrictions on aid due to fear of escalation as being responsible for missed opportunities, increased casualties, and a prolonging of the conflict. Additionally, critics note concerns with resource allocation, asserting that resources used to support Ukraine put the United States' ability to deal with China as the "pacing threat" at risk. Amplifying this argument, Admiral Samuel Paparo, commander of US Indo-Pacific Command, recently highlighted concerns that aid to Ukraine may impact his force's readiness and ability to respond to China. Overall, economic and military aid has proven, at best, only partially successful.

Rally Others to Support Ukraine

Even before the war began, the United States sought to rally international backing to deter Russia and generate support for Ukraine through the sharing of declassified intelligence and overt messaging of Russia's plans and intentions. These efforts enabled Ukraine to endure Russia's initial invasion and contributed to the willingness of international partners to aid Ukraine. The establishment of the Ukraine Defense Contact Group, involving over forty countries, and the authorization of hundreds of billions in aid to Ukraine illustrate these efforts. Despite this success, critics note that the United States is bearing a disproportionate share of the burden given the inability of European defense forces and infrastructure to meet Ukraine's requirements. Overall, America's ability to rally others to support Ukraine's cause is one of the more successful elements of the strategy, yet it has only been partially successful, given the failure of those countries to fully mobilize their resources in support of Ukraine.

Impose Sanctions and Isolate Russia

Diplomatic and information efforts to isolate Russia were effective at the outset. Symbolizing these early efforts, 141 countries (out of 193) voted to condemn Russia's invasion in the UN General Assembly, and countries expelled or suspended Moscow from a variety of international institutions. Economically, the United States and its partners have imposed thousands of sanctions on Russian entities, constraining the Russian defense industry and driving interest rates to 21 percent, with the potential to go higher.

However, over time, these efforts have proven less decisive than hoped. Today, only forty-five countries directly sanction

Russia, and Russia has proven quite capable of mitigating the worst effects of these sanctions. Moscow is increasingly strengthening its relationship and cooperation with the axis of upheaval (Russia, China, Iran, and North Korea) out of necessity and shared interest. For these reasons, this element of the strategy has proven least successful. More importantly, if it leads to the long-term strengthening of the axis of upheaval, it could be seen as counterproductive for the US position in the world.

Deploying Forces to Assure Allies and Deter Russia

In the immediate aftermath of Russia's invasion of Ukraine, the United States announced the deployment of an additional seven thousand troops to Europe and supported NATO's activation of its Rapid Response Force. In addition, Congress appropriated another $45 billion to support US military operations in Europe and other government responses to the war. Today, the United States maintains approximately eighty thousand personnel in Europe and is a key contributor to the enhanced NATO force posture along the alliance's eastern flank. Perhaps most importantly, thirteen member nations are providing a larger percentage of their GDP in aid to Ukraine than the United States—certainly in part because they are confident in the United States' commitment to NATO. Despite this, it is necessary to acknowledge Russia is waging a campaign of subversion against the West that could inadvertently escalate. Thus, this element is clearly the most successful of the strategy.

Overall Assessment

So, has the US strategy been successful? Given the aspirational goals, the short answer is no, but the full answer is slightly more nuanced and partly dependent on the war's final outcome.

Throughout the war, the United States' principal concern has been the risk of escalation or direct conflict with Russia. From the beginning, the Biden administration has been very clear about its desire to avoid World War III and has acted deliberately as a result. The conflict has remained largely contained to Ukraine and certainly imposed significant costs on the Russians—including the addition of Sweden and Finland to NATO. Supporters of the strategy will argue that US leadership, along with fear of a more aggressive Russia, has strengthened NATO unity and mutual commitment, with twenty-three member nations (up from just three in 2014) spending more than 2 percent of GDP on defense, ensuring a stronger and more unified NATO as part of a global network of alliances. In these terms, the strategy has been quite successful, although the Ukrainians would certainly argue that it is at far too high of a cost.

However, critics claim pursuing a "Goldilocks strategy" that seeks to support Ukraine without provoking Russia has enabled Ukraine to survive but not to win, allowing Russia to adapt over time and regain the strategic initiative. Thus, despite short-term success, the strategy's long-term prospects appear increasingly uncertain. More importantly, concerns about escalation must be balanced against the implications of Russian success in Ukraine. General Christopher Cavoli, commander of US European Command, testified to Congress in April that failure to support Ukraine would embolden Russia and threaten the global security environment, while administration officials have frequently cited the threat to a rules-based international order if Russia succeeds in Ukraine.

When assessed against the overall policy outcome of an independent and prosperous Ukraine with the means to deter and defend against further aggression, the strategy clearly fails. Since the unsuccessful 2023 Ukrainian counteroffensive, both sides have struggled to make operational-level gains on the battlefield. However, in 2024, Russia's superiority in resources, its willingness to expend men and materiel, and uncertainty about continued United States support led many to see the conflict as trending toward a settlement that will allow Russia to retain control over occupied areas of Ukraine. While Ukraine survives, the Ukrainian economy is currently at 78 percent of its prewar size. Further, it is running a $38 billion annual budget deficit and was estimated to require $486 billion in reconstruction spending as of December 2023. Given this, it is hard to imagine an economically prosperous Ukraine with the resources to defend itself in the near term.

Without an end in sight more than half of Ukrainians polled now believe Ukraine should seek a negotiated end to the conflict, and over half of those are willing to make territorial concessions to make this a reality. This likely reflects a growing exhaustion on the part of the Ukrainian people with the costs of the war. While a future settlement could lead to the type of Ukraine desired by current policy, it is hard to argue that the US strategy is on a trajectory to accomplish that today.

While the US strategy has avoided direct conflict and prevented near-term Russian success, it has failed to achieve the overall policy objective of a free Ukraine capable of defending itself or deterring future Russian aggression. What happens next will go a long way toward how historians see the strategy—did it buy time for Ukraine while effectively managing the risk of escalation and conflict or did it squander resources in an adventure that could not succeed given an acceptable level of risk?

Lessons for Aspiring Strategists and Policymakers

The war in Ukraine underscores a fundamental truth about strategy: it is as much about navigating uncertainty and managing risks as it is about achieving goals. Three key lessons stand out from this case.

First, a good strategy requires the alignment of ends, ways, and means informed by consideration of risk. The current approach illustrates the importance of setting realistic goals and calibrating resources and actions to achieve those goals.

Second, strategy is a dynamic process, not a static plan. Effective strategy requires continuous adaptation. Strategists must cultivate intellectual flexibility to avoid becoming anchored to initial goals or assumptions and adjust their strategy based on the evolving environment. Ultimately, strategy is not about creating a rigid plan to achieve one's goals but maintaining the agility to navigate complex and unpredictable environments.

Finally, risk management is at the core of strategic thinking. Strategy is a competitive activity and, as such, always involves risk. The art of strategy lies in calibrating actions to achieve outcomes while mitigating the potential negative consequences of action. Successful strategists must have the capacity to make difficult trade-offs and understand that every strategic decision involves inherent uncertainties.

As Lawrence Freedman notes, there is a difference between having a strategy and acting strategically—in other words, between strategy as a thing and strategy as an action. The Ukraine conflict is a profound reminder that strategy is less a destination and more a continuous process of adaption, learning, and careful navigation of goals, resources, and risks. Ultimately, strategists or policymakers must constantly evaluate their strategies and adjust the ends, ways, or means as necessary based on their risk tolerance.

Ukraine and Taiwan: Why Learning the Right Lessons Matters

Zenel Garcia and John Nagl | June 11, 2025

As the world watches the war in Ukraine reshape the global order, the United States and its allies are seizing the moment to extract hard-earned lessons on the art of managing great power rivalry, crisis, and conflict. Arguably, the United States has adeptly employed its diplomatic, informational, military, and economic instruments of national power to keep its population safe and out of the conflict, while helping Ukraine impose severe costs on Russia. Diplomatically, it has built a coalition of partners to simultaneously seek a peaceful solution and cast opprobrium on Russian actions through international institutions like the United Nations. Informationally, it took the unprecedented step of releasing intelligence on Russian activities to deprive Moscow the element of surprise or the means to conduct false flag operations. It has also promoted an effective discourse portraying Russia's action as threatening to the international order. Militarily, it has delivered one of the few recent successes in training and equipping a foreign military. Finally, economically, it has led the organization and implementation of severely damaging sanctions on Russia.

The apparent success of these efforts has generated much discussion about lessons to be learned. However, overly optimistic analyses risk obscuring the applicability of these policies to future conflicts. This is particularly important as the foreign policy community draws parallels between Ukraine and a potential conflict over Taiwan. It will be difficult, if not impossible, for the United States to apply its instruments of power in a similar fashion in a Taiwan contingency, specifically because China is not Russia, and Taiwan is not Ukraine. Nevertheless, the war in Ukraine offers lessons across the elements of national power for the prospects and likely consequences of a Chinese attempt to invade Taiwan. For both military and economic reasons, China is unlikely to follow Russia's example of an overt invasion; instead, it will likely rely on diplomatic and informational power to accomplish its objectives.

Amphibious Invasion Complexities: Military Challenges for China

The principal lesson that President Xi Jinping is likely to have learned from watching Russia's invasion of Ukraine for the past three years is disarmingly simple: Invasions are hard.

Russia and Ukraine share a long contiguous land border that is largely flat and rolling hills—the easiest of all geographical conditions for a land invasion. Additionally, the Black Sea ostensibly allows Russia to use its advantage in seapower to apply additional pressure on Ukraine from the south, and there is a long fighting season from approximately May to October during which military operations are essentially unhindered by weather or terrain conditions. Literally none of these conditions apply to a potential invasion of Taiwan.

Most obviously, Taiwan is an island separated from the Chinese mainland by roughly one hundred miles of open water. There are only two months—May and October—when sea conditions would allow China to launch an amphibious invasion of Taiwan, which has limited (and well-defended) invasion beaches, a significant mountainous spine, subtropical jungle, and several large cities, all of which present major obstacles to military conquest even if the Taiwan Strait could be conquered. Amphibious operations are among the most difficult of all military operations, in no small part because they require the achievement of air superiority prior to beginning the invasion to protect vulnerable troop transports. This is why the "so few" in Winston's Churchill's famous quote—"never in the field of human conflict was so much owed by so many to so few"—were the pilots of the Royal Air Force. Russia's inability to achieve air superiority over Ukraine is hence an important cautionary tale for Xi; if Ukraine's skies have been protected by American intelligence and American missiles, it is not too much to expect that Taiwan's would be as well—and that the island, about six percent the size of Ukraine and surrounded by a sea likely to be populated with American air defense assets aboard ships, would be even better defended against air attack than Ukraine has been.

Moreover, Russia's challenge in establishing dominance over the Black Sea highlights another vital requirement for any successful campaign: naval superiority. Without command of the sea, China would be unable to secure and sustain the logistical lifeline required for a full-scale amphibious assault or to shield its invasion fleet from interdiction. Despite the significant advances of the People's Liberation Army Navy, the narrowness of the Taiwan Strait could become a deadly bottleneck under the threat of Taiwanese and American submarines and missile-equipped ships. The United States Navy and its regional allies and partners possess considerable blue-water capabilities and regional presence, making the contest for maritime dominance not only unavoidable but arguably decisive. Xi's planners must therefore consider not only how to reach Taiwan—but how to keep the corridor open once the first boots are ashore.

Sanctions and Interdependence: Economic Deterrents and Limits

China has become the manufacturing center of the world and, therefore, a pivotal component to global supply chains. It has also become the largest trading partner to most countries, and through the Belt and Road Initiative, it has emerged as a major investor. Consequently, the degree of sanctions currently being imposed on Russia are unlikely to be replicated for two reasons. The first is that implementing these kinds of sanctions on China would require a significant level of decoupling between the United States, its partners, and China. This is likely to be particularly painful to the consumer economies in the West. Even with the requisite political will, a policy of decoupling would be difficult to implement. The second is that China is increasing its footprint in emerging markets, which may mitigate some of the effects of US and European sanctions. This means that even if sanctions were imposed, the interconnected nature of the global economy provides Beijing with access to additional markets outside of the sanctions regime, as Moscow has quickly learned. Put simply, the United States would face domestic and structural challenges if it sought to impose the same level of punitive economic sanctions on China.

Despite these relatively positive lessons, there are legitimate economic constraints to China's resort to the use of force. The most important of these is that any conflict across the Taiwan Strait would have a negative economic impact even in the absence of sanctions. This is important because of Beijing's preoccupation with ensuring a stable environment conducive to economic development—something Chinese officials have long believed to be correlated with social stability, and therefore, security. There is also the concern that any cross-strait conflict would result in the reorientation of regional shipping and a spike in insurance costs. Few Chinese ports would be capable of conducting regular trade operations and overland trade routes would not be capable of handling the current volume. This would result in compounding economic challenges that may prove too costly for Chinese officials that have historically prioritized domestic stability.

De Jure Containment and Coalition Building: Diplomatic Obstacles for Taiwan

One key distinction between the conflict in Ukraine and a potential one over Taiwan is their legal status and the effect this can have on the framing of the discourse over such an event. Ukraine is a recognized sovereign state. As a result, it is straightforward to designate Russia's actions as a war of aggression. Moscow is essentially undermining two foundational norms of the international order: the sovereignty and territorial integrity of a recognized state. This messaging

has currency across the globe. Taiwan, however, is a different entity altogether given its lack of de jure recognition. While the US interpretation of the "One China" policy does not necessarily recognize Chinese sovereignty over Taiwan, this is not the case around the world. In fact, Beijing makes this the basis for the establishment of diplomatic relations with other countries. This makes framing a mainland invasion of Taiwan as a war of aggression more difficult given that few countries recognize Taiwan as a sovereign country.

Furthermore, Beijing actively blocks Taiwan's participation in international organizations such as the United Nations and even forums like the World Health Organization by leveraging its position within these bodies. This systematic marginalization reduces Taipei's ability to build international coalitions or gain official support in the event of conflict, further complicating global efforts to frame Chinese military action as unlawful aggression. As a result, many countries may see a cross-strait operation as a domestic issue for China.

Shaping the Discourse: Informational Power and Taiwan's Marginalization

Chinese officials have worked to shape international narratives to portray Taiwan as an inseparable part of China. In this effort, China has used both overt and covert means to influence media outlets, foreign governments, and international institutions. Over the past two decades, China has invested heavily promoting its media platforms around the world. Chinese media companies have established a foothold by increasing their overseas capacity and presence, training local journalists, acquiring existing local outlets or establishing new ones, and finally, creating local content. This allows them to achieve Xi Jinping's mission of "telling China's story well," a phrase rooted in his broader strategy to shape global public opinion around Chinese interests and legitimize China's governance model.

For its part, the Chinese Communist Party's International Liaison Department (ILD) has played a significant role in advancing these objectives. Traditionally tasked with managing party-to-party diplomacy, the ILD has increasingly positioned itself as a tool of influence operations abroad, including shaping discourse around Taiwan. Through building relationships with foreign political parties and think tanks, particularly in developing nations, the ILD subtly promotes Beijing's narrative that Taiwan is an internal matter and not a subject of international concern. This strategy enables Beijing to cultivate sympathetic elites and suppress pro-Taiwan positions in multilateral forums. Additionally, the ILD often collaborates with United Front organizations and media partners to amplify favorable coverage while discrediting Taiwan's democratic legitimacy. Such efforts are part of a broader, long-term campaign to normalize the Beijing's claims and marginalize Taiwan on the world stage. As a result of these developments, China is likely to have a greater capacity to shape the discourse surrounding the status of Taiwan than Russia has had vis-à-vis Ukraine—as well as the legality of any use of force—among a broader audience.

China has been paying close attention to the ongoing war in Ukraine, including reportedly sending some of its own soldiers to observe the battlefield. What Chinese leaders have learned cannot be encouraging to a country that has not engaged in combat since 1979, and that in a war it arguably lost to a much smaller neighbor. Rolling the iron dice of war is always a risky endeavor; doing so to invade a country that the under secretary of defense for policy has repeatedly declared is his top national security priority is a reckless act beyond any China has conducted since its intervention in the Korean War seventy-five years ago. That invasion happened because China believed that its homeland was under imminent threat; it is hard to imagine an equally rash act short of a similar belief today. So long as Taiwan does not announce its independence, China is far more likely to play a patient game of increasing diplomatic and informational pressure, accompanied by military actions short of war, to win this battle without firing a shot.