

Ukraine's Strategy of Attrition

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The war of Russian aggression in Ukraine has continued for roughly a year. With no clear end in sight, there is a need for an enhanced understanding of the Armed Forces of Ukraine's war-fighting strategy, which we seek to provide here. Such an understanding would help clarify for Western policy-makers and defence planners the kinds of military support required going forward. Greater detail about this strategy and the character of war fighting in Ukraine would also facilitate realistic assessments of the duration of the military conflict and its likely cost in terms of both personnel and materiel. Finally, a more nuanced account of Kyiv's strategy would illuminate a plausible end to the conflict.

The salience of attrition

Success in war involves a combination of attrition – that is, the slow but sustained process of wearing down an opponent and eventually breaking its will by inflicting much higher losses in personnel and materiel than one's own side is suffering – and manoeuvre. An attritional approach typically privileges firepower over mobility, and direct attack over flanking action or otherwise seeking to attain advantage by position. Ukraine's war-fighting strategy was initially based on defence-in-depth, or in some cases mobile

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defence, which it then transitioned to offence. Its offensive effort proved successful in autumn 2022 because the conditions had been set by Russian forces' structural personnel deficit and extensive attrition. The attrition had multiple causes, including combat losses, soldiers who refused to fight and depleted morale due to exhaustion.¹

Attrition has been both sides' primary approach at the tactical level of war; manoeuvre warfare yielded operational results because extensive attrition made it possible. This is not unexpected, as most major conventional wars feature attrition, manoeuvre and reconstitution. Advanced Western weapons, such as the US-supplied High Mobility Artillery Rocket System (HIMARS), augmented by intelligence, surveillance and reconnaissance (ISR) assistance, have not allowed Ukraine to escape the grind of sustained attritional combat. HIMARS did provide Ukrainian forces with a capability they did not have – long-range precision strike – enabled by sustained US intelligence support. Its main effect was to diminish Russia's artillery advantage, which indirectly enabled Ukrainian offensive operations.

Broadly in line with the theory of manoeuvre warfare, the Ukrainian armed forces did seek to degrade the Russian forces' physical, mental and moral cohesion by targeting critical support systems such as command-and-control nodes and supply depots. In practice, though, this was primarily accomplished by attrition and mass fires rather than by manoeuvre and precision strike. Ukrainian artillery has often operated on its own, and offensive manoeuvre has yielded mixed results against a prepared defence with a high density of forces. It is the combination of traditional fires and repeated ground assaults that set the stage for offensive Ukrainian operations. Long-range precision strikes on Russian command and control, ammunition and ground lines of communication did not appear to significantly enhance Ukraine's ability to conduct manoeuvre warfare. Manoeuvre warfare proved successful when prolonged attrition made it easy. Ukraine has not been able to make military gains on short timelines without major increases in available personnel, materiel and ammunition.² The Ukrainian armed forces' offensives in Kharkiv and Kherson illustrated their limitations as well as their prowess.

The Kharkiv offensive

Ukraine's lightning counter-offensive in early September in Kharkiv *oblast* in northeastern Ukraine was a spectacular tactical victory. In less than ten days, beginning on 6 September, the Ukrainian armed forces liberated more than 6,000 square kilometres of territory following a rapid breakthrough into Russian-controlled territory north of Izyum near Kupiansk.³ On the Russian side, an incohesive mixture of forces held that sector of the front. The Russian forces initially encountered at Balaklia consisted of Rosgvardia (national guard) units and Russian Special Rapid Response Units (known by the Russian acronym SOBR and similar to Western SWAT, or special weapons and tactics, outfits), backed by mobilised units from the Luhansk People's Republic. The bulk of the Russian forces in and around Izyum were remnants of the Western Group of Forces, in some places at 25% strength, exhausted and suffering low morale, and further depleted due to desertions and refusals to deploy.⁴

Russia's redeployment of regular army units and substantial equipment to the Kherson and Zaporizhia *oblasts* in July and August 2022 in anticipation of largely feinted Ukrainian onslaughts there proved essential to Ukraine's success in the Kharkiv offensive.⁵ Ukrainian units quickly bypassed Russian irregulars, and parts of the Russian line south of Izyum buckled as elements of the 11th Corps from Kaliningrad abandoned their positions. Once the front line was broken, Russian forces were unable to reinforce it in time to contain the offensive or launch a successful counter-attack. Ukrainian forces were able to achieve manoeuvre depth largely unopposed due to the dearth of Russian reserves in the area. This quickly led to a collapse of the Russian position, a complete rout of Russia's Western Group of Forces, and the seizure of a significant amount of equipment, including hundreds of armoured vehicles, some damaged or inoperable.⁶

Russian forces attempted to stop the Ukrainian offensive at Lyman, a strategically important town, but were too depleted and disorganised to mount a substantial defence. Nevertheless, they delayed Ukraine's advance by more than a week, giving some Russian forces time to begin establishing a defensive line between Svatove and Kreminna farther east. At that point, Russian forces depended on reserve units, known by the acronym BARS,

and what was left of the Western Group of Forces. The Ukrainian counter-offensive culminated in the capture of Lyman on 1 October.

On the Ukrainian side, at least six manoeuvre brigades, including the 92nd mechanised and 3rd tank brigades, were involved in the attack.⁷ It was preceded by a three-month-long campaign of precision strikes by 16 US-supplied HIMARS units, which, aided by targeting data supplied by Western intelligence services, reportedly hit more than 400 targets in the rear of the Russian front including ammunition dumps, command centres, logistical hubs, railroad junctions and bridges.⁸

Various analysts have touted HIMARS as a critical element of Ukraine's

There is little evidence that HIMARS strikes were decisive

successful Kharkiv counter-offensive.⁹ But there is little evidence that HIMARS strikes on the Russian supply system in Kharkiv *oblast* in August were decisive with respect to the repositioning of Russian forces to other parts of Ukraine. Media reports indicated that Russian forces had advance warning

of the deployment of HIMARS to the Kharkiv front line even though at least three Russian command posts were hit.¹⁰ Russian forces appeared to adapt by repositioning logistical hubs, hardening command centres and using decoys, gradually decreasing the effectiveness of HIMARS strikes. It does not appear that Ukraine conducted a decisive deep-battle campaign, which would have aimed to delay, disrupt or divert enemy reserves and sever supply lines. The Russian military's chief problem was not damage to rear areas, but rather insufficient aggregate personnel on the front lines, scarcity of infantry, no reserves to speak of, and lack of capacity to rotate out exhausted units. It is arguable that attrition, along with the Ukrainian feint, forced the Russian forces to choose between reinforcing Kharkiv and defending Kherson.

Ukraine's artillery requirement remains at approximately 90,000 shells per month. This figure has stayed relatively stable since the summer, implying a strong dependence on field-artillery firepower. There was a notable decline in Russian fire rates over the winter, but this was likely due to a combination of reduced fighting intensity, diminished front lines to defend

and the need to ration artillery use.¹¹ HIMARS did make the Russians' logistics less efficient, forcing them to move ammo dumps out of range and reorganise in ways that reduced the overall fire rate. But these changes took place within a few months of HIMARS's appearance on the battlefield, over the course of the summer. The more significant constraint on the Russian side was, and likely remains, stockpile availability and the ammunition-production rate.

The main element was attrition, as months of heavy-artillery duels, reportedly costing both sides significant casualties, set the conditions for the counter-offensive.¹² Fighting over the summer in the Donbas depleted both Russian and Ukrainian forces, and forced the former to redeploy troops and assets out of Kharkiv *oblast* to defend elsewhere.¹³ Hence the offensive took advantage of six months of attrition, prior localised attacks in Izyum and Russia's structural deficit of manpower across a broad front.¹⁴

From this perspective, Ukraine's Kharkiv operations did not illustrate the effectiveness of precision-guided munitions so much as they highlighted the consequences of a low force-to-space ratio on the Russian side combined with steady attrition that enabled Ukrainian forces to manoeuvre. While Russian forces could observe the build-up of Ukrainian forces in Kharkiv in July and August, Russia still elected to relocate some of its best ground forces of existing formations deployed to Ukraine as part of the Eastern Group of Forces to southern Ukraine. Other units were engaged in fighting at Bakhmut, and much of the Central Group of Forces was unable to provide reinforcement. This left Kharkiv a thinly covered area with badly depleted, incohesive units that could not effectively mount a defence.¹⁵

Finally, while the initial phase of the Kharkiv offensive saw a breakdown of Russian command and control, and reportedly hundreds of Russian soldiers captured and a large inventory of Russian military kit seized, Russia's military leadership did not suffer general paralysis and breakdown. Following the initial defeat, the commander of the Western Group of Forces was quickly replaced by the former head of the Central Group of Forces, who 'aimed to restore' firm control over Russian forces.¹⁶ The new commander established temporary new defensive lines, first along the Oskil River then along the Krasna River, and Russian forces

fought several delaying actions. A Russian counter-attack across the Oskil failed. Establishing new defensive lines and coordinating a counter-attack, however, would not have been possible had there been a general breakdown of command and control in that sector of the Russian front.

The Kherson offensive

Likewise, attrition set the stage for Ukraine's successful Kherson offensive. But Kherson, unlike Kharkiv, proved a slog. Ukrainian forces enjoyed a favourable position, as the Russian front was separated from its logistical support by the Dnipro River. The right riverbank was connected via two roads and two rail bridges to Russian supply lines running from Crimea. Russian positions in Kherson were further bisected by the Inhulets River, meaning the front could be even further isolated by offensive action. Months of HIMARS strikes had limited the Russian logistical pipeline to one bridge at the Kakhovka dam and a network of ferries. In Kherson itself, Ukraine arrayed a sizeable force of brigades, backed by artillery, HIMARS, drones and fixed-wing aircraft. With Russian forces in no position to mount a counter-attack, the Ukrainians could prosecute their assault at will. Unlike in Kharkiv, however, Russian forces deployed in high density and included regular units from the Southern and Eastern groups of forces and elite airborne forces, later supplemented by reservists and newly mobilised personnel. The Ukrainian attacks thus encountered layered Russian defences, and both sides launched prolonged artillery, rocket and drone strikes in what became an arduous attritional fight.

Ukraine attempted to move along three axes – north, central and south – in hopes of severing Russian units along the right side of the riverbank, enveloping them in several spots and eventually pushing depleted forces back across the river.¹⁷ As in Kharkiv, Ukraine had been conducting localised attacks to gain better positions since the spring. This had led to a highly fluid situation, with towns changing hands. Ukrainian artillery and most importantly HIMARS systems had been striking Russian logistical hubs, bridges and critical infrastructure for two months in advance of the Ukrainian offensive. Its initial thrust, which started in late August, quickly stalled, with significant casualties taken.¹⁸ After replacing the commander,

a renewed Ukrainian offensive at the beginning of October made headway along the river, establishing a salient.¹⁹ Yet Russian forces were able to contain the breakthrough and maintain defensive artillery fire despite Ukrainian interdiction and long-range precision strikes.

Fighting at a disadvantage, the Russian commander sought to withdraw to pursue a defensive strategy and preserve the force, and was allowed to do so given that an attritional battle favoured Ukraine and a forced Russian retreat appeared inevitable.²⁰ Over several weeks, the Russians withdrew in an organised manner, taking their serviceable equipment with them. Western analysts had expected heavy Russian casualties from long-range precision strikes. But those strikes were unable to impede the withdrawal of 30,000 to 40,000 Russian troops from Kherson, and Ukraine could not force the collapse of the Russian lines.²¹ Russian forces left relatively unscathed.

Taking stock

Ukraine mobilised at the outset of the war. It was able to attain a significant personnel advantage and, with the benefit of Western military assistance, outlast the Russians in the Donbas by compelling them to expend soldiers they couldn't afford and lose their fires advantage, which left them vulnerable to Ukrainian counter-offensives. Attrition proved a double-edged sword: it weakened Russian forces, but also took a toll on Ukrainian forces. Both Ukrainian counter-offensives did involve direct attacks on Russian positions. In Kharkiv, however, attrition made defence infeasible for the Russian military, which chose to prioritise Kherson. For that reason, the Kherson counter-offensive was the more operationally significant operation. It was successful but costly, and allowed the Russian military to preserve its forces for redeployment elsewhere.

The Russian armed forces' qualified ability to adapt to HIMARS attacks has been underappreciated.²² Evidence suggests that HIMARS was not decisive, and that Russian difficulties had several causes. More broadly, attrition is a key element of Ukraine's strategy. This finding should not be surprising, as Ukraine's army features large artillery units, resembling the Russian army in force structure. It has struggled in combined-arms manoeuvre, and casualties have further degraded the quality of the force.

Neither army looks like it did at the beginning of the war, each having become a variegated force composed of mobilised personnel, auxiliaries, foreign fighters and, in Russia's case, mercenaries – including ex-prison inmates – in the Wagner Group.

Over the winter, Ukraine has sought to generate additional combat power and defend against localised Russian offensives. Despite making incremental gains outside Kreminna, Ukraine ceded the initiative to Russia between November and February owing to the need to recover from losses in the fight for Kherson, unfavourable weather and Russian pressure at Bakhmut. Ukraine has also had to divert resources to counter Russia's ongoing attacks on critical infrastructure, which threatened to deplete Ukraine's longer-term capacity to sustain the war. Shortfalls in materiel – above all, heavy artillery and air-defence ammunition – have also compromised Ukraine's war effort, and they are likely to persist through 2023.²³ Ukraine's approach depends heavily on ammunition, and uncertainties remain about its availability and production. The Ukrainian armed forces have been expending 2,000 to 4,000 artillery shells a day, outpacing foreign production rates and depleting Western stockpiles.²⁴ In addition, wear and tear on all platforms and weapons systems – especially tank and artillery barrels – amplified by high fire rates will increasingly become an issue; about a third of the Ukrainian forces' 350 Western-supplied guns are out of action at any given time. Western countries have sought to significantly increase production, but in the medium term shortfalls will have to be made up from strained US stockpiles.

Owing to its general mobilisation, Ukraine has no wholesale military-personnel shortage and can draw on a large pool of reserves. However, there remains a dearth of trained and experienced personnel, made more acute by high rates of attrition in some of the most elite units and formations of the Ukrainian armed forces. Ukraine is currently believed to field around 40 manoeuvre brigades, including activated reserve formations, but excluding the Territorial Defence Force.²⁵ Considering US casualty estimates and known Ukrainian equipment, a high percentage of these manoeuvre formations must have been depleted and replenished during the war.²⁶ General Valeriy Zaluzhnyi, their commander-in-chief, and a

fellow general wrote in September: 'The only way to radically change the strategic situation is undoubtedly for the Ukrainian Army to launch several consecutive, and ideally, simultaneous counterstrikes throughout 2023.' According to Zaluzhnyi, a large-scale offensive would require 'one or more operational (operational–strategic) groupings of forces consisting of 10 to 20 combined-arms brigades, depending on the intent and ambitions of the Ukrainian Command'.²⁷

The effects of attrition have been pronounced on both sides, as neither Ukraine's nor Russia's military appears capable of executing large-scale combined-arms manoeuvres that would mitigate them. A key question is therefore how quickly the Ukrainian armed forces can regenerate their offensive potential to conduct a sustained ground offensive against Russian forces in Ukraine. One indication of the difficulty of regaining combat effectiveness in existing manoeuvre brigades is the fact that in the past several months, the primary tactical unit on both sides has been not the battalion or brigade but rather the company. One Western analyst, using information from a Russian source, reported that a Ukrainian company tactical group as of June 2022 consisted of 20–25 tracked infantry fighting vehicles, 10–12 tanks, 6–12 self-propelled guns, up to six multiple-launch rocket systems, and 250–450 personnel.²⁸ Based on estimated casualty rates and equipment losses, current Ukrainian company tactical groups are likely much smaller.

The United States and its NATO allies are making focused efforts to address this challenge and related ones. The US is providing Ukraine with a qualitative advantage in precision fires and with others is equipping it with armoured fighting vehicles, including tanks, in quantity. Furthermore, the US Army has established in Germany a combined-arms training programme geared to battalion-sized units. In February, the programme's first five-week training course, involving approximately 635 Ukrainian soldiers and focusing on the M2 *Bradley* fighting vehicle, was completed. Two further courses – one centred again on the *Bradley* and another on M109 *Paladin* field artillery – were under way, with courses for a second *Paladin* rotation and an M1126

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Stryker battalion to follow.²⁹ The British-led, multinational *Operation Interflex* has provided immersive platoon-level training for thousands of Ukrainian troops, as well as leadership instruction for dozens of select Ukrainian officers in the United Kingdom.³⁰ In October 2022, the European Union set up the EU Military Assistance Mission Ukraine – EUMAM Ukraine – in part to provide training for an initial tranche of 15,000 Ukrainian soldiers, which is under way in Germany and Poland under Polish operational command and led by Dutch, French, German and Polish military officers.³¹ Salutary as these separate efforts are, there remains a need for coordination and standardisation among them, purposefully focused on combined-arms operations.³²

Ukraine still faces a daunting task. It no longer enjoys a personnel advantage, and faces an entrenched Russian military with a much higher density of forces relative to terrain. The introduction of additional land-based precision-fire capabilities, such as the American ground-launched small-diameter bomb, into Ukraine's arsenal is unlikely to fundamentally alter the military balance between the Ukrainian and Russian forces because the latter have been effectively adjusting to precision attacks.³³ These considerations suggest that future Ukrainian gains are likely to be more incremental and to come at higher cost, unless the Russian military significantly misspends combat power in its own offensive operations. Ukraine's preferred way of war centres on the use of artillery fire to facilitate decisive attritional effects on the opposing force, which it then exploits with manoeuvre. Accordingly, the war has produced high expenditures of ammunition and rates of casualties on both sides.³⁴ Land warfare still favours the defender and, between adversaries of comparable strength, breaking out of attrition and overcoming the defensive advantage is still far from easy. Future military operations in Ukraine will likely have more in common with the attrition phase in the run-up to the Russian withdrawal from Kherson city and *oblast* west of the Dnipro than the Kharkiv offensive.

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During spring and summer 2022, the Russian armed forces were short on personnel and capable leadership, for which they compensated with

concentrated fires, expending millions of shells. Being essentially an artillery army, they burned through a resource that was central to how they fought.³⁵ The Russian military now has more soldiers due to mobilisation, but it lacks the ammunition needed to sustain the rates of artillery fire it achieved earlier in the war. Hence it has gone from inferiority in mass and superiority in fires, to relative parity in mass and at best parity, if not inferiority, in fires. It also lacks experienced and well-trained soldiers, having lost much of its junior leadership and its best troops over more than a year of fighting. On balance, the Russian military may be unable to restore the offensive capacity it had earlier in the war.

Nevertheless, in January 2023, the Russians undertook a series of offensive operations focused on seizing the Donbas, counter-attacking Ukrainian positions outside Kreminna and launching offensives at Vuhledar and Mariinka. As of early March, these appeared unlikely to generate major breakthroughs, as the Russian military has continued to suffer from poor force quality and dwindling artillery ammunition. Moscow appeared intent on extending the war in the hope of making it materially unsustainable for Ukraine and its Western partners.

It remained unclear whether Ukraine could capitalise on these deficits over the course of the spring. It sought to maintain pressure on Russian forces while generating additional units to set up another major offensive. Unpacked, its war-fighting strategy has three components: symmetrical attrition of Russian forces selectively along a 1,000 km front line; extending Russian forces with simultaneous pressure along disparate segments of the front line; and, once those forces have been sufficiently weakened, offensive operations with manoeuvre characteristics, ideally in combined-arms mode.

Western assistance has brought Ukraine to an impressive point, but it's not clear that it can yield a fires advantage for Ukraine sufficient to ensure further operational breakthroughs or strategic gains. Seasoned analysts are anticipating a drawn-out conflict.³⁶ In this light, it is sensible for the Pentagon and allied defence ministries to try to scale up combined-arms training and provide additional types and greater numbers of precision-guided weapons. Higher combined-arms proficiency could offer Ukraine a qualitative advantage on the battlefield by enabling its forces to more

effectively coordinate the joint use of weapons systems such as armoured infantry fighting vehicles, main battle tanks, self-propelled artillery and air-defence systems, among other assets. Even with more effective wide-scale combined-arms training and precision strikes, however, it is unlikely that the Ukrainian armed forces will be able to escape attrition.

Notes

- 1 See Robert Dalsjö, Michael Jonsson and Johan Norberg, 'A Brutal Examination: Russian Military Capability in Light of the Ukraine War', *Survival*, vol. 64, no. 3, June–July 2022, pp. 7–28.
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- 3 See Henry Foy et al., 'The 90km Journey that Changed the Course of the War in Ukraine', *Financial Times*, 27 September 2022, <https://ig.ft.com/ukraine-counteroffensive/>.
- 4 See Mari Saito, Maria Tsvetkova and Anton Zverev, 'Abandoned Russian Base Holds Secrets of Retreat in Ukraine', *Reuters*, 26 October 2022, <https://www.reuters.com/investigates/special-report/ukraine-crisis-russia-base/>.
- 5 See Isobel Koshiw, Lorenzo Tondo and Artem Mazhulin, 'Ukraine's Southern Offensive "Was Designed to Trick Russia"', *Guardian*, 10 September 2022, <https://www.theguardian.com/world/2022/sep/10/ukraines-publicised-southern-offensive-was-disinformation-campaign>.
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- ¹¹ See Natasha Bertrand, Oren Liebermann and Alex Marquardt, 'Russian Artillery Fire Down Nearly 75%, US Officials Say, in Latest Sign of Struggles for Moscow', CNN, 10 January 2023, <https://www.cnn.com/2023/01/10/politics/russian-artillery-fire-down-75-percent-ukraine/index.html>.
- ¹² See Marc Santora, 'Hard-hit Kharkiv Is Rocked by More Blasts', *New York Times*, 17 August 2022, <https://www.nytimes.com/live/2022/08/17/world/ukraine-russia-news-war#a-missile-strike-on-a-residential-building-in-kharkiv-kills-at-least-6-people>.
- ¹³ See Yana Dlugy, 'Ukraine's Heavy Losses', *New York Times*, 1 June 2022, <https://www.nytimes.com/2022/06/01/briefing/russia-ukraine-war-military-morale-east-nuclear.html>.
- ¹⁴ See Jason Beaubien, 'Ukraine's Offensive in Kharkiv Was Hard and Bitter, Say Soldiers Who Did the Fighting', NPR, 29 September 2022, <https://www.npr.org/2022/09/29/1125278321/ukraine-offensive-russia-borshchovakharkiv-oblast>. Regarding heavy losses in Lyman, see 'James', 'The Bloodiest Battle of the War: An Encirclement of the Russians at Lyman Could Upset the Entire Front', *Postmedia*, 30 September 2022, <https://thepostmedia.com/world/90093.html>.
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- ¹⁷ See Isabelle Khurshudyan et al., 'Inside the Ukrainian Counteroffensive that Shocked Putin and Reshaped the War', *Washington Post*, 29 December 2022, <https://www.washingtonpost.com/world/2022/12/29/ukraine-offensive-kharkiv-kherson-donetsk/>.
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- ¹⁹ See Khurshudyan et al., 'Inside the Ukrainian Counteroffensive that Shocked Putin and Reshaped the War'.
- ²⁰ See Sam Mednick, 'Russia Announces Withdrawal from Key Ukrainian City of Kherson in Another Setback for Invasion', PBS News

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- ²³ See Roman Olearchyk and Ben Hall, 'Military Briefing: Escalating Air War Depletes Ukraine's Weapons Stockpile', *Financial Times*, 13 December 2022, <https://www.ft.com/content/fbd6dc6e-4a41-4bfa-977b-8c3ef4482dcc>.
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