

OPERATIONALIZING INTELLIGENCE THROUGH SMALL UNMANNED AIRCRAFT SYSTEMS

BY CAPTAIN JOSE A. LOPEZ

Silent Wings Over Donetsk Ridge

Author's note: This vignette is a fictitious representation of a non-existent unit.

The frigid winds swept across the Donetsk Ridge as the first light of dawn struggled to pierce the overcast skies. Snow-covered hills and dense forests flanked the valley, masking the movements of both Russian and Ukrainian forces. Kaptain Oksana Marchenko, intelligence officer for Ukraine's 123rd Mechanized Brigade, stood in the tactical operations center at Kramatorsk, her brow furrowed as she analyzed the fragmented intelligence reports coming from forward positions.

The brigade's mission was to advance along the ridge toward the transport hub at Bakhmut, a vital supply line for ongoing defensive operations to the east. Success depended on precise coordination, reliable intelligence, and the ability to outmaneuver the Russian forces entrenched in the area. However, the enemy's activity was subtle but ominous. Intermittent artillery fire and sightings of loitering munitions suggested a coordinated Russian presence. The valley's jagged terrain, narrow routes, and frequent electromagnetic interference rendered traditional reconnaissance assets almost useless.

The brigade's imported small unmanned aircraft systems were limited by range and increasingly affected by Russian electronic warfare systems. The cavalry reconnaissance unit, maneuvering along icy trails, had limited visibility and feared ambushes. Their approach was deliberate and in line with the brigade's sectorized collection plan, assigning areas of responsibility to each organization in an effort to synchronize collection and maximize visibility of the enemy.

The Russian response came swiftly. As two companies from the 1st Mechanized Battalion pushed through a bottleneck near Chasiv Yar, a carefully orchestrated ambush unfolded. Lancet loitering munitions struck the lead vehicles, sowing confusion. Concealed infantry and anti-tank guided missile teams launched a second wave of strikes. With visibility low and communication disrupted by jamming, the forward units were pinned down, unable to advance or retreat.

At the tactical operations center, Marchenko realized the adversary was exploiting the brigade's intelligence gaps, leveraging terrain and electronic warfare. Without real-time situational awareness, the brigade risked losing tempo and its ability to counterattack. The limits of traditional intelligence, surveillance, and reconnaissance platforms were evident, and immediate action was needed to avoid catastrophe.



U.S. Army Soldiers assigned to 1st Battalion, 4th Infantry Regiment, Joint Multinational Readiness Center, Hohenfels, Germany, remotely operate a quadcopter in the Hohenfels Training Area, during Combined Resolve X, May 2, 2018. (U.S. Army photo by 1LT Matt Blubaugh)

Maximizing Capabilities

The fictional scenario of Kaptain Marchenko's struggle in Donetsk illustrates a critical challenge modern militaries face: the integration and synchronization of small unmanned aircraft systems (SUAS) within combat operations. This article seeks to drive a necessary discussion of the critical role of SUAS in enhancing situational awareness, target acquisition, and decision making at the brigade level. The introduction of SUAS revolutionized traditional reconnaissance methods and continues to empower commanders to shape the battlefield, enabling greater agility and precision in dynamic environments. This article presents two key frameworks—the Sector Collection Approach and the Ready Reserve Concept—to optimize SUAS employment and emphasizes the importance of integrating collection management into operational planning. These processes align with the Army's Transformation in Contact effort, where the collection manager must evolve from an asset allocator to an advisor on effects and capabilities.

Recent military conflicts illustrate the consequences of de-synchronized intelligence, surveillance, and reconnaissance (ISR) collection. Uncoordinated and ill-equipped collection efforts create intelligence gaps, often leading maneuver forces to advance blindly into well-prepared enemy defenses. The U.S. Army is currently fielding short-, mid-, and long-range reconnaissance capabilities (particularly SUAS) at the brigade level that present a new set of opportunities and challenges. Without a standardized framework for integrating SUAS, intelligence professionals struggle to effectively drive operations and targeting. The war in Ukraine provides a clear demonstration of this challenge, with units facing ambushes and tactical setbacks due to inadequate real-time intelligence.¹ These lessons underscore the urgent need for brigades to evolve their ISR collection practices. By leveraging SUAS capabilities,

units can maintain continuous surveillance, enable timely targeting decisions, and reduce operational vulnerabilities. Adapting ISR methodologies at the brigade level is crucial to preventing tactical paralysis and maintaining a decisive edge on the modern battlefield.²

To fully leverage SUAS capabilities, commanders must fundamentally shift their perspective on reconnaissance. Instead of viewing it as a set of discrete tasks, they need to embrace reconnaissance as an interconnected system.³ This paradigm shift treats SUAS as expendable assets, prioritizing intelligence gathering over platform preservation and accepting calculated losses to ensure mission success. This allocation of assets and the acceptance of potential losses will always be a commander-dependent decision based on the overall maneuver.⁴ By adopting this mindset, brigade-level leaders can maximize their collection assets, ensuring timely, reliable intelligence that drives decision making. This approach mitigates reactive information gaps and fully harnesses the transformative potential of SUAS in modern warfare.

Maximizing the use of SUAS fundamentally transforms reconnaissance and intelligence operations by reducing risk, extending operational reach, and shaping the battlespace.⁵ A U.S. Army brigade with short-, mid-, and long-range reconnaissance SUAS can simulate activity, deceive adversaries, and gather intelligence in real time, rather than relying solely on physical troop movements to provoke enemy reactions. For example, SUAS equipped with electronic warfare payloads could potentially disrupt enemy air defense radars, a capability previously limited to higher-echelon assets. Such capabilities conceal true operational intent and manipulate adversary perceptions, shaping their decision making before direct engagement.⁶

Theoretical Frameworks for Employment

The modern battlefield demands rapid intelligence collection, analysis, and action for operational success. The Joint Multinational Readiness Center is uniquely postured to observe diverse collection practices across light, medium, and heavy U.S. units undergoing transformation in contact, as well as multinational brigades, and, most importantly, through dialogue with Ukrainian soldiers being trained as part of the Joint Multinational Training Group-Ukraine mission. Emerging tactics, techniques, and procedures identified through training with the Ukrainians showcase innovative SUAS employment and enhance brigade-level intelligence operations, particularly through the Sector Collection Approach and the Ready Reserve Concept.

The Sector Collection Approach. This approach divides the area of operations into smaller sectors aligned with named areas of interest and target areas of interest.⁷ This division prioritizes collection efforts, mitigates SUAS capability gaps (terrain and limitations), and enhances control and coverage.

Together with the centralized intelligence collection synchronization matrix, this approach empowers subordinate commanders to allocate SUAS within their sectors based on specific threats while maintaining the brigade's overall collection priorities. The brigade sections the area of operations and assigns requirements to its battalions, while battalions operate within these sectors, dynamically allocating and re-tasking the SUAS based on real-time threat activity and environmental factors. This structure enables early threat detection, supports the cueing of fires and maneuver forces, and creates redundancy in SUAS collection across the brigade front. By integrating doctrinal planning tools with responsive drone employment, units establish a layered SUAS network capable of adapting to complex and evolving threats.

For example, as part of a brigade defense (see figure 1 on the next page), the intelligence section divides the area of operations into battalion sectors, and then further subdivides each sector into smaller collection sectors (e.g., Sector Red, Sector White, Sector Blue). Each battalion is assigned named areas of interest within its sector based on likely enemy avenues of approach.

In Sector Blue, Task Force Blue observes enemy mechanized infantry elements probing near Sector Blue 1. A battalion's organic SUAS detects the movement and initiates surveillance. Minutes later, more enemy forces appear in Sector Blue 2, forming what appears to be a flanking maneuver. The battalion assigns another drone to maintain custody of the second element while cueing the brigade's mid-range reconnaissance assets forward into the brigade sector to look for follow-on forces. This also allows the long-range SUAS to continue with the developed collection plan to further confirm or deny enemy actions. These actions prevent enemy deception or a multi-pronged breach. Task Force White repositions its drones to cover adjacent sectors, enabling cross-cueing between battalions.

Because each battalion controls its ISR assets within clearly defined sectors, and brigades retain flexible ISR options, the unit reacts in real time to a complex enemy movement, reallocates sensors dynamically, and denies the adversary freedom of action.

The Ready Reserve Concept. Supporting this framework is a tactical drone reserve composed of SUAS capable of multiple effects (collect, decoy, jam, one-way attack, etc.) that offer the brigade commander operational flexibility. The Ready Reserve responds rapidly to threats or fleeting opportunities while enabling intelligence collection to develop the operational environment. The Ready Reserve's intent is to provide a flexible framework that supports operational needs, targeting, and intelligence collection, thus creating a layered intelligence network that enhances situational awareness and operational agility. (See figure 2 on the next page.)

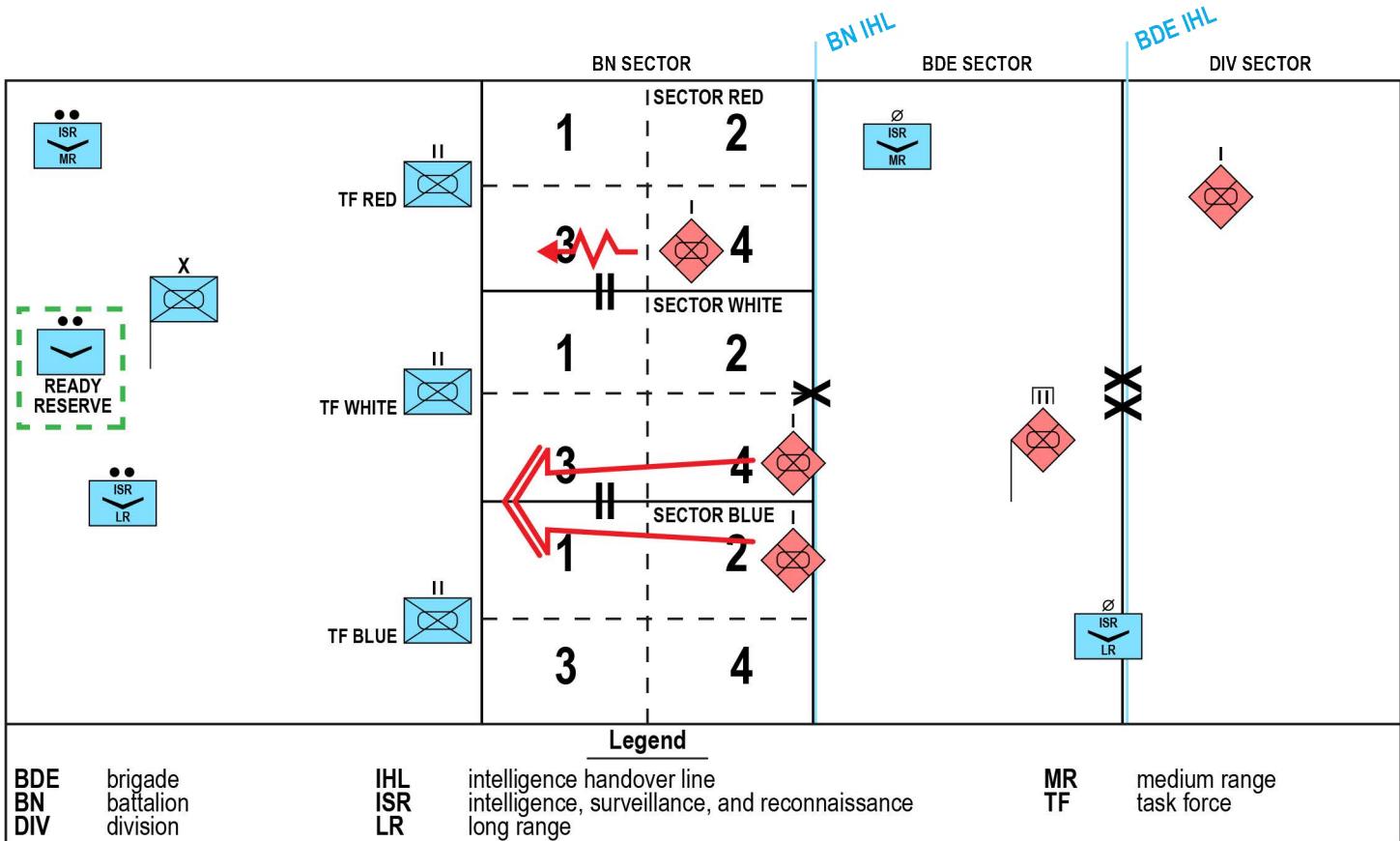


Figure 1. Sector Collection Approach

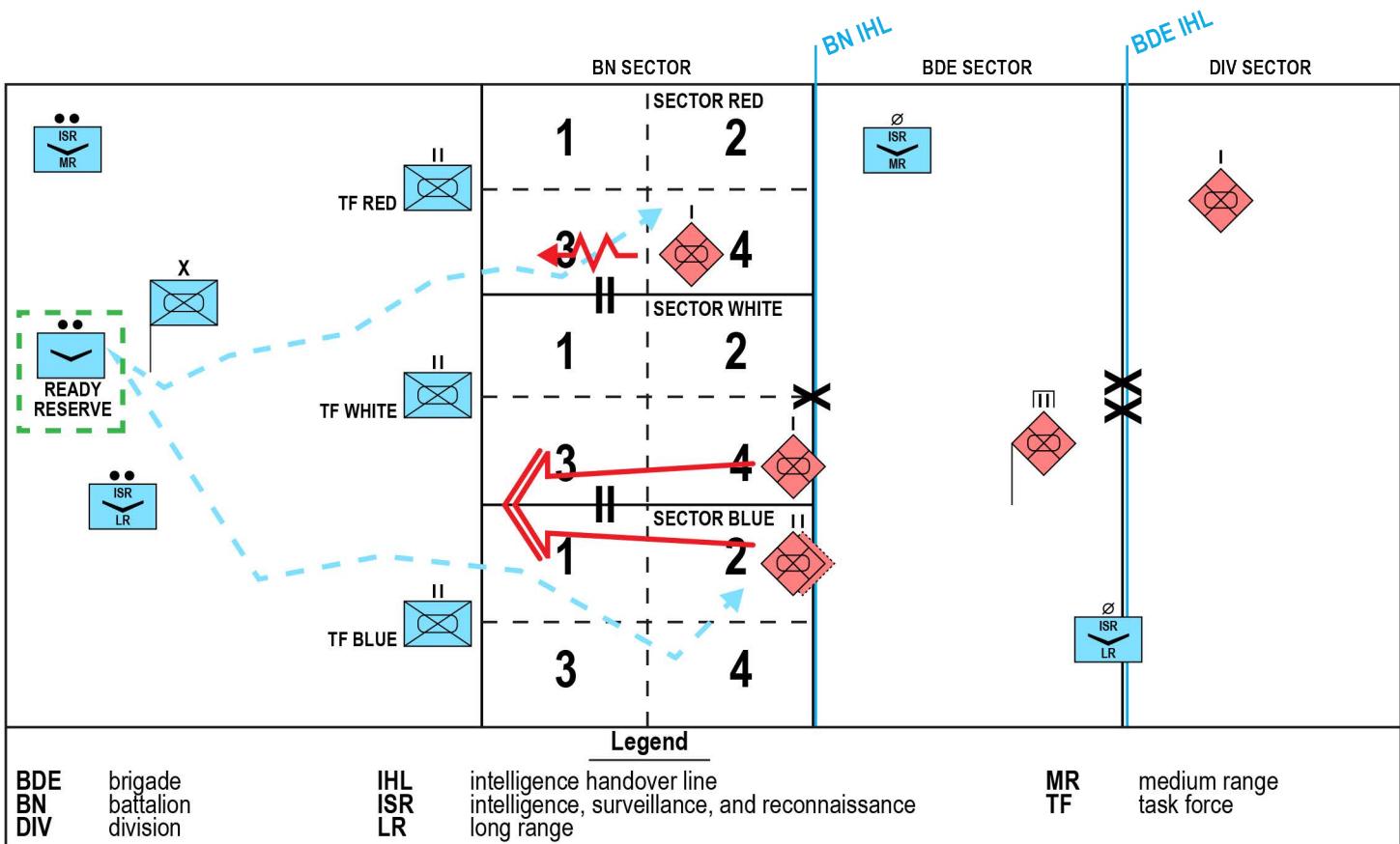


Figure 2. Ready Reserve Concept



A 3rd Brigade, 10th Mountain Division Soldier conducts security at Hohenfels Training Area, Joint Multinational Training Center, Germany, January 30, 2025. (U.S. Army Reserve photo by SSG Miguel Miolan)

For instance, consider the previous scenario. Following the detection of enemy elements in Sector Blue, the battalion's SUAS maintain persistent observation, confirming that the enemy is shaping conditions for a breach. As two mechanized enemy companies mass at the boundary between Sector Blue 2 and the battalion intelligence handover line, Task Forces Blue and White identify indicators of a coordinated penetration attempt.

Despite maintaining ISR coverage within its sector, Task Force Blue's organic SUAS are already fully tasked. To address the threat without stripping coverage from other sectors, the brigade collection manager activates the Ready Reserve. The Ready Reserve rapidly launches additional drones to reinforce surveillance in Sector Blue and extend observation into the adjacent brigade sectors.

As these reserve drones begin tracking follow-on enemy echelons along a concealed route, the intelligence section directs the cueing of mid-range reconnaissance SUAS to extend depth and maintain continuous custody. Fires and maneuver elements adjust their disposition based on real-time imagery and target confirmation. The ability to surge SUAS from the Ready Reserve enables the brigade to maintain situational awareness, support fires coordination, and deny the enemy freedom of movement—all without degrading the ISR posture in other sectors. This capability challenges the traditional tenet of “no reconnaissance in reserve.” The Ready Reserve SUAS are best viewed not as assets to be conserved, but as a force ready to be committed to gain and maintain contact with the enemy.⁸

Transforming Collection Management in Contact

One of the primary challenges to fully operationalizing a SUAS framework is the brigade collection manager's limited,

often reactive role. Many collection managers today focus on tasking and asset allocation but lack the training to integrate SUAS into operational planning and maneuver synchronization.⁹ This reactive posture results in drone missions driven by immediate requests rather than proactive collection plans, perpetuating the enduring dilemma of “fighting the plan, not the enemy.”

To meet the demands of modern warfare, the collection manager must evolve from a platform allocator into a force enabler—one who drives collection by managing effects and capabilities as integral components of operational design. The brigade collection manager's span of control is limited; this requires collection managers at all echelons to prioritize establishing a clear commander's intent and enabling subordinate battalions to independently plan and execute SUAS missions that support the brigade's objectives.

The collection manager of 2030 must possess a unique blend of technical expertise, operational awareness, and doctrinal fluency. Courses like the Information Collection Planners Course are essential, but collection managers must also develop a deep understanding of SUAS employment—specifically the range, payloads, and limitations that shape tactical options. This role also exceeds the capacity of a single individual. Dedicated collection management teams at brigade and battalion levels are essential for distributing responsibilities between current and future operations to ensure continuous support, proactive planning, and timely employment of collection assets.¹⁰

For this framework to succeed, collection management teams must integrate with maneuver units throughout training, rehearsals, and execution. Integration of SUAS should be a core element of operational planning, enabling SUAS

to function as organic extensions of maneuver forces for target development, reconnaissance, deception, and force protection. During operational planning at the brigade and battalion levels, intelligence sections should proactively recommend how to maximize SUAS employment to commanders and operations elements.

Consider a scenario where the brigade's objective is to attack and seize key terrain held by a degraded enemy force in hasty defensive positions. The enemy consists of two mechanized infantry companies in the front, and one in the rear as a second echelon. Intelligence assessments indicate that the rear company lacks sufficient combat power to maneuver and has entrenched itself in a tactically advantageous position that could threaten friendly forces during their approach.

To mitigate this threat, the intelligence section proposes to the operations element that a portion of the SUAS assets be employed to fix the degraded enemy force. This can be achieved through a combination of drone sound propagation, one-way attack SUAS, and jamming, synchronized with a coordinated fires plan. By executing this plan, friendly forces can divert minimal combat power to fix the entrenched enemy, freeing maneuver elements to sustain the main effort and achieve a successful penetration and envelopment of the adversary.

This example illustrates how deliberate SUAS integration can enhance operational flexibility, maximize combat power, and create opportunities for battlefield success. Lessons from the Ukrainian conflict underscore the urgency of doctrinal adaptation to match the rapid pace of technological advancement. Integrating SUAS into traditional reconnaissance and operational planning enhances decision making and creates new opportunities for ISR-driven maneuver warfare. However, success hinges on robust training, resilient communications, and a deliberate approach to integrating SUAS into tactical and operational frameworks.

At the center of this transformation is the evolving role of the brigade collection manager, who must shift from an asset allocator to a capabilities-and-effects integrator. The collection manager ensures SUAS operations align with the commander's intent, synchronizing real-time intelligence collection with maneuver and targeting to generate decision advantage in dynamic environments. Frameworks such as the Sector Collection Approach and Ready Reserve enable this integration, providing structured methods for SUAS employment that support reconnaissance, targeting, and strike operations. By leveraging these frameworks and embedding SUAS into doctrinal planning, training, and execution, brigades can achieve intelligence overmatch—empowering commanders with superior decision making, enhanced lethality, and operational adaptability on the modern battlefield.



Turning the Tide

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Kaptain Marchenko quickly leveraged the Sector Collection Concept, prioritizing critical zones near Chasiv Yar and along the surrounding ridgelines. Each grid received overlapping coverage tailored to terrain and threat indicators, enabling persistent and responsive intelligence collection.

Flying low and exploiting terrain for concealment, the SUAS network began to illuminate the battlefield. In one sector, drone feeds identified concealed mortar teams responsible for earlier indirect fire. In another, intercepted signals and thermal imagery revealed a Russian command post camouflaged within a cluster of abandoned buildings. The brigade's decentralized, but synchronized, plan allowed subordinate units to control their organic SUAS while remaining nested within the broader collection architecture, ensuring rapid exploitation of sensor data and reducing intelligence, surveillance, and reconnaissance latency.

As the intelligence picture developed, Marchenko identified a critical gap in the enemy's array—a seam between two Russian elements that left their flank exposed. Acting as the brigade's collection manager and subject matter expert, she immediately advised the operations officer and the commander that conditions had been met to transition from shaping to decisive action. She recommended employing the Ready Reserve, specifically its strike drone capability equipped with a first-person view, to fix the enemy in place and deny maneuver options. This would create conditions for committing Anvil Company, the brigade's reserve force, to exploit the gap and strike deep into the enemy formation, forcing an early culmination of the enemy's attack.

Moments later, a Ready Reserve drone confirmed the command post's location in real time. The tactical operations center coordinated an immediate artillery strike, disrupting the enemy's ability to command and control. With their leadership node destroyed and forward elements disoriented, Ukrainian forces regained momentum and pushed through the ridge to secure Bakhmut. Deprived of coordination and overwhelmed by precision effects, Russian forces were forced into a hasty retreat.

Endnotes

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