

# Drones Redefine Warfare

## Lessons from Operation Sindoor and Beyond

India's use of drones in Operation Sindoor signals a turning point in modern warfare, as unmanned systems reshape strategy, deterrence, and defence preparedness.

In the shifting landscape of modern warfare, drones have rapidly emerged as the frontline tools of combat. Once limited to surveillance, drones—or Unmanned Aerial Vehicles (UAVs)—are now spearheading offensive operations, redefining military strategy and doctrine. India's recent Operation Sindoor, launched in response to the Pahalgam terror attack, marks a critical turning point in the country's approach to drone warfare, underscoring a broader global trend that is revolutionising battlefields.

### Operation Sindoor: A Tactical Shift

In Operation Sindoor, the Indian Armed Forces integrated drones with standoff weapons to execute precision strikes on terror targets in hostile terrain.

This marked the first significant instance of drones being used offensively in a domestic anti-terror operation. The move signals India's willingness to adapt to the new realities of combat, where drones offer real-time surveillance, surgical precision, and minimal risk to human lives.

India's drone doctrine, still in evolution, draws heavily from global precedents. Countries like Ukraine, Azerbaijan, and Myanmar have demonstrated how drones—both military-grade and improvised commercial variants—can reshape battle outcomes. Ukraine's Operation Spider Web, for instance, inflicted significant damage on Russian air bases using low-cost UAVs, showing how accessibility and innovation can rival brute force.

### The New Face of Combat

Drones are no longer niche tools—

they're now central to warfare. Their use blurs the line between military and civilian technology. Commercial off-the-shelf drones, often modified with open-source software and 3D-printed components, are

made "kamikaze" drones like the Harop to dismantle Armenian air defences.

Similarly, Ukraine's war with Russia has transformed into a drone-versus-drone theatre, with swarm tactics, electronic warfare,

mestic manufacturing—a lesson underscored by Ukraine's industrial adaptability.

The use of 3D printing, as seen in Myanmar and Ukraine, offers India a roadmap to decentralise and expedite drone production. This shift can bypass traditional supply chain bottlenecks and empower both state and private defence sectors to scale up swiftly during a crisis.

### Way Forward

To stay ahead in this fast-evolving domain, India must invest in a robust defence industrial base. This includes incentivising private manufacturers, reducing procurement uncertainty, and supporting R&D in modular drone systems and AI-enabled navigation.

Moreover, India's defence planners need to see drone warfare not as a standalone tool, but as a complement to its existing arsenal—a bridge between conventional and asymmetric capabilities, especially in scenarios along the Line of Actual Control (LAC) with China or volatile borders with Pakistan.

### Building Resilience in Drone Warfare

India's Integrated Air Command and Control System (IACCS) proved effective in recent skirmishes, intercepting numerous drone incursions from across the border. However, experts warn that resilience in drone warfare depends on redundancy and scale. India must be prepared for high attrition rates and sustain drone losses through rapid, do-

capable of offensive operations once reserved for expensive, complex aircraft.

India, like other major powers, is learning that the future lies in volume, modularity, and adaptability. Operation Sindoor is a case in point: employing drones enabled strategic ambiguity and demonstrated India's capacity to strike with precision, speed, and minimal escalation. It sends a strong message, especially to adversaries like Pakistan and China, both of whom are rapidly building their own drone arsenals.

### Global Lessons and Emerging Threats

The 2020 Nagorno-Karabakh war was an early wake-up call, where Azerbaijan's success relied heavily on Israeli-

