Control of Operational Fires: Necessity of Reconnaissance, Intelligence, Surveillance, and Targeting Brigades

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Abstract

The article examines the evolving relevance of Reconnaissance, Intelligence, Surveillance, and Targeting (RISAT) Brigades as the central mechanism for enabling operational fires in future Indian military operations. Drawing on lessons from recent global conflicts and India's Operation Sindoor, it argues that modern warfare is defined by multi-domain integration, technologically dense battlespaces, and the decisive impact of non-contact and non-lethal capabilities. The study highlights gaps in India's current intelligence, surveillance, and reconnaissance-targeting architecture and proposes the urgent creation of dedicated RISAT Brigades to synchronise sensor-shooter integration across land, air, sea, cyber, space, electronic, and information warfare domains. It further stresses the need for doctrinal clarity, structural reforms, digitisation, and joint training across all arms and services. The article concludes that compressing the observe–orient–decide–act loop will be central to achieving battlefield advantage, and that India must build integrated operational-level headquarters, strengthen multi-domain competencies, and modernise training to ensure the effective prosecution of operational fires in future conflicts.

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Introduction

Recent announcements by India's senior military leadership—including the reorganisation into Rudra Brigades, Bhairav Light Commando Units, and Divyastra Artillery[1] formations—signal the beginning of a doctrinal and structural shift toward multi-domain integration. Coupled with the Chief of the Air Staff's call for rapid enhancement of capabilities and joint operational synergy[2], these announcements reflect an institutional recognition that future wars will be fought simultaneously across the land, air, maritime, cyber, space, and information domains. In recent years, the Indian Armed Forces have rapidly expanded their capabilities and capacities. But while the forces are enhancing their lethality and integration, what is happening on the critical aspect of coordination?

The prolonged Russian–Ukrainian War has thrown up undeniable realities, from the coexistence of multi-generational warfare to the overarching need to upgrade multi-domain operational synergy.[3] The need to rapidly adapt battlefield tactics, techniques, and procedures in response to technological advances while in active combat was also a unique lesson in modern warfare. The lessons emerging from recent conflicts, whether it be Armenia–Azerbaijan, Israel–Hamas and Palestine, Russia–Ukraine or Operation Sindoor, are two indisputable realities. Firstly, non-contact kinetic warfare is here to stay. Secondly, non-lethal fires are an equally important game-changer in warfare.

Against this backdrop, the concept of 'Operational Fires'—the synchronised employment of lethal and non-lethal means for achieving effects at the operational level—demands a coherent, technologically enabled Reconnaissance, Intelligence, Surveillance, and Targeting (RISAT) architecture.

Operational Fires

Operational fires are a critical component of modern joint warfare, ensuring the seamless integration of land, air, naval, space, and information warfare forces to achieve operational objectives that may have a strategic impact. In joint operations, effective operational fires will enhance combat effectiveness, battlefield dominance, and overall mission success. For the Indian Armed Forces, operational fires will play a crucial role in countering threats from adversaries. They will serve as a force multiplier by shaping

the operational and strategic environment before direct engagements. Presently, the concept of operational fires in the Indian Armed Forces' context is at a nascent stage and needs further impetus.

A strict definition of operational fires is challenging to find; however, a recommended one would be, 'The synchronised application of kinetic and non-kinetic means to achieve lethal and non-lethal effects of all available assets to include fire power, information warfare (including Electronic Warfare [EW], cyber, and psychological warfare) and space warfare resources to achieve operational objectives'. It would empower tactical operations and may also have a strategic effect.

It would be pertinent to differentiate between kinetics and lethality. The kinetic or non-kinetic aspect refers to the weapon system or means of delivery, while lethal or non-lethal is the effect of such a weapon system on the target. Thus, a kinetic weapon system may have both lethal and non-lethal effects. Similarly, a non-kinetic weapon system may also cause a lethal effect. For example, the impact of the Stuxnet virus—a sophisticated cyber weapon or 'Computer Worm' discovered in 2010—on the Iranian nuclear facility, leading to the burnout of the nuclear enrichment equipment. Similarly, in 2020, the Taiwanese water utilities were disrupted by cyberattacks that manipulated data and interrupted the distribution system.[4] Its lethal potential was especially critical during the COVID pandemic that gripped Taiwan at the time, as the lack of a suitable water supply exacerbated the health crisis.

Air strikes are typically kinetic attacks. However, intense bombardment can cause psychological impacts. A case in point would be the surrender by Lieutenant General Amir Abdullah Khan Niazi of the Pakistan army in the aftermath of the Indian Air Force bombing on the Governor's Palace in East Pakistan (modern-day Bangladesh), where he was residing, presenting a befitting example of the non-lethal effect of a kinetic application of force.[5]

Lessons from Recent Conflicts

Armenia–Azerbaijan Conflict. The Armenia–Azerbaijan conflict was the first in recent times amongst near-equals in which technology decided the outcome of the war. A massive drone assault paralysed the Armenian Air Defence. Long-range vectors

and the Air Force followed this up. The ground attack came up last. The conflict underscored the importance of integrating drones, sensors, non-contact kinetic long-range vectors, and missile strikes to achieve battlefield victory. This conflict showcased the decisive effects of drones, loitering munitions, EW, and real-time targeting networks. Technology decided the outcome.

Russia–Ukraine Conflict. The Russia–Ukraine conflict is a significant preview of future disputes worldwide. It saw the integrated application of drones (in multiple roles spanning from surveillance and reconnaissance to kamikaze strikes) utilising an international communication system (Starlink) for communication and targeting.[6] The war commenced with a mass application of force, where visuals of massive, armoured formations mobilising across the Ukrainian frontier flooded the media. The Russian airpower, using aircraft as long-range artillery, commenced the show. Soon, the tables started to turn, and the war today is a kaleidoscope of World War II trench warfare to the prosecution of punitive strikes using drones, missiles, and artillery. EW, both kinetic and non-kinetic, information warfare, and cyberattacks by both the warring factions and their supporters worldwide, too, play an intricately woven war narrative. Also of great interest is Ukraine's utilisation of naval drones as a non-naval power to chase the Russian fleet out of the Black Sea.[7] Some key features of the war were:

- Persistent Intelligence, Surveillance, And Reconnaissance (ISR) from satellites and commercial imagery.
- Drones as reconnaissance, strike, and EW assets.
- Naval drones are reshaping maritime battlespace.
- Heavy use of cyber and information warfare.
- Targeting cycles reduced to minutes.

Operation SIndoor. Operation Sindoor has brought 'Home' the impact of modern warfare. A community-specific terrorist attack in Pahalgam galvanised the nation to prosecute targeted strikes on terrorist camps deep inside Pakistan and Pakistan-occupied Jammu and Kashmir. However, what continued to unfold till Pakistan waved the white flag was a display of integrated application of resources and forces, albeit at the strategic level. Trade integrated into

modern warfare as a weapon is also manifesting itself not just between the rivals but across the globe. Diplomatic parleys to cease the war continued during the period with vested national interests.

Challenge of Integrating Operational Fires

The lessons from Operation Sindoor applied to the Indian context continue to unfold. Speaking on the occasion of Kargil Vijay Diwas 2025, the Chief of the Army Staff informed about the changes trickling in with the raising of the Rudra Brigades, Bhairav Light Commando Units, and Divyastra Artillery formations.[8] Loiter munitions and drones are the primary focus of the Indian Army's procurement, with drones being introduced to the infantry battalions as well. Speaking at Ran Samvad 2025, the Chief of the Air Staff cited the coordination in Operation Sindoor as a proof of joint planning and execution to be the reason for its success.[9] The Chief of Defence Staff (CDS), General Anil Chauhan, while warning of a 'Further Evolving' military threat involving long-range precision vectors, has also highlighted the importance of cyber, intelligence, and countering disinformation in any future war narrative.[10] The importance of ISR is also evident from the CDS's announcement at the Defence Space Symposium of launching 52 dedicated ISR satellites, as well as the publication of a military space doctrine.[11]

A comprehensive look at all these developments indicates that the future wars will be primarily dominated by the employment of extensive ISR assets for forewarning, continuous reconnaissance of the area of interest, and assessment of targeting requirements. Targeting will focus on stand-off and long-range weapon systems, whether it be the air force or artillery. The 'Tactical Battle Area', if ground forces join battle, will be dominated by an intensely contested electronic and air space. In addition to the strategic dimensions, the entire tactical and operational battle space will be enveloped by a coordinated effort across cyber, space, diplomacy, and economics.

Coordinating Effort: Operational Fires

Future battlefields will depend heavily on information, intelligence, and knowledge, and how they connect forces through a networked command, control, communications, computers, combat, intelligence, interoperability, surveillance, and reconnaissance

system. More than ever, the advantage will go to the side which can gather the most critical information, analyse it accurately and quickly, and then rapidly and securely share it along with the associated instructions with forces. Equally important is the speed of analysis, decision making, and targeting, using the right equipment and optimal methods to hit the target.

Across the operational battle space, ISR and targeting is an operations branch responsibility, headed by officers primarily from the Corps or Divisional Headquarters (HQ). However, the staffing of the ISR and targeting command and control centres of both these HQs is done by artillery personnel. There is no single HQ to coordinate RISAT's efforts on a full-time basis. The seven key gaps are:

- **Structural Fragmentation**. ISR is an ongoing process across peace and conflict or near-conflict situations, which is a constant reality along the Northern and Western borders. This is neither collated across the frontier nor archived. There is a complete lack of historical data, and primary reliance is placed on individual knowledge or word of mouth.

- **High Personnel Turnover**. Turnover of personnel erodes institutional memory and, in turn, diminishes understanding of the larger intelligence picture. The rapid turnover of manning personnel is aggravated by a lack of specialisation in the task.

- **Lack of Automation and Artificial Intelligence (AI)-enabled fusion**. While measures to automate are underway, the Indian Armed Forces are a long way from achieving a desirable degree of automation. The integration of AI on this database for intelligence extraction and targeting, if required, is absent as of this date. A case in point is the extensive use of AI by Israel in the recent conflict in Gaza. Their AI system, named Gospel, identified suitable targets post-analysis and presented them to the human interface, significantly reducing the Observe-Orient-Decide-Act (OODA) loop.[12]

- **Multi-domain Integration**. Multi-domain integration leaves much to be desired. At the tactical level, the higher picture is entirely absent. In an intense combat or contact situation, this can lead to fatal errors in judgment and the application of forces.

- **Weak Airspace or EW Spectrum Coordination**. There is an absence of 'Intelligensiation' to comprehend significant inputs, especially across a broad front and from multiple inputs to include the EW and airspace spectrum. In fact, there is currently no single point of convergence for all these inputs.

- **Insufficient Jointness**. Absence of a single, coordinating full-time HQ to the integrated ISR-targeting continuum.

- **Training Shortfalls**. There is a lack of suitably trained officers and other ranks to comprehend capabilities and capacities across the arms, services, and other services, including the Indian Navy, Indian Air Force, Central Armed Police Forces, local and central intelligence agencies, civil administration, and media houses.

Case for Dedicated Reconnaissance, Intelligence, Surveillance and Targeting Brigades

The emerging battlefield is crowded with digitised tools, data-driven decision making, technology absorption, and grey-zone dominance. There is, thus, an emerging need to redesign the structure to directly support these priorities by enhancing situational awareness, modernising skill sets, and preparing leaders for integrated, technology-intensive operations essential to future battlefield effectiveness. RISAT, as a tool for national security, needs to be streamlined. There is a need to achieve integration within the Indian Army and across inter-service resources to generate a synergised response.

At the tactical level, there is a growing need to coordinate inputs not only from traditional long-range optical and electronic sensors such as the Long-Range Reconnaissance and Observation System and the ELM 2140 ground surveillance radar, as well as from troops in contact, but also to integrate information from Special Forces operating across the front. In addition, inputs from civil intelligence agencies such as the Research and Analysis Wing and the Intelligence Bureau must be fused with open-source intelligence, electronic intelligence, and signals intelligence generated by air force, army aviation, EW, and signals detachments. This coordination must also include the management of airspace for drones in conjunction with divisional and other aerial assets of the artillery, army aviation, and the air force; the

maintenance of a real-time airspace picture through air force and army air defence systems; and effective spectrum management across the front. The ultimate objective is to enable precise targeting of the adversary and isolate hostile forces within the operational depth. Achieving such seamless integration remains a complex task, particularly until full automation and networked systems are realised. Nevertheless, it is clearly an operational imperative in contemporary warfare.

Is there a need to nominate a single HQ for coordination? The question should not be confused with 'Command'. The command of forces and the executive directions undoubtedly remain with the Commander of each HQ. The larger question is: In a fast-paced, future battlefield milieu that requires integrating inputs from various assets and providing near-real-time assessment, along with options for execution, who will coordinate?

Is there an HQ which can do this task? The answer is obviously 'No'. The infantry formation HQ is oriented towards performing specific tasks, while the staff of the divisional or corps HQ is primarily aligned to aggregating information or having specific tasks, such as intelligence gathering, counter-intelligence, overall coordination of operations, synchronising associated logistics, information warfare, etc.

Artillery is not only the second largest combat arm but also the only arm suitably poised to undertake the coordination and prosecution of operational forces. Artillery assets span the entire divisional frontage and depth, covering both ISR and targeting. The natural course of operations entails constant sensor–shooter integration, a hallmark of the arm. While unstated, the principal pivot of all sensor–shooter integration rests on artillery formations across the nation's front. It is, thus, the right time to realign structures based on emerging lessons and make artillery formations responsible for coordinating the RISAT effort across the corps and divisional frontage. The RISAT concept must now evolve to a larger platform that includes not just the sensors available at the operational level but also those across the entire diplomatic, informational, military, and economic environment. The same concept will apply to the 'Shooters', encompassing not only kinetic weapon systems but also EW assets, army aviation and air force aerial platforms, and cyber and information warfare capabilities.

Across the Indian Army, formations are now being equipped with state-of-the-art surveillance platforms, sensor networks, precision drone systems, loitering munitions, and advanced geospatial and EW assets. Integrating these new technologies not only enhances operational capabilities but also requires a significant shift in ISR and targeting methodologies and associated training approaches. Officers must now master a complex array of systems and conduct real-time multi-domain operations to achieve victory. Is the Indian Army fully ready for this role? The answer is an emphatic 'No'. There is a significant need to create structures and realign officer and other ranks training to take on this task.

Operational Realities

Operation Sindoor has provided the necessary knowledge and experience platform to highlight the necessity of ISR and targeting as a 'Whole-of-the-Army' approach. The need for jointness is an inescapable necessity for future conflicts in the Indian context. Thus, the need to comprehensively absorb 'New Technology Equipment' and RISAT processes to provide an independent and holistic assessment to the Commander in the field is an inescapable requirement.

Way Forward

RISAT Brigades. The raising of a new HQ or reorienting existing ones to explicitly coordinate RISAT and execute operational fires is an indisputable necessity. Modern-day warfare has introduced advanced multi-domain ISR and targeting capabilities, necessitating personnel to be suitably skilled in integrating sophisticated surveillance assets and intelligence for timely operational decisions. There is, thus, a need to equip all ranks with the critical expertise required to effectively man and operate within RISAT Brigades, ensuring they can meet the evolving demands of the modern battlefield environment. A recommended structure of a RISAT Brigade based on the HQ of an artillery brigade, along with various components which could be plugged into it from existing resources or cells, is given in Figure 1.

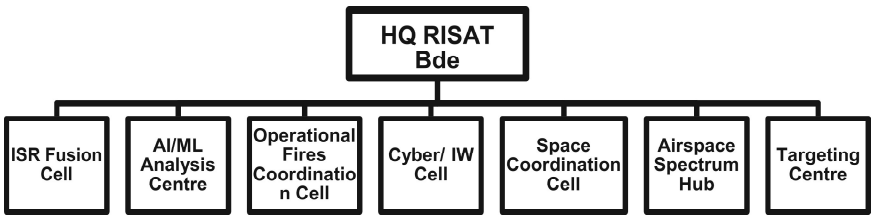

Figure 1: Components of RISAT Brigade

Reforms Required.

- **Integrated Battlespace Workshops**. The evolving operational environment and recent technological advancements have made it imperative to expand and upgrade training urgently. Several new and sophisticated pieces of equipment have been inducted into service, including drones, loitering munitions, the Integrated Long Range Observation System, the Situation Awareness Module for the Army and the Battle Surveillance System, among others. These platforms represent a significant leap in capability, offering enhanced situational awareness, data integration, and precision in surveillance operations across multiple domains.

- **Multi-domain Training**. There is a need to train officers from all arms to develop a comprehensive understanding of the complexities involved in RISAT in multi-domain operations. They need to gain a thorough understanding of the proficiencies of different arms, including civilian agencies, and be able to integrate this information to provide a multi-dimensional battlespace picture with options for targeting. Battlespace management needs to be extended beyond the current 'Land Bias' to include air, sea, and electronic space.

- **Doctrine**. Operational Fires doctrine for multi-domain operations needs to be developed and promulgated at the earliest.

- **Research and Development (R&D)**. Investments in R&D for AI for automated target recognition, battle damage assessment, predictive analytics, edge computing and tactical clouds, high-altitude pseudo-satellites, quantum-secure communications, and military internet of things networks need to be expedited.

- **RISAT Exercises**. Annual RISAT exercises aimed at improving operational fires need to be undertaken to refine systems and processes, identify measures to further compress the OODA cycle, and enhance integration.

Conclusion

In conclusion, it can be stated that RISAT and the prosecution of operational fires need to be integrated. The future battlefield will be fast-paced, and the side with the ability to 'Squeeze' the OODA loop will emerge victorious. The induction of kinetic and non-kinetic platforms into the armed forces continues at a dizzying pace, and thus, the need to integrate RISAT and operational fires becomes increasingly essential. Automation and intelligentisation of data and information are of critical importance; however, any machine model deployed to assist the Indian Army would need human inputs and experience to generate suitable outputs—and that is currently lacking, as an appropriate structure to absorb, integrate, act upon, and store data is not currently available. As a first step towards ensuring a cohesive response on a future battlefield, an operational-level HQ should be nominated for the task. Concurrently, training towards this end must commence on a war footing. While the details of nominated HQs can be worked upon, training of personnel of all arms, specifically, infantry, armoured, mechanised infantry, artillery, signals, and intelligence, along with the Air Force and Navy, must commence at the earliest lest the Indian Armed Forces are found wanting.

Endnotes

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