

Editorial Note

As the sun sets over 2025, I would like to highlight a few critical air power lessons that were reiterated during the year; in the India-Pakistan conflict (Operation Sindoor), Israel's Operation Rising Lion against Iran, and the ongoing wars in Ukraine and the Middle East. These lessons need to be gainfully imbibed for future operations.

The primacy of air power as the 'preferred instrument of choice' and first responder in conflicts was reemphasised. Gaining 'control of the air' is considered essential for victory as it helps in dominating the surface battle, as was seen in the Israeli Air Force's dismantling of the Iranian air defence system, using the F-35s and F-16s. However, the proliferation of low-cost, easily available and highly scalable drones and Loitering Munitions (LMs) has 'democratised' air power, making it available to both smaller states and non-state actors. The proliferation of drones has resulted in the difficult and often unsustainable Air Defence (AD) quandrum of whether it is economically viable to neutralise a few thousand dollars worth drone with a multi-million dollar missile?

Another pertinent lesson is that tactical and strategic air power operations are being reshaped with stealth platforms, hypersonic weapons, and Artificial Intelligence (AI)-enabled autonomous systems. Though AI can facilitate faster decision-making and reduce cognitive overload, its current capabilities and ethical concerns mandate human oversight as necessary.

The rapid technological advances in the aviation domain have ensured that innovation is no longer a pre-conflict luxury; it is a core, continuous warfighting function. The Russia-Ukraine War has unambiguously shown that innovation cycles have shrunk from years to months, and, in the future, may reduce to weeks. Innovation tends to flourish not with top-down directives but with informal, horizontal relationships between the military operators and the scientists, academia, and small-to-medium defence enterprises. The induction of new technologies also mandates that the operational doctrines be updated and training patterns be modernised more frequently.

Another enduring lesson is that Multi-Domain Operations (MDOs) are going to be essential in future conflicts. Success in conflicts would only be achieved through the synergistic and seamless integration of operations across the air, land, sea, cyber, and space domains. This would necessitate robust, resilient digital backbones and flexible command structures that can synchronise the cross-domain operations and facilitate faster decision-making at all levels and in all domains in real-time.

The fourth issue of this journal is once again covering a diverse and interesting array of topics, spanning the domains of aerospace, cyberspace and technology. The article “**Sardar Patel’s Legacy and Operation Sindoor**” brings out very eloquently that the Indian Air Force’s (IAF’s) widespread, precise and devastating demolition of the Pakistan Air Force and its capabilities during Operation Sindoor was executed while following the vision, and foresight of, and the principles espoused by, India’s first Home Minister, the Iron Man of India, Sardar Vallabhbhai Patel. Operation Sindoor showcased the determination and firm resolve of India’s political leadership and a ‘whole-of-nation’ approach in coordinating the retaliatory measures across the Diplomatic, Information, Military, Economic (DIME) domains. It also highlighted the joint planning and synergistic execution of

the well coordinated offensive and defensive plans of the three Services, complete escalation dominance over the adversary and the success of India's *atmanirbharta* initiative, exemplified by the phenomenal performance of India's air defence network [Integrated Air Command and Control System (IACCS)].

The article **"Shifting Paradigms: Navigating Global Air Power Dynamics in the 21st Century: Lessons and A Roadmap for India"** articulates that the widespread proliferation and easy availability of low-cost drones and LMs have 'democratised' air power in the 21st century and drastically impacted all recent conflicts, with increase in their endurance, precision and weapon carrying capabilities. Secure data links and AI will be increasingly utilised for controlling drone swarms and Manned-Unmanned Teaming (MUM-T)/Collaborative Combat Aircraft (CCA) in asymmetric warfare, especially in hybrid and grey zone warfare. In future conflicts, manned and unmanned platforms would work in close coordination with each other for increasing the weight of attack and minimising the risks to manned platforms.

The article **"Strategic Imperatives Towards Upgrading NavIC (IRNSS)"** analyses India's quest for achieving strategic autonomy with the development of its indigenous satellite navigation system NavIC (Navigation with Indian Constellation), a critical vulnerability, which was thoroughly exposed during the Kargil War. The Indian Regional Navigation Satellite System (IRNSS) was consequently designed to provide indigenous precise Positioning, Navigation, and Timing (PNT) services for both civil and military users in India and in our regional neighbourhood, extending approximately 1,500 km around India. Unfortunately, over the years, NavIC has been besieged with several serious problems—these range from atomic clock failures, satellite launch and orbital deployment failures to limited commercial adoption and geophysical challenges. To ensure the success of NavIC, the Indian Space Research Organisation (ISRO) needs to

accelerate indigenisation of critical subsystems, expedite new satellite launches, expand coverage (in terms of both geography and ground infrastructure) and facilitate adoption by device manufacturers and commercial users. Additionally, policy formulation and sustainable funding need to be ensured.

The article “**The Emerging Role of Drones in Shaping Present and Future Conflicts**” emphasises that conflicts in the 21st century are increasingly being impacted with the rapid technological innovations and widespread usage of the ubiquitous drones. The low-cost, significant endurance, easy availability, scalability and extensive Intelligence, Surveillance, and Reconnaissance (ISR) and precise offensive capabilities of drones have made them the preferred weapons of choice, especially for smaller air forces or non-state actors in asymmetric or grey zone warfare. Attrition warfare being inherently resource-intensive, nations are utilising the low-cost drones in long-drawn conflicts to meet the operational requirements of mass and economy, and avoid excessively straining the resources of the nation. The enhanced availability of affordable yet highly capable drones has blurred the traditional operational boundaries and forced a reassessment of existing operational doctrines and procedures. However, drones are not a ‘silver bullet’ for success in all conflicts. The survival and employability of drones in contested AD environments is still a huge question mark.

The article “**AI-Driven Command and Control for Rapid Response to Multi-Vector Attack: Enhancing Military Operations**” emphasises that AI-driven automation is reshaping modern warfare and reengineering the manner in which militaries organise, train and fight. AI is a significant force multiplier and a combat enabler, which facilitates faster decision-making during crises and enables flawless execution of complex operations. AI-driven Command and Control (C2) systems also enhance situational awareness and enable faster data processing and

analysis, especially in Multi-Domain Operations (MDOs). Data quality, data authenticity and information security are a few challenges that require resolution for ensuring that the AI-driven C2 systems can help militaries gain strategic advantages.

The article **“Skies Under Watch: Ethical and Legal Challenges of AI-Based Counter-Drone Systems in India and South Asia”** carries out a thorough analysis of the rapidly proliferating AI-based counter-drone systems in India and South Asia, with a focus on formulating an objective regulatory framework for counter-drone systems. AI-enabled counter-drone systems provide assured detection and management of large-scale drone movements due to the available datasets and algorithms. One of the major legal challenges is to ensure that the AI-enabled counter-drone systems follow the principle of *‘necessity and proportionality’* while the ethical dilemma focusses on the *‘concern for transparency, accountability and authority’*. The counter-drone systems’ regulatory framework needs to be developed in a holistic manner to ensure that the fundamental rights of the civilian population are not infringed upon.

The article **“The Art of War (Gaming)”** traces the origins of formal wargaming to the Prussians in 1820, when they developed the game *Kriegspiel*. Over the years, the focus of wargames has been on training, improving operational planning and enhancing strategic decision-making. The air force was the last amongst the three Services to formally adopt wargaming. Air wargaming finally gained importance during the Cold War and led to the establishment of the US Air Force’s (USAF’s) Air Force Wargaming Institute in 1986. Air wargaming is a highly complex exercise as it needs to holistically integrate the various aspects related to Intelligence, Surveillance, and Reconnaissance, Electronic Warfare, Suppression of Enemy Air Defence, Offensive Counter-Air, Air Defence (ISR, EW, SEAD, OCA, AD), compressed decision-making cycles and air tasking orders into the complex

air simulations and human decision-making. Realistic wargaming is critical for developing effective air campaigns and validating operational plans. The dedicated civilian wargaming community should be gainfully harnessed for developing realistic air wargaming models.

The article **“Waves and Wings: The Rise of Naval Air Warfare”** has thoroughly examined the evolution of naval air power, traced its roots to the usage of aircraft from modified cruisers in World War I and its subsequent growth over the years. By the end of World War II, aircraft carriers had become a symbol of modern air power and an instrument for power projection across the high seas. Naval air warfare’s evolution led to the subsequent development of integrated battle groups, wherein destroyers, submarines, surveillance platforms and aircraft carriers carried out coordinated operations for gaining sea control, projecting power and implementing strategic deterrence. Over the years, the induction of aircraft carriers and Long Range Maritime Reconnaissance (LRMR) aircraft by the Indian Navy helped it gain blue water capabilities. The Indian Navy’s acquisition of shore-based long-range surveillance platforms, carrier-based aircraft, and land-based strike aircraft has enabled India to assert its maritime presence in the Indian Ocean Region (IOR) and become a net security provider in the region.

The article **“Israel-Iran Conflict: Strategic Analysis of Modern Hybrid Warfare”** analyses in detail the various aspects of the 12-day Israel-Iran conflict, in June 2025, codenamed Operation Rising Lion. After the systematic decimation of Iran’s proxies— Hamas, Hezbollah and the Shia militias—Israel focussed its attention on Iran with the stated intention of neutralising Iran’s nuclear infrastructure. This 12-day overt confrontation was multi-dimensional and technologically intensive. It showcased the hybrid warfare characteristics, wherein accurate and comprehensive intelligence, electronic warfare, AI-enabled targeting, cyber

dominance and integrated precise air attacks helped Israel achieve its objectives in quick time. The Iranian strategies of massed firepower and attrition-based warfare were blunted by the resilience of Israel's integrated AD network comprising the Iron Dome, David's Sling, Arrow-3 and the newly operational Iron Beam laser system. The conflict heralded a blueprint for future military engagements in the digital age, wherein conflicts would also be fought in invisible domains and superiority would be measured not in physical numbers but in network dominance, algorithms, and real-time adaptability.

The article **"Indian Defence Artificial Intelligence Governance: Challenges and Strategic Imperatives"** carries out a thorough analysis of the Indian defence AI ecosystem, its present status and its future growth prospects. The article also examines the need to have standardised data exchange protocols, integrated AI infrastructure, interoperable sovereign Generative AI (Gen AI) models and regulatory governance frameworks in defence AI. The article emphasises that AI adoption in defence has to be progressed incrementally; so as to transition from Human-in-the-Loop to Human-on-the-Loop and, finally, to Human-out-of-the-Loop (fully autonomous, with minimal human intervention) with iterative mechanisms. The security of information during the development and adoption of AI-enabled defence applications needs to be strictly enforced. A fully independent national cloud architecture needs to be developed, along with sovereign AI models and supporting infrastructure. This should be a strategic imperative, as it would ensure data sovereignty, security, and *Atmanirbharta* in defence AI capabilities.

The article **"Armament Culture and the Binding US Alliance: What do the Strategic Policy Documents Reveal About Australian Strategic Culture?"** has brought out the main features of the Australian strategic culture after an analysis of the latest Australian National Defence Strategy (NDS) and Defence Strategic

Review (DSR) that were released in 2024 and 2023 respectively. These documents were revised as part of a holistic review of Australia's security environment and its security posture. Military capabilities are only one component of the overarching subject of national security. Therefore, the articulation of the DSR and NDS without the National Security Policy presents a defence biased view of Australia's national security agenda. Australia aims to capitalise on its strategic partnership with the US for gaining strategic technologies like the nuclear submarines under the Australia, United Kingdom, United States (AUKUS) deal. These submarines are, however, better suited for a strategy of punishment rather than Australia's stated deterrence strategy of denial.

I am sanguine that this journal would continue to receive the suggestions, affection and blessings of the highly discerning aerospace community, which would motivate us to scale greater heights of research and scholarly excellence. Contributions and feedback from the readers of this journal are highly welcome and encouraged. Suggestions for improving this journal for the air and space power community can be sent by email to the Centre for Aerospace Power and Strategic Studies (CAPSS) at editorBY@capssindia.org or capsnetdroff@gmail.com.

Wishing you all enjoyable reading and Happy New Year - 2026.

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