

➤ EDITOR'S NOTE

While the last war would never be fought, the next war also can never be accurately predicted. Just going back a couple of years, who would have thought that the Russia-Ukraine conflict would continue for years or the Israel-Hamas conflict, even as it nears a year, would show no signs of abating. The task for military planners becomes increasingly difficult with the march of technology, and the ability of nations to weaponise anything, from currency to sanctions, oil, energy, supply chains and information, the list is endless. The dilemma between utilising expensive precision weapons to low cost drones and dispensable unmanned aerial systems with warheads continues to plague the militaries as conflicts rage endlessly.

With varied platforms, operations across geographical boundaries, proliferation of cyber and space into air warfare, the requirement of network-centric operations becomes not only essential, but an enabler without which it would become increasingly difficult to operate successfully. The article on '**Network-Centric Operations**' covers the inalienable need for the Indian Air Force (IAF) to have secure and jam resistant information/communication links with increased bandwidth for seamless data connectivity and the redundancy to operate even with limited degradation under cyber or physical attacks. The space domain is becoming increasingly congested, contested and competitive with militarisation and weaponisation as inevitable fallouts of the race to dominate this space. Major space-faring nations have resorted to training, development and organisation of structures with military capabilities to conduct counter-space operations. The absence of consensus and inadequate regulatory frameworks and law enforcement measures, the

rising threat of space debris and selective sharing of space situational awareness and networks has only vitiated the space segment. The article on '**Space Domain Exploitation: Strategic and Doctrinal Imperatives**' looks at all these issues and suggests measures that the country needs to take to ensure peaceful utilisation, and address India's security concerns, of the space domain which has become critical for national security.

Its ubiquity, speed, reach, responsiveness, flexibility and scale make air or aerospace power one of the primary instruments of national power. Carrying out humanitarian and disaster relief operations, evacuation of the diaspora from conflict ridden territories, medical assistance and provision of emergency aid and supplies across the world to friends in need has displayed the reach and resolve of the IAF, furthering national interest through aerial diplomacy. The Balakot Strike carried out by the IAF against terror infrastructure displayed the coercive power of this vital instrument of national power. The article on '**Aerial Diplomacy for Influence, Projection and Coercion**' discusses in detail, through case studies, the use of aerial diplomacy by China, Russia and the United States to achieve national objectives. The article analyses the use of the IAF in various operations in consonance with the latest doctrine of the IAF and the way ahead for the nation to further build upon this capability. The proliferation of drones or Unmanned Aerial Systems (UAS) for both civil and military use the world over has highlighted the challenges and opportunities faced by nations in the use of airspace for these operations as well as the need to counter them when required. Learning from recent ongoing conflicts and the use of drones in the no war no peace environment, this threat has posed significant challenges to India. '**Unmanned Aerial Systems and Counter-Aerial Unmanned Aerial Systems**' carries out a detailed analysis on the need for regulation, the strategy that needs to be adopted in securing the Indian airspace and the options available to the Indian armed forces to procure and deploy these systems effectively.

The cyber domain has become the fifth domain of warfare that unequivocally permeates all the other domains of air, land, maritime and space. While the jury is out on whether a cyber attack constitutes an act of war, there is no denying the fact that these attacks continue to take place at regular intervals on critical infrastructure as well as military systems. The need to protect as well as have the potential to disrupt enemy networks and critical infrastructure has become inescapable. Having organisations and suitably trained and equipped personnel to carry out this task has become essential for national security. The article on '**Offensive and Defensive Cyber Operations in Multi-Domain Battle**' explores the nuances of war-fighting in this domain and the strategies that need to be adopted by India.

While technology has enabled operations in all weather conditions by the air forces, weather does adversely affect ground and maritime operations. The ability of nations to use weather by adopting various techniques to disrupt or hinder operations does pose challenges. The article on '**Weaponisation of Weather**' carries out a detailed analysis of the work being carried out by China to use the weather as a tool of war-fighting. The article exhorts the scientific and military community in India to study this phenomenon and develop strategies to counter adversaries that have the means to weaponise the weather. The penetration of artificial intelligence in all domains has become inescapable due to the large amounts of data and information being generated, making it impossible for a human being to manually sift through and generate actionable analysis or inputs. The planning process for air operations requires a multi-dimensional approach that needs to look into the availability of assets, weapons, air crew, bases, logistics and maintenance facilities, weather and many other variables before deciding the best course of action. The article on '**Artificial Intelligence in Air Operations Planning Process**' looks at the utilisation of Artificial Intelligence (AI) as a tool to plan air operations in a top-down approach.

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It is indeed encouraging to see young officers and scholars putting pen to paper and coming out with articles that are not only contemporary but also relevant for soldier scholars for their professional military education. My compliments to all those who have contributed: may the fraternity grow with some more embarking on this journey.

Happy reading.



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