

# A RENEWED FOCUS ON EMERGING TECHNOLOGIES

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Indian Army Chief General Manoj Pande addresses a gathering during the Chanakya Defence Dialogue. File | Photo Credit: ANI

Emerging technologies, an euphemism for capabilities that rely on a combination of cyber technology, Artificial Intelligence (AI), unmanned systems, and advanced computing, is in vogue among most militaries. The Indian military is seemingly alive to this development. At the Chanakya Defence Dialogue, the Chief of the Army Staff, General Manoj Pande, said that the Army had identified 45 niche technologies in the field of military applications. Similarly, under 'UDAAN', the Indian Air Force (IAF) is using AI, cyber and virtual reality to address its operational, logistical, and training needs. The Navy, too, says that it is moving forward with emerging technologies, which includes an Integrated Unmanned Roadmap, while also encouraging indigenisation under project 'Swavlamban'.

Not to be left out, the Defence Ministry, through 'AIDef', has showcased its initiatives in this realm, which includes the Defence AI Council and the Defence AI Project Agency. Both these efforts are aimed towards incorporating AI into various allied organisations, such as Defence Public Sector Undertakings and the Defence Research and Development Organisation. However well-intentioned these efforts maybe, the Ministry and the services need to think more creatively about their approach to emerging technologies. More specifically, for these initiatives to be successful, the military must be cognisant that technology is not a silver bullet and should not be imagined as a 'plug and play' — readily adjusted to existing practices. Instead, it needs to be accompanied by organisational and doctrinal changes and a willingness to share data with the civilian environment.

To some, emerging technologies is just the latest fad. Indeed, most accounts of the Russia-Ukraine war attest to the old-fashioned dominance of the artillery, manoeuvre warfare, and infantry tactics. At a more conceptual level, however, emerging technologies represent a dilemma that militaries have faced since time immemorial — how to best respond to change.

Effectively integrating emerging technologies requires the military to work more closely with civilians than ever before. The scholar Michael Raska identifies this aspect of "collaborative defence", whereby the military partners with scientists, academics, technologists, entrepreneurs and the wider industry, as critical in incorporating such capabilities. From that perspective, India's defence organisations and the military still have some way to go.

To be fair, the Indian military's focus on these emerging technologies is not new. India's first drone platforms were inducted in the late-1990s by the Army followed by more procurements in the 2000s by the IAF and Navy. Military leaders have recognised the cyber threat for some time, pointing to issues such as 'information warfare'. Through its indigenous space programme, India has launched communication satellites to improve its military communications capabilities. GSAT-7, a Navy-specific communication satellite, was launched in 2013, and GSAT-7A for the IAF in 2018. In the same year, the government established the Defence Cyber Agency and the Defence Space Agency to address threats from new domains. While these are welcome developments, there are still significant shortcomings in the military's approach to this domain.

First, jointness, defined as interoperability between the three services, remains problematic. The Chief of Defence Staff has an explicit mandate to create joint theatre commands. While the strategic community waits for such a development, the need for interoperability is essential especially among the host of emerging technologies. Second, there is a need to revisit existing human resources practices. For the most part, the Indian military prioritises generalisation over specialisation. This might work in conventional operations, but specialised technology requires greater technical expertise. The services should therefore give extended tenures and create promotion pathways for officers intellectually inclined towards this domain. Air Vice Marshal Anil Golani (retired) has made a convincing argument in favour of 'disruptive HR.' Last, both civilian defence organisations and the military needs to be more open with sharing data, especially to fully realise the promise of AI. Traditionally, secrecy concerns have stymied data availability. However, one can create a structure with adequate safeguards, which allows civilians to work alongside the military to overcome such concerns.

Fully realising the potential of emerging technologies requires altering existing organisations and approaches. Such changes should begin from the Defence Ministry. Instead of letting its efforts led by generalist officers, the Ministry should be more open to incorporating technocrats and qualified personnel, if necessary, from the private sector and wider industry. This is especially germane in defence production. In turn, the military must create pathways not just for its own officers but also to allow civilians to work alongside them as technology professionals. It needs to think creatively about the need for separate cadres to tap into the promise of such technologies.

The current efforts in defence reforms in India has put the military on the road to perhaps its biggest transformation yet. Realising the promise of this vision would require greater willingness to engage with the talent that resides outside existing defence organisations.

***Nishant Rajeev, Anit Mukherjee and Rajeswari Pillai Rajagopalan are the co-editors of a recent ORF-RSIS report 'Momentous Changes: Defence Reforms, Military Transformation, and India's New Strategic Posture'***

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