Focus on emerging technologies

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Introduction:

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.

Emerging technologies for Indian armed forces:

1. Recently, the Chief of the Army Staff said that the Army had identified 45 niche technologies in the field of military applications.
2. Similarly, under 'UDAAN', the Indian Air Force (IAF) is using AI, cyber and virtual reality to address its operational, logistical, and training needs.
3. 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', Indian Navy's Maiden Naval Innovation and Indigenisation Seminar.
4. Not to be left out, the Defence Ministry, through 'AIDef'- 'Artificial Intelliegnce in Defence' (AIDef) symposium and exhibition- 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 PSUs (Public Sector Undertakings) and the Defence Research and Development Organisation (DRDO).

A long way to go:

1. 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.
2. 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.
3. But 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.
4. Some call it "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.
5. 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.
6. 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.

Way forward: Change in approach:

1. First, jointness, defined as interoperability between the three services, remains problematic. Chief of Defence Staff (CDS) has an explicit mandate to create joint theatre commands (JTCs). While the strategic community waits for such a development, the need for interoperability is essential especially among the host of emerging technologies.
2. Second, there is a need to revisit existing human resources practices in armed forces. 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.
3. Third, 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.
4. 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 be 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.

Conclusion:

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.