

Multi-Domain Operations (MDO)

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Topic- International Relations [GS Paper-2]

Context- India now needs to embrace multi-domain operations (MDO) amidst the rising Chinese threat.

Key Highlights

Present Tussle:

- Currently India and China are confronting each other over the Arunachal Pradesh border.
- India has deployed the Indian Army for the first time in this area.
- The threat had faded in public consciousness because of electioneering, bridge collapses, yatras, G-20, etc.

Concerns:

- Low-level and geographically restricted clashes will keep recurring from time to time.
- India must not get into a complacent mindset which accepts such clashes, as the likely future conflict scenario with China.
- The threat is at the other extreme of technical advancement i.e. in the concept of multi-domain operations (MDO).

Multi-Domain Operations(MDO)

Spread Across Multiple Domains:

- MDO is beyond actions on land, in sea, air, cyber, space and in the electromagnetic spectrum.
- It also comprises operations conducted across multiple domains and contested spaces through convergence of capabilities to overcome an adversary's strengths by presenting it with operational and/or tactical predicaments.

Common Operating View:

- MDO has a common operating picture across all domains which forms the basis to decide the best tool to address a given task.

Any Service in Any Domain:

- It is not one service using capabilities in multiple domains to do a task, rather it is the best positioned and capable operator of any service doing it across any domain.

Well Defined Structure:

- The technical complexity and the command, control and communication (C3) structure needed can well be imagined.

Optimal Use of Resources:

- The MDO architecture uses any sensor and the best positioned shooter in order to accomplish objectives.
- MDO and its C3 structure would have inputs from all sensors in order to come up with an optimum engagement solution using artificial intelligence.

Important Requirements:

- All sensors and other information input sources should be capable of being hosted on the MDO architecture.
- All solution providers or executors must be able to receive inputs and instructions from the MDO C3 structure and carry them out.
- If the link to the main structure is not available the mission command characteristics of distributed control would come into play so that operations continue.

Challenges with MDO

• Affordability Issue:

- MDO is complicated that only nations with a developed scientific base and financial standing can afford it.
- It is an American concept being progressed by the U.S. for the past decades.

• Requires Fresh Start:

- MDO is the most advanced intelligence and battle-management software ever.
- It would need a de novo look at doctrine, planning, acquisition, staffing and training.
- **Chinese Threat:**
 - China is constantly attempting to match U.S. military power and it is closely watching the Russia-Ukraine conflict where Western specialists are helping Ukrainians utilise the power of algorithms to fuse reconnaissance from space and choose the best shooters to strike Russian targets.
- **Concerns for India:**
 - India has no choice but to embrace MDO too as China has the particular technology and finances to master it.

Way Forward for India

- **Short-term Measures:**
 - Battlefields have now changed from physical brawls to cyber and precision strikes.
 - Traditional physical domains must be stabilised, with critical deficiencies of the services being plugged.
- **Robust C3 Network:**
 - India's C3 networks need to be hardened and protected against certain cyber threats.
 - They need to be linked and synchronised so that seamless exchange of data is ensured.
- **Long term Measures:**
 - A pilot project should be started now so that the true challenge of creating an MDO environment is grasped.
 - The pilot project would identify the technologies required and, equally importantly, an idea of the monies.
- **Imparting Training:**
 - To get the fundamentals of MDO right, it is essential to train and educate personnel starting now.
 - For instance the US Air Force has a one year-long training course ongoing to help develop critical thinking and problem solving skills at the operational level of war.