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**Military Futures Command: An
Indian Adaptation To Fuse The
Military and Civil Capabilities
For a Future Ready Force**

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Military Futures Command: An Indian Adaptation To Fuse The Military and Civil Capabilities For a Future Ready Force

“The ongoing conflicts teach us that building a resilient, indigenous, and future ready defence technological and manufacturing ecosystem is not an option, but a strategic necessity.”

—Shri Rajnath Singh

Raksha Mantri of India

Abstract

The document proposes the establishment of a Military Futures Command (MFC) in India to fuse military and civilian capabilities, ensuring that the armed forces remain future-ready. Currently, global militaries face a modernisation challenge known as the ‘Valley of Death’, wherein promising concepts fail to reach the battlefield. India’s existing defence research and procurement system is overly process-oriented, hierarchical, and operates in disjointed silos, which hinders rapid technological adaptation. After analysing global defence modernisation strategies from the USA, UK, France, Israel, and Russia, a customised Indian adaptation is suggested.

The proposed MFC would operate under the Chief of Defence Staff (CDS) to coordinate research, development, and bulk production through a Whole of Nation Approach (WONA). By structurally integrating private industries, academia, and military expertise, the MFC aims to transition the military to a posture of predictive lethality. Ultimately, the MFC would act as the central nervous system for defence innovation, translating technological advancements into integrated warfighting doctrines to achieve a state of permanent readiness against future threats.

The paper has undertaken a detailed global scan, identified own flaws in the system and then suggested a tailor-made system to give a solution to the stated problem. The brief is an idea which, even if partially implemented, would give rich dividends.

Keywords: Military Futures Command, Military Reforms, R & D Reforms, IDS Organisation, Theaterisation

Introduction

Any military force to be future ready needs to have a structured mechanism to identify the ripples of today and evolve concepts, tech and structures to ride waves of the future. The recent conflicts have changed the character of warfare, forcing the militaries worldwide to adapt to undertake major changes in terms of technology and concepts. The tech, for new systems, and counter systems is evolving so fast that the leading militaries are also behind the learning curve. Research and development (R&D) is a key driver for being ‘future ready’. However, it requires a Whole of Nation Approach (WONA) during peacetime too, wherein both military and civil capabilities need to be fused into one—to research and develop cutting edge technologies for military use. In addition, the various doctrines/ conceptual trends in warfighting need to be analysed for adaptation and integration of various tech. The challenge is to predict and make own force, ‘future proof’.

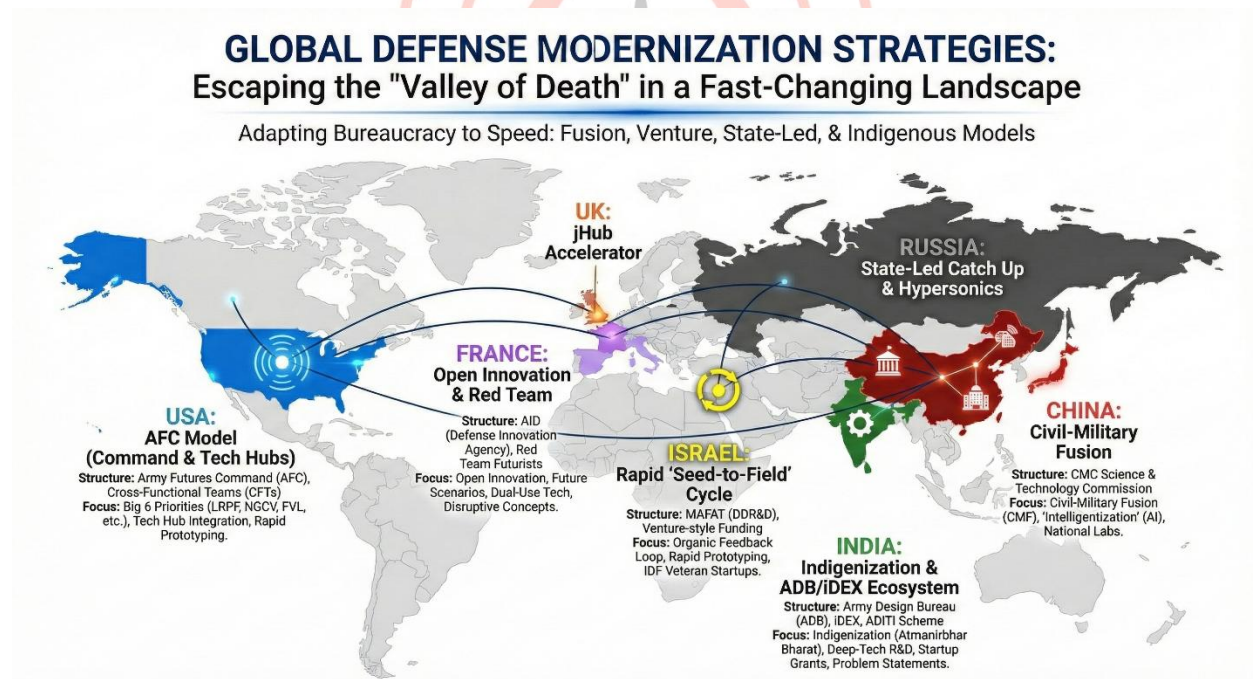
Moving beyond mere adaptation, the military must transition from a ‘reactive posture to one of predictive lethality’. This involves creating ‘innovation ecosystems’ where data-driven insights, from the tactical edge inform the R&D pipeline in real-time, shortening the feedback loop between the soldier and the scientist. By leveraging Artificial Intelligence and autonomous systems, forces can begin to simulate future conflict scenarios with high fidelity, allowing for the

stress-testing of concepts before they are even deployed on the battlefield. Ultimately, a future-proof force is one that treats intellectual agility as a weapon system, ensuring that when the ‘waves of the future’ arrive, the military is not just riding them, but directing their course.

Global Race to Escape the Valley of Death

The ‘modernisation challenge’ is known as ‘Valley of Death’ globally, wherein good ideas die before reaching the soldier, is a global problem. Almost every major military power has recently created specific organisations to bypass their own bureaucracies and inefficient systems or procedures. The image shows the broad organisational structures of different countries for offsetting the challenge.

Figure 1: Global Defence Modernisation Strategies



Source: Gemini prompted by Author

Israel Model

The Israeli model of defence modernisation is distinctively defined by the necessity of immediate survival, resulting in the world's fastest 'Idea-to-Field' innovation cycle. Unlike the long-term planning horizons of larger powers, Israel operates on a 'Startup Nation' philosophy where agility and rapid deployment are paramount. The central nervous system of this model is MAFAT (Directorate of Defense Research & Development), which functions less like a traditional military bureaucracy and more like a high-risk venture capital firm within the Ministry of Defense. MAFAT acts as an incubator, identifying promising concepts at the seed stage and accelerating them into combat prototypes with minimal red tape.

A critical advantage of this system is its unique human capital pipeline, driven by mandatory conscription. Through recruitment into Units like Unit 8200 (intelligence) and the Talpiot program, the military recruits the nation's brightest scientific minds at a young age, placing them in key R&D roles. This creates a seamless 'organic feedback loop' where the barrier between the 'developer' and the 'soldier' is virtually non-existent. Engineers often serve as reservists using the very equipment they design, ensuring that technology is practical, user-centric, and combat-tested.

Rather than waiting years for a 'perfect' solution, the Israeli model fields '80% solutions' immediately, refining them in real-time based on actual battlefield data. Supported by industrial giants like Rafael and IAI for scaling, this highly integrated ecosystem prioritizes immediate operational lethality over procedural formality.

The French System

The French have unified over 100 distinct innovation cells across the French Army, Navy, and Air Force under one roof in Paris (Balard) under AID (Agence de l'Innovation de Défense). The organisation's primary mandate is to capture civilian technology (dual-use tech) and adapt it for military use, rather than relying solely on traditional defence contractors. The most distinct feature of the French model is its use of 'Red Teaming' for future warfare, which differs significantly from standard 'wargaming'. The Red Team comprises of military officers, science fiction writers, futurists, and designers. Their job is to imagine 'nightmare scenarios' for the years 2030 to 2060 —threats that conventional military doctrine is too rigid or bureaucratic to foresee (e.g., neural implants hacking soldiers, pirate nations on floating cities). Based on the inputs of the Red Team, the innovations cell develop focus areas of technologies that needs to be developed and fielded into the French forces or even NATO.

UK Model

The United Kingdom's defence modernisation strategy is defined by an 'Adopt and Adapt' approach, prioritizing the rapid integration of existing civilian technology over lengthy military R&D. Central to this model is the UK Strategic Command, which orchestrates capabilities across domains like Cyber and Space to ensure integration. The innovation engine is 'jHub'—a unit physically located in London's tech sector rather than a military base, tasked with sourcing '80% solutions' is available immediately, rather than waiting years for perfect military-specific systems. Complementing this is the Defence and Security Accelerator (DASA), which funds prototypes through open competitions, allowing startups to bypass complex procurement regulations. Unlike the US focus on massive platforms, the UK leverages agility; utilising specialised

‘Experimentation Battalions’ to test new equipment in real-world scenarios before mass purchase. This structure allows the British military to offset smaller budgets by treating the commercial sector as a primary development partner.

Russian Model

The Russian defence modernisation model operates as a centralised, state-directed system designed to generate ‘asymmetric’ advantages against superior western budgets. Its core innovation engine is the Foundation for Advanced Research Projects (FPI), which functions like a focused DARPA to drive high-risk technologies like hypersonics. To bridge the gap between research and fielding, Russia utilises the **ERA Technopolis**, which is a dedicated ‘military innovation city’—a physical campus designed to bring together young scientists, military researchers, and industrial engineers in one location—a unique feature of the Russian model. Instead of mandatory infantry service, talented university graduates (coders, engineers) are conscribed into ‘Scientific Companies’ stationed at ERA. They spend their draft service developing AI, robotics, softwares and new tech for the military; this model also offsets the brain drain challenge. The bulk production manufacturing is consolidated under massive state-owned conglomerates like Rostec, allowing for direct resource allocation. Basically, ‘the FPI works as the brain, ERA as the lab and Rostec for mass production’. This structure prioritises niche dominance in electronic warfare and missiles to neutralise expensive adversary platforms rather than competing on scale.

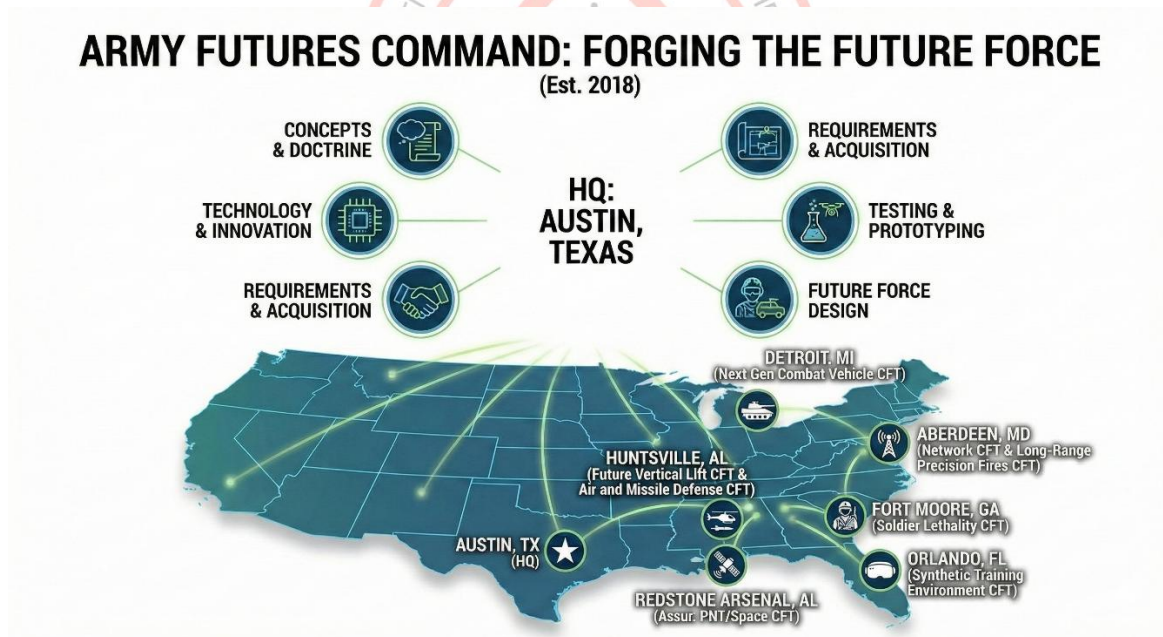
USA Model

The Army Futures Command (AFC) was institutionalized in 2018 by the USA to give a structured impetus to the Army’s modernization program, specifically focusing on future war-

winning readiness. The AFC acts as an innovative hub for generating new concepts, technology, and organisational designs for future wars.

AFC was established as a 'separate, peer command to the existing Training & Doctrine Command (TRADOC) and Forces Command (FORSCOM)', rather than merging with them. AFC assumed the responsibility for designing the future force (a role previously held by TRADOC's ARCIC), allowing TRADOC to focus on its core mission of recruiting and training soldiers. However, AFC collaborates closely with TRADOC to ensure that, as new technologies are fielded, the necessary changes to doctrine and training are integrated simultaneously.

Figure 2: Army Futures Command



Source: Gemini prompted by Author

The command has prioritised 'six key modernization areas' (The 'Big 6'), which are executed by 'eight Cross-Functional Teams (CFTs)' established across the USA. These CFTs have

the authority to ‘collaborate, research, and accelerate’ the development of products required for the field army. They access the best minds in academia and industry to move from concepts to working prototypes through streamlined development, testing, and acquisition pathways. Notably, these CFTs are strategically located based on the industrial specialisation of that geographical location (e.g., Ground Vehicles in Detroit, Aviation in Huntsville) rather than on traditional military bases.

Global Scan: An Analysis

The pros and cons analysis of various organisations, in various countries, has been highlighted in the image as a ready reference. Best practices from all the models can be analysed and be tailor made as per the Indian requirements.

Figure 3: Pros and Cons of Country Specific Models

GLOBAL DEFENSE MODERNIZATION STRATEGIES: PROS & CONS OF COUNTRY-SPECIFIC MODELS			
COUNTRY	ORGANIZATION / MODEL	PROS	CONS
 USA	AFC Model (Army Futures Command)	✓ Vast Resources & Budget ✓ Holistic Modernization (Big 6 Priorities) ✓ Integrated Cross-Functional Teams (CFTs)	✗ Still Bureaucratic ✗ Large Scale Can Be Slow to Move ✗ High Cost of Failure
 UK	jHub Accelerator	✓ Agile & Fast ✓ Rapid Adoption of Civil Tech ✓ Low-Cost Prototyping	✗ Smaller Scale & Funding ✗ Less Focus on Deep-Tech R&D ✗ Limited Global Reach compared to larger powers
 France	Open Innovation & Red Team	✓ Creative & Visionary Approach ✓ Long-Term Strategic Foresight ✓ Strong Sovereign Tech Base	✗ Can be More Theoretical than Practical ✗ Slower to Field Actual Equipment ✗ Complex EU Integration Challenges
 Israel	MAFAT Cycle (DDR&D)	✓ Extremely Fast Fielding from Idea to Frontline ✓ Organic Feedback Loop from Combat Veterans ✓ High Synergy with Startup Ecosystem	✗ Niche Focus on Immediate Survival Threats ✗ Relies Heavily on US Financial Aid ✗ Smaller overall Industrial Base
 Russia	FPI & State-Led (Foundation for Advanced Research)	✓ Strong Centralized State Direction ✓ Niche Excellence in specific areas (Hypersonics, EW) ✓ Technologies are Combat Tested	✗ Weak & Aging Industrial Base ✗ Sanctions Significantly Hinder Access to High Tech ✗ Suffering from "Brain Drain" of Talent
 China	Civil-Military Fusion	✓ Massive Scale & Speed of Implementation ✓ Rapid Integration of AI & Emerging Tech ✓ Government Mandates Tech Sharing from Private Sector	✗ Lack of Recent Real-World Combat Experience ✗ Continued Reliance on Technology Theft/Copying ✗ Rigid, Top-Down Command Structure inhibits bottom-up innovation

Source: Gemini prompted by Author

Present System of India: An Analysis

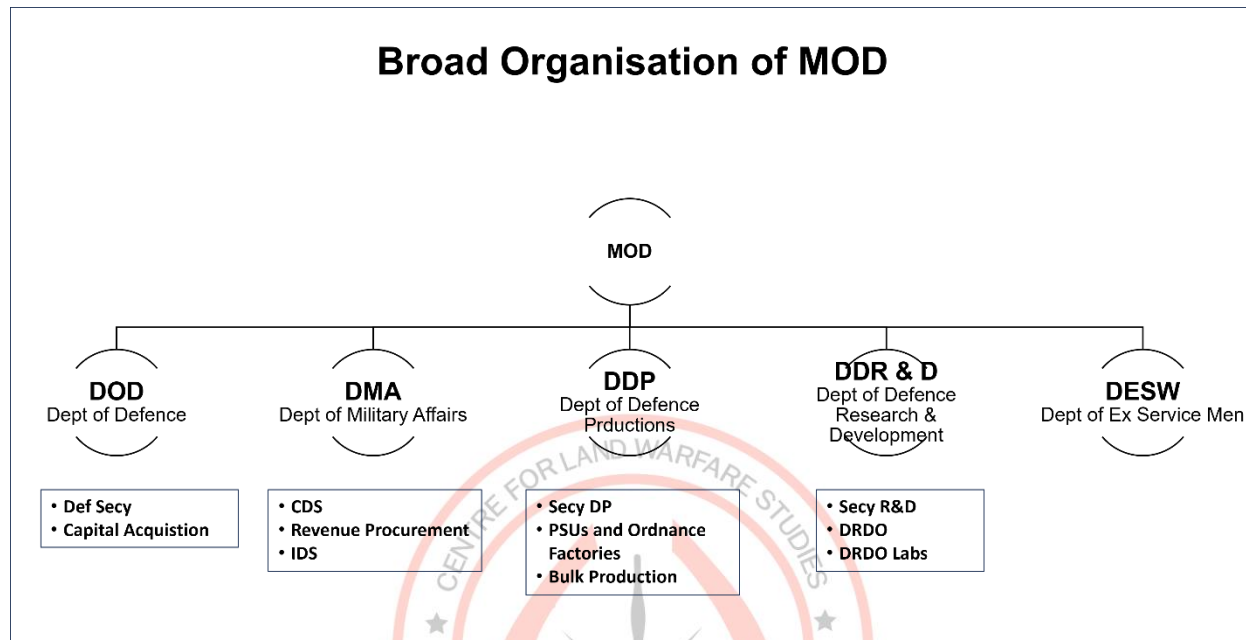
The present system that exists is very 'process oriented'. The Government has taken initiatives to make the system more transparent, flexible and dynamic by giving more powers to service HQs, conducting innovation competitions etc., but the system is structured in a manner which is 'not able to keep pace' with the changing technologies and requirements.

The Ministry of Defence has various departments under it to support the needs of the Armed Forces. The broad structure is given out in the organogram. The Department of Defence (DoD) is under the Defence Secretary dealing with Capital Procurement and Department of Military Affairs (DMA) takes care of Revenue Procurements. The Research and Development needs are to be fulfilled by DDR&D, commonly known as DRDO. The Department of Defence productions take care of mass production through the ordnance factories, PSUs and coordinates with civil industries. The structure, in initial glance looks smooth; however, it's marred with red tapeism at all levels. One case file or a project which the forces want to procure on a capital route would go through multiple levels of filter from the user to the highest officer within services, thereon it is handed over to the DOD to process it through the ministry to get a government sanction. The case file then is filtered through various secretaries to get an in-principle nod to commence procurement process; the file will have to go through these filters again multiple times to complete different stages of procurement process.

Research and Development responsibility has been mandated to DRDO. Projects under DRDO have been successful, however there are many which have not been successful. Successful projects are also delayed by many years. The idea of DRDO was good when our private industry

was nascent and economic strength of the country was weak. Now, the DRDO is plagued by lack of talent pool, resources, state-of-the-art lab and technology access to develop niche technologies.

Figure 4: Broad Organisation of MOD



Source: Author's Own

The mandate of R&D for future technology required by the forces rests with DRDO; however over a period of time, the service HQs and IDS have evolved its own structures and organisations to tide over the challenge to evolve technology required for the armed forces. The service HQs maintain a dedicated capital and revenue procurement verticals. However for R&D, ‘the design bureaus in all three services are exploiting IDEX, IR&D, ACSFP, Capital, Revenue and EP routes to keep the respective services battle ready and ahead of the curve in technology’. Futures and transformation cell led by a Maj Gen ranked officer in IDS, Army and other services has been raised to coordinate actions of all stake holders.

It can be understood that all the stake holders are operating in their silos and there is a ‘disjointed effort in pulling a WONA for developing capabilities to innovate or develop key technology for the armed forces, which can be of dual use as done by other countries. The

government has undertaken key policy initiatives at the national level to offset this problem however the structures and processes doesn't support the same. Few major problem areas of our present system is highlighted as under:-

- No single organisation to coordinate and plan R&D, bulk production and integration.
- Too hierarchial, with files moving through multiple general officers and secretaries multiple times.
- Civil industry not well versed with armed forces requirement.
- Mapping of civil capabilities for developing dual use tech.
- Funding issues of civil industry.
- Lack of R&D infrastructure in civil as well as government.
- R&D is also similar to lengthy procurement process. ★
- Too many stake holders and multiple entry points for R&D through various routes.
- Doctrinal understanding to induct new technology is not available or the same is being dealt by different branch/ directorate. ★
- DRDO ill equipped and staffed for undertaking research and development.
- Department of defence production does not have the capability to integrate the capabilities of PSUs, Ordnance Boards and Civil.
- Army, Air, Navy run their own procurement verticals with no coordination within its verticals leading to double effort.

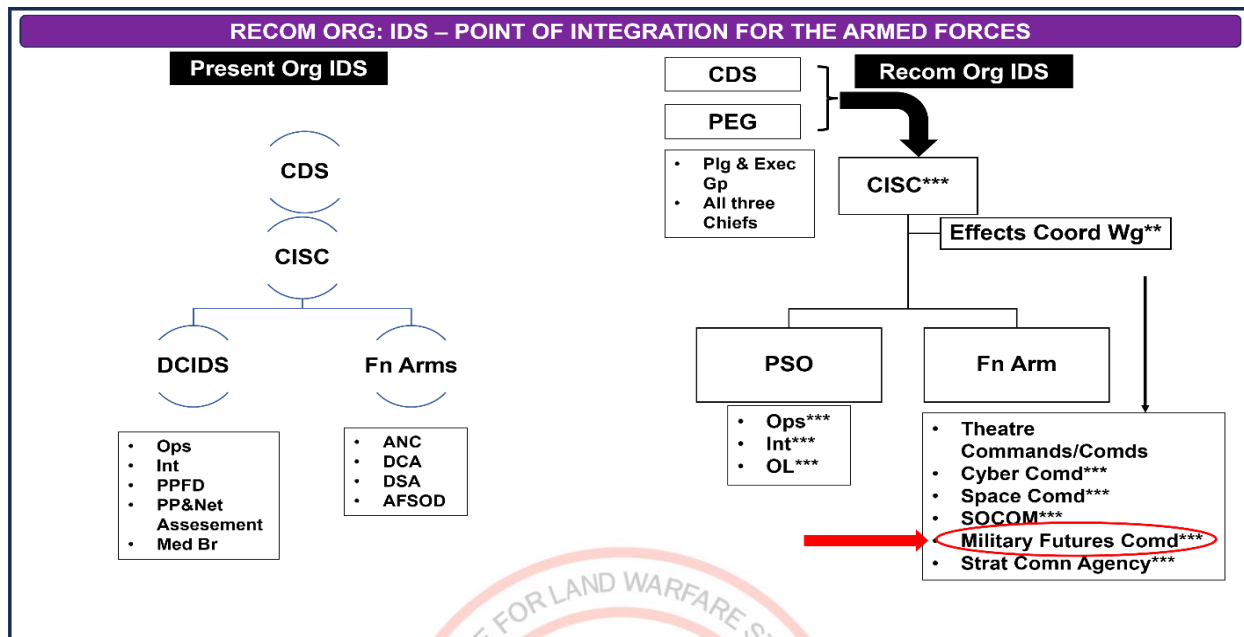
The Problem and Way Forward

Problem Statement. Global armies have been heavily investing on technologies to keep their forces future ready through structural and doctrinal changes, however our present system for modernisation seems to be uncoordinated, too linear with slow procurement cycles wherein the structures and processes is unable to pull a whole of nation approach for making the armed forces future ready.

CDS/ HQ IDS - Point of Integration. The creation of CDS and raising of HQ IDS is a good opportunity for the armed forces to make it a point of integration, wherein following recommendations are suggested, alongwith a suggested organogram for a agile future ready force:-

- CDS responsible for all Operations, Intelligence and Operational Logistics for entire armed forces
- Theatre commands and other Commands to be under HQ IDS.
- R&D to be coordinated under CDS with a separate Military Futures Command (MFC) dedicated to ensure a capability development WONA for keeping the forces future ready.
- Service HQs to be responsible for raise, train and sustain only.
- The lead agency for R&D for the armed forces would be MFC (**upto AoN stage which would include trial too**), Service HQs for Bulk production (existing procedure for now, however separate article to change that too) and theatre commands/ Command or Corps HQs for forward integration.

Figure 5: Recommended Organisation of IDS



Source: Author's Own

Military Futures Command (MFC)

Military Futures Command is being pegged as a solution to the huge R&D linked modernisation problem faced by the armed forces. The solution which is being presented in this article has been made by analysing the best global practices as well as analysing present problems within the system.

Aim and Objective. The aim of MFC is to 'ensure that the armed forces are ready for the future'.

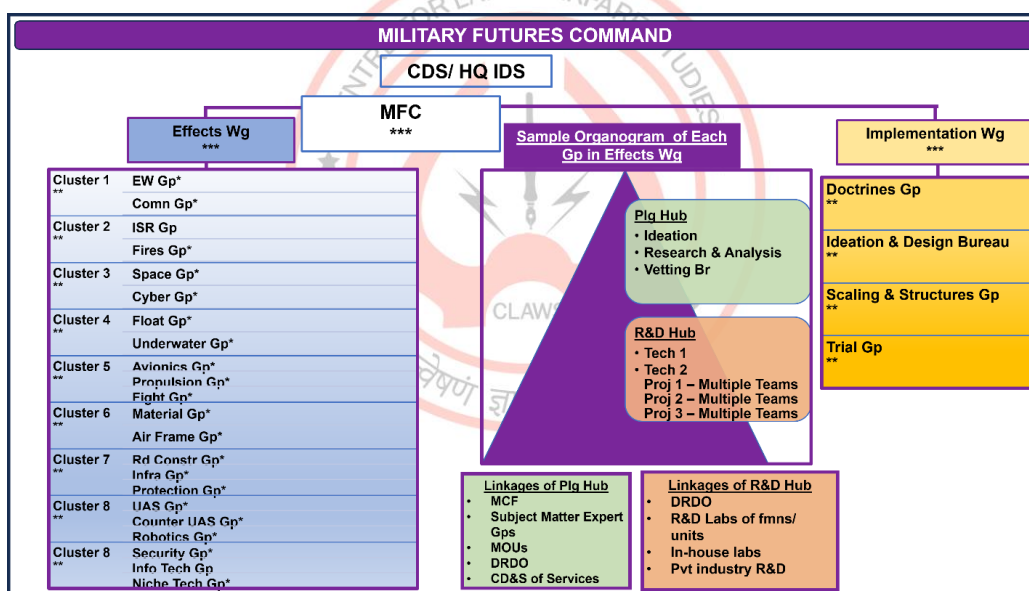
The objectives of the MFC would be as under: -

- Impetus to R&D upto bulk production.
- Focused Capability development – WONA.
- Civil-Military Fusion including private industries and academia.
- Develop doctrines, CONOPS and structures for future.

- Develop self-reliant Military Industry Complex with dual technology for civil purpose.

Organogram of MFC. The recommended Military Futures Command (MFC) would be led by a three-star ranked officer which would be part of the functional arm under the CDS (see previous image). The MFC will be structured with two wings viz. ‘Effects Wing and Implementation Wing’, which would be led by a three-star officer. The overall concept revolves on making different geographical locations as expert centers for industry, academia and skilled manpower. The organisation is also on ‘plug and play model’, wherein depending on requirement of the future — the clusters, groups, technology and projects can be created or closed.

Figure 6: Recommended Organisation of Military Futures Command



Source: Author's Own

Effects Wing of MFC. The Effects Wing is further divided into clusters led by two star ranked officers. Each cluster further is divided into various groups based on technology or broad requirement of the service. Each of the groups are further divided into Planning Hub and R&D Hub. The organogram gives out the broad structures under each of the groups. The clusters and the groups would be in different geographic locations of the country based on the availability of

expertise or private industries. The Planning Hub of a particular group is responsible for maintaining linkages with the subject matter experts and be a conduit to the civil and PSU infrastructure to undertake the development of a particular tech. It also would be able fund R&D projects in various universities and labs for the requisite technology. The R&D hub is a lab created for work being undertaken in each technology. Each technology will have different projects with multiple teams under it. The cluster and groups will cater for requirements of all three services and technology through each project.

Implementation Wing of MFC. The **Implementation Wing is the execution part** of the command. It's a **two-way process**, either the idea for tech originates from the Implementation wing or once a tech is developed its further integration to forward formations are worked upon. The 'doctrines group', led by two stars, would evolve new doctrines for future. Simultaneously, the 'ideation group' led by a two star would also ideate or design new technology required to support the doctrine. The same would be handed over to 'effects group' for further research and develop it. On development of technology or the equipment, it is further given to forward formations to evaluate and ascertain fitness for further bulk production. On acceptance, the scaling and structure group issues necessary government sanctions to change the structure or scale the equipment to field units. On receipt of the government sanction and trial acceptance, the service HQs would commence work on the bulk production, skipping the AoN and trial procedure (would require some amendments in procurement policy).

HR Requirements. Human resource management to such highly specialised command would require lot of deliberation. Few points to be kept in mind are as under: -

- All arms and services staffing policy, including cross staffing, to ensure development of tech for tri- services need.
- Officers doing PG from IITs to be posted in one of the groups.
- PG vacancies in R&D hubs and internship programmes to be developed.
- Civilian scientists should be picked on contractual basis on internship.
- 20 percent of staff should be civil scientist in the labs.
- Plug & Play Model; wherein the staff should be moved to different tech or projects as and where required.
- All services have separate tech and logistics vertical as part of domain specialisation.
- All officers after they face their first selection board and get non-empanelled for command and staff, can be moved to domain specialization and in future have its own promotional avenues in terms of rank or financial upgradation.
- 75% of officers from domain specialised verticals, rest will be filled by GS and civil scientists on contractual terms.
- Salaries of scientists will be dictated by market rates and decided by the MFC C-in-C.

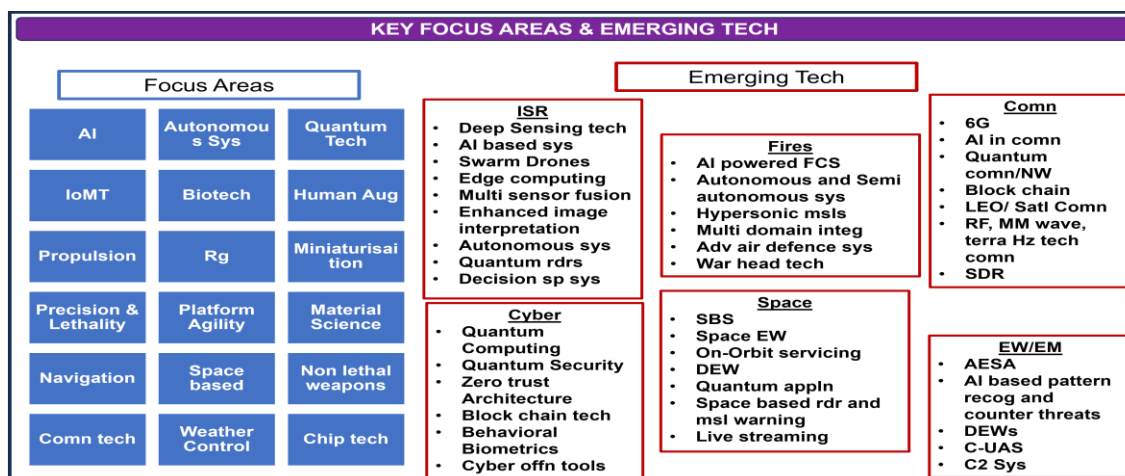
Policy and Financial backing. Any structure without requisite policy and financial power back up, will not be able to execute its functions in a proper manner. Few points to be kept in mind are as under: -

- Financial powers to be delegated to the entire echelon of the command. Enhanced powers and an IFA (optional) can be placed under the MFC to move the files immediately.
- Separate budget code for MFC.

- 3.5% of GDP needs to be the defence budget with 15% of the budget of armed forces dedicated to MFC R&D. The enhanced budget to MFC would lead to development of R&D culture of the country and development of dual tech leading to second and third order effects on Indian economy.
- MFC to be responsible for R&D through own resources or through partnerships.
- The IPR would shift to the manufacturer on bulk production.
- If tech is not accepted into the bulk production stage, the IPR can be sold off to highest bidder.
- 25% of funds to be on GS fund accounting model.
- Partner of R&D to get the bulk order (single vendor), if it passes the tech requirement of capacity for bulk production.

Key Focus Areas and Specific Technologies. Tech is ever evolving however the focus areas, and the broad requirement of forces seldom change. Few key focus areas and emerging technology, which if made available to forces, would multiply its capabilities manifold are highlighted in the image below.

Figure 7: Key Focus Areas



Source: Author's Own

Conclusion

The establishment of a Military Futures Command (MFC) represents the most viable way forward in synchronising a nation's fragmented R&D efforts. By acting as the central nervous system for innovation, this command would bridge the traditional gap between laboratory breakthroughs and battlefield deployment. It moves the military beyond the 'procurement of today' and into the 'design of tomorrow', ensuring that the Whole of Nation Approach (WONA) is not just a theoretical concept, but an operational reality. Ultimately, the goal of a MFC is to eliminate the learning curve that currently plagues modern militaries. By institutionalising the ability to sense technological ripples and translating them into integrated warfighting doctrines, the force can achieve a state of permanent readiness. In an era wherein the character of war changes in weeks rather than decades, the ability to evolve faster than the adversary is the only true guarantee of national security. The future of defence lies not in matching an opponent's current hardware, but in outpacing their future imagination.

MFC is strongly recommended to be established to ensure a strong future ready force. It can be readily implemented in short period by hooking onto existing infrastructure of both

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government and military. The issue brief is not exhaustive, and a detailed study is recommended at the IDS level for implementation.

“A military that waits for the future to arrive has already lost the first battle; the military that takes the initiative to redefine itself, ensures that we are the ones who define the horizon.”

— Author



About the Author

Colonel Ritchie Ashwin S, commissioned into the Indian Army in September 2005 from Officers Training Academy, Chennai; is a third-generation officer who blends extensive tactical leadership with a deep focus on military modernisation and doctrine. An alumnus of the Defence Services Staff College, Wellington, and the Higher Command Course at the Army War College, Mhow, he has an operational footprint that spans all terrain profiles, including significant tenures along the Northern Borders. He has commanded his unit, 18 MADRAS (Mysore), on the Western Front as well as in the challenging high-altitude environments along the northern border. Combining his frontline command experience with specialised expertise in defence procurement—honed during a high-tech assignment at MGS PPO—he is deeply invested in structural capability development. He actively researches doctrinal reforms, multi-domain operations, and the integration of civil-military technology ecosystems to build a future-ready force.



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