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DEFENCE SCHEMES 2026 PRELIMS

For the fiscal year 2025–26, the Union Government has allocated **₹6.81 lakh crore** to the Ministry of Defence, declaring 2025 as the **"Year of Reforms"**. The following list highlights key defence schemes and initiatives active or launched during this period:

1. ADITI Scheme (Acing Development of Innovative Technologies with iDEX):

The **ADITI (Acing Development of Innovative Technologies with iDEX) Scheme** is a dedicated defense technology program launched on 4th March 2024 to promote deep-tech innovations in critical and strategic military areas. It serves as a specialized sub-scheme or operational component under the broader, flagship **Innovations for Defence Excellence (iDEX)** framework.

Core Governance & Structure

- **Ministry:** Ministry of Defence (MoD).
- **Department:** Department of Defence Production (DDP).
- **Implementing Agency:** Defence Innovation Organisation (DIO), a Section 8 non-profit company functioning through its executive arm, iDEX.
- **Scheme Nature: Central Sector Scheme** (100% funded by the Central Government of India).
- **Classification:** It operates as a major **flagship deep-tech initiative** nested within the overarching iDEX ecosystem.

Aims & Objectives

- **Indigenisation:** Reduce heavy reliance on foreign Original Equipment Manufacturers (OEMs) for critical strategic systems.
- **Target Development:** Design and deploy approximately **30 critical deep-tech and advanced strategic technologies** essential for future warfare.
- **Bridging Capability Gaps:** Address areas where the Indian Armed Forces completely lack domestic design and production setups.
- **Foresight Tools:** Create a "Technology Watch Tool" to continuously bridge the gap between military operational requirements and the start-up capabilities.

Funding Mechanism

- **Financial Outlay:** A total budget allocation of **₹750 crore** covering the initial period from FY 2023-24 to FY 2025-26.

- **Quantum of Grant:** Eligible start-ups, MSMEs, and innovators receive non-dilutive grant-in-aid of **up to 50% of the Product Development Budget (PDB)**, capped at a maximum of **₹25 crore** per project.
- **Disbursement:** Milestone-based funding disbursed through designated Partner Incubators (PIs).

Key Features

- **Target Sectors:** Focuses heavily on avant-garde domains like Quantum Technologies (QT), Artificial Intelligence (AI), advanced cyber weapons, semiconductor advancements, autonomous weapon platforms, and space-based technologies.
- **Eligibility:** Open to DPIIT-recognized start-ups, Indian MSMEs, and individual innovators partnering with academic research setups.
- **Spiral Development:** Promotes iterative upgrades ("spiral development") of technologies designed under both ADITI and preexisting iDEX programs.

2026 Status & Achievements

- **Progression to ADITI 4.0:** The program advanced into **ADITI 4.0** during the National Defence Industries Conclave, introducing 25 newly curated industry challenges.
- **Challenge Scale-up:** Followed the rollout of ADITI 1.0 (17 initial challenges) and ADITI 2.0 (19 challenges) focusing on anti-drone systems, secure satellite communication, and adaptive camouflage.
- **Ecosystem Expansion:** Cultivated a robust "Startup-to-Soldier" pipeline, resulting in multiple prototype testings with the Army, Navy, Air Force, and Defence Space Agency.
- **Private Co-investment:** Successfully leveraged the *iDEX Investor Hub (iIH)* to pool matching financial commitments from private venture capital alongside the government grants.

Criticisms & Structural Challenges

- **Research Integrity Concerns:** Some defense analysts express concern over a "content-heavy, data-light" model, noting that rapid scaling requires stricter peer validation mechanisms to ensure high reproducibility and true combat readiness.
- **Budgetary Exhaustion:** Given high deep-tech development costs, initial framework budgets get utilized fast, leading to continuous reliance on supplementary fiscal allocations.
- **Lack of Diaspora Integration:** The scheme lacks a formalized global talent scouting protocol or coordinated plan to easily repatriate and empower elite Indian researchers working in foreign deep-tech fields.
- **Procurement Lag:** Moving from a successful prototype milestone to a mass military manufacturing contract continues to face bureaucratic delays within legacy defense procurement processes.

2. iDEX (Innovations for Defence Excellence):

The **Innovations for Defence Excellence (iDEX)** scheme is the **flagship central sector initiative** of India's Ministry of Defence. It was launched by Prime Minister Narendra Modi in April 2018 to completely modernize and indigenize the nation's aerospace and military technology pipelines.

Ministry and Implementing Agency

- **Ministry:** Administered directly by the Department of Defence Production (DDP) under the **Ministry of Defence (MoD)**.

- **Implementing Agency:** Formally executed and managed by the **Defence Innovation Organisation (DIO)**. The DIO is a Section 8 "not-for-profit" company formed by co-founders Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL).

Nature of Scheme

- **Central Sector Scheme:** It is **100% funded and implemented** by the Central Government of India. It is not a centrally sponsored scheme (which relies on shared state funding).
- **Flagship Initiative:** It is categorized as a **flagship scheme** explicitly aimed at achieving *Atmanirbhar Bharat* (self-reliance) in domestic military hardware.

Aims and Objectives

- **Ecosystem Building:** Cultivate a vibrant R&D network linking academic institutes, incubators, MSMEs, startups, and individual innovators with the defense forces.
- **Rapid Development:** Fast-track the creation of functional tech prototypes tailored specifically to immediate tactical needs.
- **Import Reduction:** Lessen reliance on foreign Original Equipment Manufacturers (OEMs) and shrink India's massive defense import bill.
- **Commercialization Pathway:** Build structured channels ensuring successful prototypes successfully secure final bulk procurement orders.

Funding Mechanism

The initial phase operated with a **₹498.78 crore budgetary allocation** covering 2021-22 through 2025-26. Financing is released under the **SPARK (Support for Prototype and Research Kickstart)** framework using specific tiers:

- **Core iDEX Challenges:** Grant funding of up to **₹1.5 crore** per selected innovator.
- **iDEX Prime:** Enhanced funding of up to **₹10 crore** for large-scale, deep-tech systems.
- **ADITI Scheme:** Strategic sub-scheme offering mega-grants up to **₹25 crore** for critical technologies.
- **Co-investment:** Requires a matching component from selected startup entities based on predefined cash/in-kind parameters.

Core Structural Features

- **Problem Statement Approach:** The Armed Forces publish real-world bottlenecks via Defence India Start-up Challenges (DISC) and Open Challenges instead of generic proposals.
- **Sub-Schemes Integration:** Houses elite sub-frameworks such as **ADITI** (deep-tech critical systems) and **DRISHTI** (design-led innovation funded directly by DPSUs).

- **Incubator Network:** Works via a pan-India network of over 20 partner incubators (such as IITs and specialized technology hubs) to mentor participants.
- **Procurement Linkage:** Formally linked to the **Defence Acquisition Procedure (DAP)** to simplify procurement routes for successful test platforms.

Key Achievements (Updated to 2026)

- **Contract Volume:** Over **650 iDEX winners** have successfully emerged across multiple editions.
- **Financial Impact:** Cleared massive prototype procurement pipelines scaling past **₹3,000 crore**.
- **Technological Successes:** Successfully field-tested and inducted home-grown innovations, including the *Trinetra Electric Loitering Munition*, AI-driven computer vision *Anti-Drone Systems*, *High Altitude Pseudo-Satellite (HAPS)* prototypes, and *Integrated Mobile Camouflage Systems*.
- **Deployment Extensions:** Actively operating advanced iterations like **ADITI 4.0** and **DISC 14** concurrently to address advanced quantum radar and autonomous fighting vehicle systems.

Criticisms and Systemic Challenges

- **Procurement Bottlenecks:** Despite structured alignment under DAP, startups routinely encounter prolonged procedural lag transitioning from a tested "successful prototype" to actual "bulk factory orders".
- **Follow-on Capital Shortage:** The ecosystem faces a stark venture scale funding gap once primary government milestone grants are exhausted.
- **Doctrinal Inertia:** The Indian Armed Forces occasionally demonstrate resistance or internal delays when attempting to integrate radical, fast-evolving startup software/hardware into legacy command doctrines.
- **R&D Funding Limitations:** Industry analysis indicates total initial public outlays remain relatively small given the capital-intensive nature of high-risk military hardware engineering

3. Technology Development Fund (TDF):

The **Technology Development Fund (TDF) Scheme** is a **Central Sector Scheme** funded completely by the Central Government of India. It functions as a **flagship standalone programme** under the **Make in India** initiative, rather than an umbrella scheme covering multiple sub-schemes.

Administrative Framework

- **Nodal Ministry:** Ministry of Defence (MoD).
- **Implementing Agency:** Defence Research & Development Organisation (DRDO).
- **Implementing Partner:** Global Innovation & Technology Alliance (GITA), a Section-8 Public Private Partnership (PPP) company.

Aims & Objectives

- **Promote Self-Reliance:** Accelerate indigenisation (Aatmanirbharta) in the Indian defence and aerospace sectors.
- **Ecosystem Creation:** Foster collaborative R&D networks uniting private industries, MSMEs, startups, and academic institutions.
- **Bridge Technology Gaps:** Advance Technology Readiness Levels (TRL) from TRL-3 (proof of concept) to operational prototype realisation.
- **Import Substitution:** Target niche systems and components where technologies do not currently exist within domestic industries.

Funding Mechanism

- **Grant-in-Aid:** Financed via milestone-linked grants covering **up to 90% of the total project cost**.
- **Funding Cap:** The maximum funding ceiling is **₹50 Crore per project**, elevated from its previous limit of ₹10 Crore.
- **Collaboration Limit:** If industries collaborate with academia or research institutions, the academic entity's involvement cannot exceed **40% of the total project effort**.

Key Features

- **Eligibility Core:** Open to public/private Indian limited companies, partnerships, or sole proprietorships. The entity must be owned and controlled by resident Indian citizens with **foreign investment capped at 49%**.
- **Project Duration:** Strict execution window with a **maximum development period of 4 years**.
- **Technical Mentorship:** Selected developers are assigned a Project Monitoring and Mentoring Group (PMMG) of DRDO scientists to guide high-risk engineering phases.
- **Dual-Use Focus:** Backs solutions that have both military applications and civilian commercial spin-offs.

Scheme Status & Achievements (As of 2026)

- **Sanctioned Portfolio:** Roughly **264 projects** worth around **₹930 Crore** have been approved under DRDO's broader grant-in-aid frameworks.
- **Niche Technology Handovers:** Over **26 advanced technologies** have completed development. Notably, DRDO officially transferred seven high-impact products to the Tri-Services. These include:
  - High-Voltage Power Supplies for Airborne Self-Protection Jammers.
  - Long-life Seawater Battery Systems for underwater surveillance.
  - Indigenous Waterjet Propulsion Systems for Fast Interceptor Craft.
- **Deep-Tech Vertical Expansion:** An **additional corpus of ₹500 Crore** was sanctioned specifically to support next-generation technologies like Quantum Technology, AI-driven wargaming, and Directed Energy Weapons (DEW).

- **Space Exploration Realisation:** Two distinct sub-systems funded under the TDF framework successfully flew in space as payloads onboard India's PSLV missions.

Criticisms & Structural Challenges

- **Lengthy Induction Timelines:** While prototypes are being cleared, bureaucratic inertia across the defence procurement pipeline often delays the final mass production and operational induction of technologies into the Armed Forces.
- **High Technical Entry Barriers:** Startups and MSMEs frequently experience difficulty meeting the initial financial and technical benchmark qualifications despite the 90% funding structure.
- **Risk Aversion in Certification:** Complex compliance demands from regulatory certification agencies (e.g., CEMILAC for aviation safety) prolong final field deployments, sometimes causing smaller firms to deplete their working capital mid-cycle

4. R&D Democratization:

The core initiative executing the vision of **R&D Democratization** in India—historically centered only within elite academic institutions like the IITs—is driven through the **Anusandhan National Research Foundation (ANRF)** and its freshly operationalized flagship extension, the **Research, Development, and Innovation (RDI) Scheme**.

Institutional and Administrative Framework

- **Ministry:** Ministry of Science and Technology.
- **Nodal / Implementing Agency:** The **Department of Science & Technology (DST)** serves as the central nodal department. Execution relies on **ANRF** as the overarching anchor body.
- **Scheme Type:** It operates as a **Central Sector Scheme** (100% funded directly by the Central Government of India).
- **Classification:** It is a **Flagship Scheme** designed to fundamentally scale and restructure India's National Innovation Ecosystem to achieve the long-term goal of *Viksit Bharat 2047*.

Aims and Objectives

- **Catalyze Private R&D:** Incentivize commercial corporate and startup entities to aggressively scale up basic and applied research in high-risk environments.
- **Democratize Resource Distribution:** Shift funding access outside of elite tech institutes to include state universities, MSMEs, and historically marginalized researchers.
- **Bridge Lab-to-Market Gap:** Finance projects at higher **Technology Readiness Levels (TRL 4 to TRL 7)** to convert scientific concepts into globally market-ready commercialized products.

- **Strategic Self-Reliance:** Target critical technological independence in "sunrise sectors" to build economic security and minimize foreign import liabilities.

Funding Mechanism

The scheme utilizes an unprecedented **₹1 Lakh Crore ($11.5 Billion) corpus** over a 6-year deployment cycle. It utilizes a distinct **Two-Tiered Special Financial Architecture**:

- **Tier-1 (Fund Custodian):** A specialized **Special Purpose Fund (SPF)** established directly within the ANRF acts as the absolute first-level custodian of the capital pool.
- **Tier-2 (Second-Level Fund Managers - SLFMs):** Rather than bureaucratic ministries disbursing cash, the SPF routes resources through certified commercial entities such as the **Technology Development Board (TDB)**, the **Biotechnology Industry Research Assistance Council (BIRAC)**, and specific non-banking finance companies (NBFCs) or Alternate Investment Funds (AIFs).
- **Disbursal Modes:** Distributed via **long-term concessional loans** at low-to-zero interest rates, targeted equity support for startups, and capital contributions to a sovereign Deep-Tech Fund of Funds (FoF).

Key Features

- **Sunrise & Strategic Sector Focus:** Mandatorily restricted to deep technology including Quantum Computing, AI applications (health, agriculture), Robotics, Green Hydrogen, Synthetic Biology, Drones, and Space tech.
- **Liberalized Financial Rules:** Utilizes the customized *ANRF (Utilization of RDI Fund) Financial Rules 2026* rather than rigid General Financial Rules (GFR), allowing room for high-risk research failures without punishing innovators.
- **High TRL Eligibility:** Excludes routine service-sector iterations; applicants must have reached a minimum of TRL 4 (lab validation) to qualify for scaling assistance.
- **Empowered Governance:** Governed strategically by a Prime Minister-led Governing Board, with structural execution reviewed dynamically by an **Empowered Group of Secretaries (EGoS)** led by the Cabinet Secretary.

Major Achievements (As of 2026)

- **Active Disbursal Call Launches:** Following the formal finalization of guidelines, structural fund deployment accelerated with active national proposal calls launched by designated managers TDB and BIRAC.
- **Launch of ATRI Centers:** Established **ANRF Translational Research and Innovation (ATRI) Centers** across Tier-2 and Tier-3 zones to deliberately support non-elite institutions with infrastructure to scale innovations from TRL 4 to 7.
- **Inclusivity Footprint Expansion:** Subsumed older conservative equity schemes into the comprehensive **Inclusivity Research Grant (IRG)**, successfully provisioning up to ₹60 Lakhs in flexible funding exclusively to SC/ST scientific investigators.
- **Global Talent Re-attraction:** Expanded the *Ramanujan Fellowship* and *National Post-Doctoral Fellowship (NPDF)* frameworks to bring back high-level Indian-origin researchers with attractive financial backing.

Main Criticisms and Implementation Challenges

- **Excessive Initial Filtering Rates:** The automated screening process has drawn significant flak from the domestic scientific community. Academic reviews flagged that **nearly 70% of early-stage proposals were outright rejected** prior to receiving a technical review due to rigid documentation constraints.
- **Private Autonomy vs. State Control:** Critics argue that placing an Empowered Group of Bureaucrats (EGoS) at the decision-making apex could cause red-tape bottlenecks, disincentivizing large private firms used to agile investments.
- **Squeezing Out Basic Science:** Concern persists within universities that the hyper-focus on commercialization metrics (TRL 4+) will starve foundational, curiosity-driven basic scientific research of necessary state funds.
- **The Elite Institution Bias:** Despite democratization efforts, deep-tech infrastructure remains heavily concentrated in a handful of top IITs and IISc. Observers note smaller state universities struggle to meet the competitive criteria required by second-level fund managers

5. Defence Testing Infrastructure Scheme (DTIS):

The **Defence Testing Infrastructure Scheme (DTIS)** is a **Central Sector Scheme** funded 100% by the Central Government via the Ministry of Defence (MoD). It operates as a focused **standalone scheme** rather than an umbrella scheme, falling directly under the overarching national **"Make in India"** and **"Aatmanirbhar Bharat"** flagship umbrella initiatives.

Aims and Objectives

- **Promote Indigenous Production:** Boost domestic military and aerospace manufacturing to reduce dependence on expensive foreign imports.
- **Bridge Testing Gaps:** Create easily accessible, specialized, and state-of-the-art testing setups within the country.
- **Support Small Enterprise:** Target and address the financial limitations of MSMEs and startups by providing affordable common test facilities.
- **Ensure High Standards:** Certify military equipment under strict, standardized global accreditation criteria.

Funding Mechanism

- **Total Outlay:** Allocated budget of **₹400 crore**.
- **Grant-in-Aid:** The central government covers **up to 75%** of the project cost as a financial grant.
- **Equity/SPV Contribution:** The remaining **25%** is strictly funded by the implementing Special Purpose Vehicle (SPV) consortium.

- **Sustainability model:** Operating and maintenance expenses are self-sustained via user charges collected directly from the industry by the SPVs.

Implementing Agency

- **The Special Purpose Vehicle (SPV):** Each individual testing project is set up and operated by an independent SPV.
- **Legal Structure:** The SPV must register as a non-profit **Section 8 Company** under the Companies Act, 2013, consisting of at least 5 entities.
- **Constituents:** Members typically include Indian private entities, state government bodies, and Central/State Defense Public Sector Undertakings (DPSUs).
- **Oversight Authority:** The **DTI Screening Committee (DTISC)** acts as the apex approving and monitoring body.

Core Features

- **Greenfield Facilities:** Focuses exclusively on creating new, state-of-the-art testing centers from scratch.
- **Corridor Preferences:** Projects are given preference if located inside the designated Tamil Nadu and Uttar Pradesh Defence Industrial Corridors.
- **Infrastructure Tiers:** Distributes infrastructure into 3 distinct financial tiers:
  - **Small Facilities:** Budget up to ₹20 Crore (planned target: 3 centers).
  - **Medium Facilities:** Budget between ₹20–50 Crore (planned target: 3 centers).
  - **Large Facilities:** Budget exceeding ₹50 Crore (planned target: 2 centers).
- **Diverse Capabilities:** Covers specialized testing tracks, drone/UAV labs, electronic warfare setups, and ballistic testing armor.

2026 Status & Recent Achievements

- **Extended Trajectory:** Launched initially for 5 years, the scheme integration continues to form a foundational backbone of India's current defense infrastructure ecosystem.
- **Corridor Operationalization:** 7 major testing facilities have successfully advanced across the primary corridors (4 in Tamil Nadu and 3 in Uttar Pradesh).
- **Key MoUs Executed:** An agreement was signed to operationalize an advanced **Mechanical & Material domain testing facility** in Tiruchirappalli via a partnership between TIDCO, Micro Labs, BEML, and HAL.
- **Central Testing Portal Integration:** Raksha Mantri highlighted that DTIS centers are now linked to a Centralised Defence Testing Portal to offer nationwide digital access to manufacturers.

Criticisms and Key Challenges

- **Capital Intensity Constraints:** Upgrading highly specialized tech remains expensive, leaving some sectors prone to funding shortfalls despite government aid.

- **Delayed Private Participation:** The mandatory requirement for 5 diverse entities to seamlessly group and register as a Section 8 non-profit company faced initial corporate hesitation.
- **Geographical Concentration:** Heavy focus on the two main Defense Corridors has drawn criticism for creating regional imbalances in infrastructure access for remote MSMEs.
- **Stringent Accreditation Processes:** Aligning newly developed testing labs with complex international defense standards has caused execution delays.

6. DPM 2025 (Defence Procurement Manual):

The **Defence Procurement Manual (DPM) 2025** is not a welfare, flagship, or umbrella social scheme, but a comprehensive **policy and administrative framework**. It was released on 23 October 2025 and became effective on **1 November 2025** to replace the outdated 2009 manual. It regulates the massive **revenue procurement** system (approx. ₹1 lakh crore annually) required for the day-to-day operations and maintenance of India's Armed Forces.

Administrative Framework

- **Ministry:** Operating strictly under the **Ministry of Defence (MoD)**, Government of India.
- **Implementing Agencies:** The **three Armed Services** (Indian Army, Indian Navy, and Indian Air Force) alongside other MoD establishments and Headquarters Integrated Defence Staff (HQ IDS).
- **Scheme Classification:** It is **neither a Central Sector Scheme nor a Centrally Sponsored Scheme**. It does not provide public financial aid or social benefits. It is an internal governance document regulating sovereign public procurement.

Aims and Objectives

- **Operational Readiness:** Guaranteeing the rapid provisioning of goods, consumables, and services to keep the armed forces combat-ready.
- **Aatmanirbharta (Self-Reliance):** Transforming India’s defence ecosystem from a buyer’s market into a domestic builder’s ecosystem.
- **Transparency and Efficiency:** Cutting bureaucratic red tape, removing procedural delays, and ensuring fair competition via electronic procurement.
- **Industrial Synergy:** Integrating MSMEs, startups, academia, IITs, and private players into the mainstream defence supply chain.

Funding Mechanism

The DPM 2025 does not have a separate scheme-based funding pool. Instead, it is funded directly through the **Revenue Expenditure head of the Union Defence Budget**. It manages approximately **₹1 lakh crore per year** dedicated to operational costs, logistics, repairs, and stock maintenance.

Core Features

- **Structural Splitting:** Divided into **Volume I** (14 core procedural chapters, including 3 new ones on Indigenisation, ICT, and Consulting) and **Volume II** (appendices and standard government forms).
- **Assured Order Guarantees:** Provides domestic manufacturers an **assured quantity order for up to 5 years** (extendable by another 5 years) for indigenously developed products.
- **Level Playing Field:** Abolishes the restrictive mandate of securing a No Objection Certificate (NOC) from Defence Public Sector Undertakings (DPSUs) or the Ordnance Factory Board (OFB) before issuing open competitive tenders.
- **Relaxed Penalties:** Reduces financial stress on innovators by eliminating Liquidated Damages (LD) during the development phase and capping delayed delivery penalties at **0.1% per week** for indigenisation contracts.
- **Downtime Reduction:** Grants an upfront **15% "growth of work" financial margin** for aerial and naval platform repairs so extra faults found during servicing can be fixed without waiting for new approvals.
- **Streamlined Bidding:** Expands Limited Tender Enquiries for specialised niche items up to **₹50 lakh** to fast-track urgent requirements.

2026 Status & Achievements

As of mid-2026, the real-world impact of the manual reflects the Ministry's declaration of the period as a **"Year of Reforms"**:

- **Slashed Turnaround Times:** The 15% upfront growth mechanism has visibly minimised operational downtime for naval ships and aircraft refits.
- **Surge in Startup Integration:** Lowered thresholds and relaxed penalty clauses have accelerated the onboarding of private vendors, tech startups, and MSMEs into defensive ICT and supply pipelines.
- **Procurement Uniformity:** The complete transition of all Requests for Proposals (RFPs) issued after November 2025 to the DPM 2025 guidelines has institutionalised standard public procurement norms.

Expert Criticisms

- **Unpredictable Capital Risks:** Long-term commitments like the 5-year assured order guarantee are highly dependent on yearly budgetary allocations; any fiscal deficit risks damaging private sector investor confidence.
- **Risk-Averse Bureaucracy:** Critics note that procurement officials traditionally rely on rigid, compliance-heavy habits. Cutting timelines requires a steep organizational culture shift that simple paperwork updates cannot instantly solve.
- **Domestic Quality Deficit:** Some defense analysts express concern that domestic private industries and MSMEs may face early hurdles trying to replicate the complex, high-tier technical standards required by modern warfare

7. Agnipath Scheme:

The **Agnipath Scheme** is a **Central Sector Scheme** executed exclusively by the Central Government, operating as a distinct, major **flagship reform initiative** rather than an umbrella framework. It is handled directly under the **Ministry of Defence (MoD)**, with the **Indian Armed Forces** (comprising the Indian Army, Indian Navy, and Indian Air Force) serving as the core implementing agencies.

Aims and Objectives

- **Youthful Profile:** To drop the average age profile of the armed forces from **32 years down to 26 years**, ensuring a physically agile and technologically savvy front-line force.
- **Defence Modernisation:** To check the surging military pension bill so that freed-up capital can be channelled into cutting-edge tech like drones, cyber security, and robotics.
- **Skilled Civil Workforce:** To safely reintegrate highly disciplined, trained, and motivated young veterans (Agniveers) back into society to spur productivity across public and private sectors.

Funding Mechanism

- **100% Central Funding:** All costs relating to training, infrastructure, and packages are fully funded out of the Union Defence Budget's revenue head.
- **Agniveer Corpus Fund:** Formed through a co-contribution model. Agniveers allocate **30% of their monthly customized salary**, and the Government of India provides an absolute **matching contribution** into this interest-bearing account.

Core Features

- **Tenure:** Short-term contracts lasting **4 years**, inclusive of an initial 6-month rigorous military training phase.
- **Age Limit & Cadre:** Open to unmarried male and female candidates between **17.5 and 21 years** for ranks below officer cadre.
- **Retention:** Upon completing 4 years, **up to 25%** of each batch are offered regular permanent commission for a further 15 years based on centralized organizational merit.
- **Seva Nidhi Exit Package:** The 75% who exit receive a tax-free lump sum of **~₹11.71 lakh** (comprising accumulated corpus contributions plus accrued interest).
- **No Regular Pension:** The 75% exiting personnel do not qualify for lifelong pensions, gratuity, or ex-servicemen healthcare benefits.

Current Status & Budget Updates (as of 2026)

- **Aggressive Budgetary Push:** In the **Union Budget 2026**, the scheme's allocation surged by a massive **58% to ₹17,396 crore** (up from ₹11,039.51 crore in the previous cycle) to finance widespread training infrastructure expansions.
- **Recruitment Base Growth:** Total accumulated Agniveer enrollments across all three services crossed **1.75 lakh recruits** by late 2025/early 2026.

- **Proposed Refinements:** Military leadership is actively considering internal tweaks to better standardise operational cohesion, such as expanding annual leaves from 30 to 90 days or potentially scaling retention limits up to 50% for technical, high-skill roles.

Key Achievements

- **High Engagement:** The program enjoys robust popularity among aspirants; for instance, recent recruitment drives recorded over **12.8 lakh applications** contesting for 40,000 vacancies.
- **Operational Integration:** Multiple batches of Agniveers have successfully graduated from premium facilities (such as INS Chilika and various Regimental Centres), smoothly joining regular active units.
- **Post-Service Rehabilitation:** The Ministry of Home Affairs has operationalized a **10% horizontal reservation** alongside an age relaxation of 3 to 5 years for former Agniveers entering Central Armed Police Forces (CAPFs) and Assam Rifles.

Main Criticisms

- **Job Insecurity:** Exiting after four years leaves 75% of recruits searching for jobs in their early twenties without long-term financial security or pension fallback options.
- **Diluted Cohesion:** Defence analysts argue that compressed 6-month training frameworks may weaken the deep-seated "regimental esprit de corps" and bonding traditional to Indian military combat units.
- **Martyr Status & Benefits:** Prolonged political debate continues over disparities regarding structural allowances, compensation parity, and standard martyr status definitions between contractual Agniveers and regular permanent soldiers

8. Ex-Servicemen Contributory Health Scheme (ECHS):

The **Ex-Servicemen Contributory Health Scheme (ECHS)** is a **Central Sector Scheme** under the **Ministry of Defence, Department of Ex-Servicemen Welfare (DoESW)**. It operates as a **flagship scheme** implemented primarily through the **Central Organisation ECHS**, located within the Integrated Headquarters of the Ministry of Defence (Army).

Aims and Objectives

- **Comprehensive Care:** Provide allopathic and AYUSH medicare to Armed Forces pensioners and their dependents.
- **Financial Protection:** Ensure **cashless and capless** outpatient and inpatient treatments.
- **Equitable Footing:** Deliver medical benefits parallel to the Central Government Health Scheme (CGHS).
- **Geographical Outreach:** Reach out to veterans residing across India, including remote and far-flung areas.

Funding Mechanism

- **Public Underwriting:** Funded entirely by the Central Government of India.

- **One-Time Contribution:** Members pay a rank-based upfront fee ranging from ₹30,000 to ₹1,20,000 at retirement.
- **Budget Allocations:** Funded via the defense budget allocations. For FY 2026–27, the central allocation was boosted to a robust **₹12,100 crore**.

Key Features

- **Network Infrastructure:** Operates through a widespread chain of regional centers, ECHS polyclinics, and empanelled private/government hospitals.
- **64KB Smart Cards:** Employs mandatory identity smart cards for seamless check-ins and tracking.
- **Diverse Therapies:** Covers conventional allopathic medicine alongside AYUSH treatments.
- **Broad Eligibility:** Covers pensioners from the Army, Navy, Air Force, Territorial Army, and Gorkha recruits.

Scheme Updates & Achievements (As of 2026)

- **Budget Expansion:** Received a significant **45% increase in funding** for FY 2026–27 to address operational shortfalls.
- **Network Scale:** Effectively serves a beneficiary base of **over 55 lakh (5.5 million) people** across approximately 3,500 empanelled medical facilities.
- **Rate Revision Alignment:** Implemented newly revised, higher CGHS reimbursement packages to keep private hospitals incentivized.
- **Digital Upgrades:** Successfully launched updated native iOS and Android "ECHS Beneficiaries" mobile apps to manage medical histories and quick digital updates.
- **Robust Hiring:** Conducted extensive **2026 recruitment drives** across various regional hubs to fill medical, paramedical, and administrative vacancies on a contractual basis.

Criticisms and Operational Bottlenecks

- **Payment Delays:** Private empanelled hospitals frequently report delayed bill clearances, triggering threats of service suspension.
- **Medicine Shortages:** Inadequate resource matching has occasionally created a lack of critical local medicine availability at select clinics.
- **Uneven Distribution:** Recent CAG performance audit reports flagged **inadequate geographical coverage** in several regional pockets, making veterans travel long distances for specialized treatment.
- **Cumbersome Referrals:** The rigid procedural obligation to route initial diagnoses through primary polyclinics before seeking specialist private care draws veteran criticism for bureaucratic delay

9. SPARSH (System for Pension Administration Raksha):

SPARSH (System for Pension Administration Raksha) is a centralized, web-based digital platform implemented by the **Ministry of Defence** to automate the sanction and direct disbursement of defence pensions without external intermediaries.

Core Institutional Framework

- **Ministry:** Ministry of Defence (MoD), Government of India.
- **Implementing Agency:** The **Defence Accounts Department (DAD)**, operating through the Principal Controller of Defence Accounts (PCDA) Pensions, Prayagraj.
- **Scheme Categorization:** It operates strictly as a **Central Sector Scheme** funded 100% by the Central Government via the Defence Pension Budget.
- **Scheme Type:** It is a **Flagship Scheme** under the *Digital India* initiative, driving "Minimal Government, Maximum Governance".

Aims & Objectives

- **Direct Disbursement:** Credits pensions directly into bank accounts via Direct Benefit Transfer (DBT).
- **Remove Intermediaries:** Eliminates third-party commercial bank reliance for pension processing.
- **Process Transparency:** Establishes an end-to-end trace of a pensioner's lifecycle from retirement to final beneficiary.
- **Accuracy Assurance:** Targets "Right Pension to the Right Pensioner at the Right Time".

Key Features

- **Self-Service Portal:** Digital access to view monthly pension slips, manage profiles, and track applications.
- **Grievance Redressal:** An integrated mechanism allowing veterans to lodge real-time complaints and data corrections.
- **Digital Identification:** Built-in facilities to submit Annual Life Certificates via biometric or facial authentication.
- **Partner Networks:** Multi-channel physical touchpoints called *SPARSH Service Centres*, consisting of over 4.63 lakh Common Service Centres (CSCs), 201 DAD offices, and partner commercial banks.

2026 Status & Cumulative Achievements

- **Mass Onboarding:** Over **31.69 lakh defence pensioners** across India and Nepal have been successfully migrated to the SPARSH ecosystem.
- **Budget Management:** Real-time processing and smooth disbursement of the vast Defence Pension Budget (amounting to ₹1,57,681 crore in recent cycles).
- **Legacy Correction:** Effectively normalized **94.3% of legacy discrepant cases** (resolving 6.07 lakh out of 6.43 lakh faulty data profiles migrated from banks).

- **Grievance Acceleration:** Significantly slashed the average time to resolve pension grievances from **56 days down to 17 days**.
- **Digital Verification Leadership:** Generated **20.94 lakh Digital Life Certificates (DLC)** under the national DLC 4.0 campaign, leading all central government departments.
- **Outreach Drives:** Conducted 284 SPARSH Outreach Programmes and 194 Raksha Pension Samadhan Ayojans to manually resolve remote cases.

Criticisms & Bottlenecks

- **Data Migration Glitches:** The initial shift from legacy bank logs caused incorrect biographical entry mappings, resulting in blocked or delayed payments for hundreds of veterans.
- **Technical Exclusion:** Elderly veterans and rural widows face notable operational barriers handling complex multi-factor authentications or online logins.
- **Accounting Complexities:** Prominent errors recorded regarding Form 26AS mismatch and non-reflective Tax Deducted at Source (TDS) parameters.
- **Centralized Delays:** Since data correction rights remain predominantly centralized at PCDA Prayagraj, basic profile edits have faced long execution timelines on the ground

10. Raksha Mantri Ex-Servicemen Welfare Fund (RMEWF):

The **Raksha Mantri Ex-Servicemen Welfare Fund (RMEWF)** is an **umbrella financial assistance scheme** administered under the **Ministry of Defence**, Government of India. It functions as a **Central Sector Scheme**, entirely financed and managed by the central framework to provide social security to veterans and their dependents.

Aims and Objectives

- **Provide Financial Relief:** Assist destitute, non-pensioner Ex-Servicemen (ESM) and their widows who are facing severe economic penury.
- **Promote Education:** Ensure that the children of low-ranked veterans and widows can access primary to undergraduate level education.
- **Support Demarginalisation:** Provide financial backup for life milestones, vocational skill development, and unexpected medical crises.

Funding Mechanism & Implementing Agency

- **Funding Mechanism:** The fund is entirely drawn from the **Armed Forces Flag Day Fund (AFFDF)**, which accumulates corpus through public donations and corporate social responsibility (CSR) contributions.

- **Implementing Agency:** The **Kendriya Sainik Board (KSB) Secretariat** acts as the apex implementing body. It coordinates directly with **Rajya Sainik Boards (RSBs)** at the state level and **Zila Sainik Boards (ZSBs)** at the district level for application processing and ground-level execution.

Core Features (Updated for 2026)

Following a **100% financial assistance hike approved by the Ministry of Defence**, the current financial assistance brackets under the KSB Portal are:

Grant Category	Eligible Beneficiaries	Revised 2026 Amount
Penury Grant	Aged, non-pensioner ESM/widows above 65 years.	**₹8,000 per month** (Paid Annually).
Education Grant	Maximum 2 children (Class 1 to Graduation); Widows pursuing PG.	**₹2,000 per month** per child.
Daughter's Marriage Grant	Maximum 2 daughters of eligible ESM; Widow remarriage.	**₹1,00,000** per beneficiary.
Disabled Children Grant	100% disabled children of JCOs/OR ranks.	**₹3,000 per month**.
Orphan Grant	Sons up to 21 years and unmarried daughters of deceased ESM.	**₹3,000 per month**.
Medical Grant	Non-pensioner ESM up to Havildar rank and dependents.	**Up to ₹50,000 per year**.
Vocational Training Grant	Widows of ESM for self-reliance courses.	**₹50,000** (One-time).

Major Achievements (As of 2026)

- **Direct Benefit Transfer (DBT) Integration:** The scheme successfully transitioned to 100% digital governance via the Official KSB Portal. Benefits are directly deposited into verified bank accounts, eliminating middle-man delays.
- **Massive Scale Outreach:** Hundreds of thousands of beneficiaries are reached annually. For instance, the system processed **over 1,53,000 beneficiaries** in a single recent financial cycle, disbursing more than ₹273 crore before the newer enhanced rates kicked in.
- **Timely Rate Revisions:** The 2025/2026 policy cycle effectively doubled the baseline monetary protection (e.g., doubling the penury and education slabs) to actively fight post-pandemic inflation.

Criticisms and Policy Gaps

- **Exclusion of Technical & Professional Courses:** The education grant explicitly bars professional or technical degrees like Engineering, MBBBS, or Law, which restricts upward economic mobility for the wards.
- **Delayed Annual Payout Cycle:** Most monthly allocations (like penury and education grants) are **paid annually in a single lump-sum installment**. This forces impoverished families to arrange cash flows for upfront academic year fees or daily costs.
- **Rural Awareness Deficit:** Zila Sainik Boards in remote or mountainous terrains suffer from heavy administrative manpower backlogs, leaving a segment of aged non-pensioners unaware of online renewal protocols

11. Integrated Theatre Commands:

The institutional overhaul to establish **Integrated Theatre Commands (ITCs)** is an ongoing internal administrative restructuring of the Indian Armed Forces, meaning it is **not a public welfare scheme** (neither a Central Sector nor a Centrally Sponsored Scheme, and it does not fall under flagship or umbrella categories). Instead, it is a **major defense reform** executed within the sovereign mandate of the Ministry of Defence (MoD).

Governance and Framework

- **Ministry:** Ministry of Defence (MoD).
- **Implementing Agency:** The **Department of Military Affairs (DMA)**, headed directly by the **Chief of Defence Staff (CDS)**, is legally mandated to facilitate theaterisation.
- **Funding Mechanism:** Financed internally via the regular **Defence Budget allotments** under the capital and revenue heads of the Indian Armed Forces.

Aims and Objectives

- **Jointness & Integration:** To transition the Indian military from independent, service-specific strategies to a completely synchronized, tri-service warfare model.
- **Resource Optimization:** To eliminate duplicate logistical and operational loops among the 17 single-service commands.
- **Multi-Domain Readiness:** To synthesize traditional ground, air, and naval capabilities with newer domains like cyber, space, and electronic warfare.
- **Unified Response Speed:** To compress the military chain of command for immediate, unified tactical decision-making during borders crises.

Core Technical Features

- **Unified Local Command:** Placing all assigned assets from the Army, Air Force, and Navy within a defined geographical area under **one 4-star Theatre Commander**.
- **Operational Autonomy:** Theatre Commanders report straight to the political executive/CDS structure, bypassing individual service chiefs during active conflicts.
- **Fixed Domain-Expert Leadership:**
  - **Northern Command (Lucknow):** Led by an Army officer to tackle Himalayan border defense against China.
  - **Western Command (Jaipur):** Led by an Air Force officer, utilizing precision strikes and air power asset deployment against Pakistan.
  - **Maritime Command (Thiruvananthapuram):** Led by a Navy officer to protect the Indian Ocean Region.
- **Cross-Domain Deputies:** Institutionalizing integration by appointing a deputy commander from a sister service within each command.
- **Separation of Roles:** Service Chiefs switch focus entirely to raising, training, equipping, and sustaining forces, leaving active warfighting to the Theatre Commanders.

Status and Achievements (Updated May 2026)

- **Formal Proposal Submitted:** Chief of Defence Staff Gen Anil Chauhan formally sent the complete, detailed blueprint of the ITCs to Defence Minister Rajnath Singh for Cabinet Committee on Security (CCS) approval.
- **Consensus Secured:** Following extensive tabletop exercises and the 2026 Joint Commanders Conference, all three Service Chiefs signed off on the operational structures, ending long-running disagreements.
- **Integrated Logistics Network:** Four **Joint Logistics Nodes (JLNs)** at Leh, Siliguri, Sulur, and Prayagraj have been initiated to test tri-service inventory and asset pooling.
- **Cross-Service Human Resource Reforms:** Cross-postings of mid-level officers, standardized evaluation reports across all three branches, and inter-service disciplinary laws have been codified to foster joint culture.
- **Operational Readiness Timelines:** The defense infrastructure is on track to formalize and activate its **first Integrated Theatre Command template by May 2026**.

Main Criticisms and Vulnerabilities

- **Air Asset Fractionalisation:** The Indian Air Force initially raised massive concerns that dividing limited, expensive air assets across multiple theaters compromises flexibility and leaves India with a dangerous shortage of multi-role fighter squadrons.
- **Command Hierarchy Clashes:** Transitioning 17 legacy commands to 3 massive theatres threatens established promotional ladders and institutional seniority systems between the services.
- **Inter-Service Rivalries:** Bureaucratic friction and differences over asset distribution have historically dragged down the timeline since the first recommendation by the 1999 Kargil Review Committee.
- **Civil-Military Structure Confusion:** Critics note that a clear, legislated chain of command between the Defence Minister, the CDS, and the upcoming Theatre Commanders remains dynamically contested

12. Defence Space Agency (DSA):

The **Defence Space Agency (DSA)** is a tri-service strategic agency of the Indian Armed Forces designed to operate systems that protect India's interests in outer space and handle potential space-based warfare.

Governance, Scheme Type, and Structure

- **Ministry:** The DSA operates under the **Ministry of Defence (MoD)**.
- **Implementing/Nodal Agency:** It functions directly under the **Headquarters Integrated Defence Staff (HQ IDS)**. It works in close coordination with the Defence Space Research Agency (DSRA) for R&D, alongside ISRO and the DRDO.
- **Scheme Type:** The DSA is **not** a Central Sector Scheme or a Centrally Sponsored Scheme. It is a permanent **joint-service military command/organisation**. It is neither a flagship nor an umbrella social welfare scheme; it is a core defense asset funded directly out of the national defense budget.
- **Funding Mechanism:** Fully funded by the **Central Government** via the Ministry of Defence's capital and revenue allocations. Technology funding is augmented through the iDEX (Innovations for Defence Excellence) scheme, the ADITI scheme, and DRDO's Technology Development Fund (TDF).

Aims and Objectives

- Formulating and executing India's comprehensive **space warfare strategy** and military space doctrine.
- Safeguarding critical Indian civilian and military **space assets** from electronic, kinetic, or cyber threats.
- Enhancing space-based Intelligence, Surveillance, Reconnaissance (ISR), and satellite communication networks for the Army, Navy, and Air Force.
- Developing Space Situational Awareness (SSA) to track, catalogue, and counter adversarial space maneuvers.

Key Features

- **Tri-Service Command:** Draws specialized personnel and officers from the Indian Army, Navy, and Air Force.

- **Integrated Units:** Has functional control over the Defence Imagery Processing and Analysis Centre (DIPAC) in Delhi and the Defence Satellite Control Centre (DSCC) in Bhopal.
- **Dual Base:** Headquartered in New Delhi, while its R&D and Quality, Risk, and Mitigation (QRM) Directorate operates from Bengaluru.

2026 Status & Major Achievements

- **Space Docking Success:** Leveraged [ISRO's breakthrough Space Docking Experiment (SpaDeX)](1.2.9, 1.2.14) to build frameworks for satellite servicing, refueling, and active debris mitigation.
- **SBS-III Project Rollout:** Actively managing the implementation of the Space Based Surveillance (SBS-III) project. This is on track to launch **52 military surveillance and communication satellites**.
- **Private-Sector Integration:** Successfully contracted private space-tech firms like Pixxel and InspeCity through iDEX to manufacture military-grade cubesat swarms and hyperspectral payloads.
- **Space Warfare Exercises:** Conducted large-scale, multi-agency strategic tabletop exercises like **SpaceX** to test operational dependencies and identify space segment vulnerabilities under adversarial denial-of-service conditions.

Criticisms and Strategic Gaps

- **Bureaucratic Exclusion:** Strategic experts point out that the Ministry of Defence and the DSA are still excluded from direct seats on the [civilian Space Commission](1.1.6, 1.1.11), slowing down unified civil-military policy integration.
- **Capability Asymmetry:** India continues to lag significantly behind China's People's Liberation Army Strategic Support Force, particularly in advanced Directed Energy Weapons (DEWs), co-orbital jammers, and multi-layered electronic warfare capabilities.
- **Slow Jointness Transition:** Despite being a tri-service body, full structural integration and a unified national military space policy have faced developmental and administrative delays among individual service branches

13. **Annual Acquisition Plan (AAP) 2024–26**

The **Annual Acquisition Plan (AAP) 2024–26** is **not a welfare, central sector, or centrally sponsored scheme**; rather, it is India's official, internal macro-level **defence procurement roadmap**. It serves as a subset of the Services Capital Acquisition Plan (SCAP) to systematically execute military infrastructure and hardware modernization.

Ministry and Implementing Agency

- **Ministry:** Administered directly under the Ministry of Defence (MoD).
- **Implementing Authority:** Approved and managed by the **Defence Procurement Board (DPB)**, which is chaired by the Defence Secretary.

- **Secretariat Support:** Driven by the **Acquisition Wing** of the MoD.

Nature of the Plan

- **Not a Development Scheme:** It does not fall under standard socioeconomic categories like a "Central Sector Scheme" or "Centrally Sponsored Scheme".
- **Not a Flagship/Umbrella Welfare Scheme:** It is an executive internal rolling operational framework rather than a public-facing project.

Aims, Objectives, and Features

- **Capability Development:** Aims to systematically bridge operational capability voids across the Army, Navy, and Air Force.
- **Aatmanirbharta (Self-Reliance):** Prioritizes indigenous manufacturing capability and domestic intellectual property (IP) retention.
- **Two-Year Rolling Framework:** Formulated as a continuous two-year roll-on cycle to match fast-moving global technology advancements.
- **Categorized Streamlining:** Coordinates equipment acquisitions into major operational domains, including battlefield awareness, force application, sustenance, and protection.

Funding Mechanism

- **100% Union Funded:** Funded entirely out of the **Capital Budget** allocation of the Ministry of Defence, which is approved annually in the Union Budget.
- **Target Allocation:** Specific batches of priority schemes within the AAP are allotted fixed, fast-tracked funds (e.g., an earmarked allocation of ₹40,695 crore targeted for 25 primary critical schemes).

2026 Policy Framework Update

In early 2026, the MoD integrated the AAP framework with the newly introduced **Draft Defence Acquisition Procedure (DAP) 2026**. Notable updates include:

- **TRL Integration:** Formally embedding **Technology Readiness Levels (TRLs)** into the AAP to explicitly classify equipment maturity before bulk procurement.
- **Low-Cost Capital Route:** Introducing an expedited fast-track acquisition pathway capped at ₹75 crore per project for fast-moving niche technologies like drones.
- **IP Sovereignty:** Shifting criteria from mere local assembly thresholds to mandatory Indian ownership of software source codes and design architecture.

Achievements

- **High Domestic Contract Allocation:** Over 97% of concluded capital acquisition contracts have been successfully awarded to domestic Indian vendors.
- **Niche Tech Induction:** Under specialized procurement pathways, 73 Capability Development contracts were sealed in critical areas like counter-drone systems and advanced mobility.
- **Key Inductions:** Fast-tracked approvals under rolling plans facilitated major hardware completions, including indigenous fighter components, the commissioning of stealth guided missile frigates, and ammunition indigenization.

Criticisms

- **Absence of National Strategy Anchoring:** Military experts on Strategic Procurement at ORF have noted that the AAP remains driven by separate Service Headquarters preferences due to a lack of an finalized, overarching National Security Strategy.
- **Execution Delays Without Penalties:** Despite new tracking rules, the planning machinery features no real administrative consequences or penalties for bureaucrats or suppliers who miss procurement deadlines.
- **The "L1" Cost Trap:** Financial analysts writing for Swarajya Magazine argue the framework still allows low-value foreign system assemblers to outbid true indigenous tech innovators who invest heavily in heavy R&D

14. Defence Testing Infrastructure Scheme (DTIS):

The **Defence Testing Infrastructure Scheme (DTIS)** is a **Central Sector Scheme** managed by the **Ministry of Defence (MoD)** under the **Department of Defence Production (DDP)**. It operates as a focused **flagship initiative** (rather than a broad umbrella framework) with an outlay of **₹400 crore** to create advanced greenfield testing facilities in partnership with private industries.

Aims & Objectives

- **Promote Indigenisation:** Boost domestic production and lower reliance on imported military hardware.
- **Support MSMEs and Startups:** Eliminate steep upfront capital requirements for modern testing systems.
- **Ensure Easy Access:** Build state-of-the-art, open-access testing environments for design and manufacturing units.

Funding Mechanism

- **Public-Private Partnership (PPP):** Structured via a **75:25 funding ratio**.
- **Government Contribution:** Up to **75% of the project cost** provided as a **Grant-in-Aid**.
- **Private Contribution:** The remaining **25% is funded by the Special Purpose Vehicle (SPV)** members, with individual industry share capped at 40%.

- **Sustenance model:** Once built, facilities function on a self-sustaining user-fee framework.

Key Features & Implementation Agency

- **Implementing Agencies:** Formed as a **Special Purpose Vehicle (SPV)** registered as a **Section 8 Not-for-Profit Company** under the Companies Act, 2013. Each SPV must comprise a minimum of 5 entities, including state governments and private players.
- **Apex Governance:** The **DTI Screening Committee (DTISC)** acts as the final decision-making body for project approvals.
- **Geographical Priority:** Special emphasis is allocated to setting up setups within the **Tamil Nadu** and **Uttar Pradesh Defence Industrial Corridors (DICs)**.

Scheme Updates (As of 2026)

- **Testing Portfolio Expansion:** High-tech facilities are now allocated to specialized fields like Unmanned Aerial Systems (UAS), Electronic Warfare, Electro-Optics, and Communications.
- **Infrastructure Integration:** Operationalized via a **Centralised Defence Testing Portal** managed by the Directorate General of Quality Assurance (DGQA), offering automated booking and clear protocols.

Achievements (2020–2026)

- **Approved Facilities:** Successfully approved **7 critical testing facilities** spanning multiple domains across the designated DICs.
- **Strategic Milestone:** Signed a milestone agreement in late 2025 to create a massive Mechanical & Material testing facility in the Tamil Nadu Defence Industrial Corridor involving TIDCO, HAL, and BEML.
- **Industrial Impact:** Assisted India in pushing domestic procurement allocations to 75% of the total modernization budget for FY 2025-26.

Criticisms & Roadblocks

- **Slow Initial Offtake:** The high technical threshold needed to form Section 8 corporate consortiums caused early structural delays.
- **Technological Obsolescence Risks:** Defence equipment requires fast, capital-intensive updates, raising long-term financial questions on user-fee viability.
- **Uneven Distribution:** Heavily localized inside Uttar Pradesh and Tamil Nadu, triggering infrastructure gaps for developers in outer states

15. Positive Indigenisation Lists (PILs):

The **Positive Indigenisation Lists (PILs)** are an administrative policy mechanism implemented by India's Ministry of Defence (MoD). Rather than operating as a standalone Central Sector or Centrally Sponsored welfare

scheme, PILs act as a regulatory procurement directive integrated directly into the **Defence Acquisition Procedure (DAP) 2020**.

The program falls under the broader umbrella of India's flagship self-reliance initiatives: **Aatmanirbhar Bharat Abhiyan** and **Make in India**.

Aims and Objectives

- **Eliminate Import Dependence:** Progressively ban the import of listed weapon systems, ammunition, and parts to safeguard strategic independence.
- **Boost Domestic Production:** Ensure the Indian Armed Forces exclusively procure designated components from domestic vendors.
- **Nurture the MSME Ecosystem:** Integrate private manufacturers, Micro, Small, and Medium Enterprises (MSMEs), and tech startups into mainstream defence supply chains.
- **Expand Defence Exports:** Shift India from a leading arms importer into an international exporter of advanced military platforms.

Funding Mechanism

PILs do not utilize a dedicated budgetary grant or single central fund. Instead, they leverage existing domestic defence procurement budgets and multi-layered industry funding routes under the **DAP 2020 'Make and Innovation' procedure**:

- **Capital Acquisition Budget:** The MoD earmarks a specific percentage of its annual Capital Procurement Budget exclusively for domestic industry procurement (reaching 75% in recent fiscal cycles).
- **Government-Funded ("Make-I") Route:** The government funds up to 70% of prototype development costs for complex indigenous designs.
- **Industry-Funded ("Make-II" & "Make-III") Routes:** No government funding is provided for prototype development. Prototypes are completely funded by the private vendor or Defence Public Sector Undertaking (DPSU), but the government guarantees sole-source procurement orders once the design passes qualification trials.
- **Innovation Schemes:** R&D for high-end items on the list receives funding through separate incubation windows like **iDEX** (Innovations for Defence Excellence) and the **Technology Development Fund (TDF)**.

Key Features

- **Phased Embargo Timelines:** Every listed item is assigned a legally binding sunset clause date. Beyond that specific deadline, foreign imports of that item are prohibited.

- **Dual-Track Implementation Agency:** The lists are drafted, updated, and executed by two distinct bodies within the Ministry of Defence:

1. **Department of Military Affairs (DMA):** Handles complex, large-scale systems, weapon platforms, aircraft, and ammunition for the Armed Forces.
2. **Department of Defence Production (DDP):** Manages sub-assemblies, Line Replacement Units (LRUs), spares, components, and raw materials for state-owned factories.

- **The Srijan Portal:** A centralized digital dashboard (srijandefence.gov.in) where the military uploads technical requirements for imported items. Local companies can view these details and express interest in developing them.
- **Collaborative R&D:** Mandates state labs like the Defence Research and Development Organisation (DRDO) and academic institutions to hand-hold local vendors during product testing.

Status and Achievements (Updated as of 2026)

- **Five Active Iterations:** Both the DMA and DDP have successfully notified **five separate PIL waves**. The latest list covers hundreds of critical components, raw materials, and high-end naval/aerial technologies with execution phases stretching through 2028.
- **Massive Volume of Indigenised Items:** Out of more than **5,500 items** compiled across the official lists, over **3,000 distinct components and platforms** have been fully indigenised.
- **Substantial Financial Import Substitution:** Domestic production generated through these lists has substituted imports valued at well over **₹4,500 crore**, directly feeding back into the Indian industrial ecosystem.
- **Procurement of Complex Assets:** The initiative successfully transitioned high-tech production to local industries, yielding domestic artillery guns, assault rifles, radars, light combat helicopters (LCHs), software-defined radios, and advanced sonar networks.
- **Record High Defence Exports:** Bolstered by local production lines, India's defence exports achieved a record high of **₹38,424 crore in FY 2025-26**, distributing munitions, electronics, and light armoured vehicles to over 80 nations.

Criticisms and Structural Bottlenecks

- **Over-reliance on Minor Components:** Critics note that a vast majority of indigenised entries consist of low-value spares, bolts, and minor sub-assemblies rather than major standalone weapon systems or foundational engine technologies.
- **Assembly vs. Core Innovation:** Several "indigenised" systems still depend heavily on imported raw metals, sub-chips, and specialized components, making the finished product domestic on paper but vulnerable to external supply chains.

- **Timeline Slippages and Delays:** Private manufacturers frequently report friction in getting prototypes evaluated and certified by state test agencies, resulting in delayed production schedules.
- **Technology Transfer Hurdles:** Foreign Original Equipment Manufacturers (OEMs) remain hesitant to transfer core intellectual property or source code to domestic partners, slowing down the development of deep-tech military gear

16. Defence Industrial Corridors:

The **Defence Industrial Corridors (DICs)** are specialized manufacturing regions established by the Government of India to foster a self-reliant domestic defence production ecosystem.

Core Administrative Framework

- **Ministry:** Administered strictly under the Ministry of Defence (MoD) (specifically overseen by the Department of Defence Production).
- **Scheme Type:** It is structured as a **Central Sector Scheme**, where initial broad strategic alignment and testing infrastructure outlays originate from the Central Government, but it functions primarily as an infrastructure enablement project.
- **Nature of Scheme:** It operates as a focused **flagship initiative** under the umbrella of the *Atmanirbhar Bharat* (Self-Reliant India) and *Make in India* campaigns.
- **Implementing Agencies:** The actual physical ground execution and land allocations are managed via dedicated state-level nodal agencies:
  - Uttar Pradesh Expressways Industrial Development Authority (UPEIDA) for the UP Corridor.
  - **Tamil Nadu Industrial Development Corporation (TIDCO)** for the TN Corridor.

Aims, Objectives, and Funding Mechanism

Aims and Objectives

- **Import Reduction:** Cut down dependency on foreign military imports by localising critical production components.
- **Private and MSME Synergy:** Handhold private domestic manufacturers, startups, and Micro, Small, and Medium Enterprises (MSMEs) into mainstream military supply chains.
- **Export Promotion:** Catalyse native production pipelines to tap into the global aerospace and defence export market.
- **Ecosystem Creation:** Establish localized clusters providing plug-and-play manufacturing, advanced testing labs, and reliable export certification systems.

Funding Mechanism

- **Joint Public-Private Architecture:** The Central Government funds standalone allied support schemes such as the Defence Testing Infrastructure Scheme (DTIS) (₹400 crore outlay) and the iDEX innovation scheme.
- **State Equity/Land Allocation:** State governments act as primary resource providers, acquiring and providing encumbrance-free land parcels, connecting logistics, and creating basic trunk utilities.
- **Private Capital Inflow:** The main body of industrial financing relies on direct business investments made by global Original Equipment Manufacturers (OEMs), domestic defence conglomerates, and Public Sector Undertakings (DPSUs) via Memorandums of Understanding (MoUs).

Key Operational Features

The project maps across two designated geographical zones subdivided into regional "nodes":

Corridor	Core Nodes	Key State Policy Features
Uttar Pradesh (UPDIC)	Aligarh, Agra, Chitrakoot, Jhansi, Kanpur, Lucknow	Single Window clearances via Nivesh Mitra, flexible labour rules, and direct regulatory subsidy payouts.
Tamil Nadu (TNDIC)	Chennai, Coimbatore, Hosur, Salem, Tiruchirappalli	Effective single-window tracking, specialized start-up incubation, and dedicated aerospace park integration.

Key Achievements

- **Investments Realized:** Total committed investments across both corridors surpassed **₹53,000 crore**. In Uttar Pradesh alone, committed investments crossed ₹34,000 crore, with over **₹12,000 crore completely realized** on the ground.
- **Active Production Hubs:** Major industrial units have actively commenced operations. Breakthrough projects include the **BrahMos Aerospace** missile manufacturing unit in the Lucknow node and advanced ammunition facilities set up by **Adani Defence and Aerospace**.
- **SME Integration:** Over 100 private industries and MSMEs have successfully secured direct land allotments across the active nodes to manufacture tactical military gear, super alloys, drone platforms, and surveillance equipment.

- **Expansion Plans:** Driven by the operational output of the UP and TN corridors, the central government initiated preliminary blueprints to expand the project network by evaluating new corridors in **Maharashtra and Assam**.

Criticisms and Bottlenecks

- **Delayed Gestation and Conversion Rates:** While broad paperwork ("committed investments" via MoUs) looks massive, the actual conversion into operational, bricks-and-mortar factories on the ground has historically lagged behind schedule.
- **Land Acquisition Roadblocks:** Acquiring massive chunks of contiguous, litigation-free land remains a bureaucratic challenge for state execution agencies, slow-walking multi-node expansions.
- **High-Tech R&D Gaps:** Critics point out that early factory allocations mostly cluster around low-to-mid-tier manufacturing (ammunition, protective gear, components) rather than cutting-edge, core IP software, advanced electronics, or independent design engineering labs.
- **Infrastructure Deficits:** Component testing bottlenecks persist. Despite targeted schemes like DTIS, smaller MSMEs complain about a lack of accessible, low-cost military-grade certification labs near their regional nodes, forcing them to rely on distant centralized government test beds

17. Welfare for War Families:

The welfare of war families (widows, children, and next of kin) in India is managed primarily through a **centralised suite of welfare grants and pensions**, spearheaded by the **Raksha Mantri Ex-Servicemen Welfare Fund (RMEWF)**.

Aims and Objectives

- Provide financial and social security to **Veer Naris (war widows)**, war-disabled personnel, and their dependents.
- Ensure dignified rehabilitation via **housing quotas, educational concessions, and self-employment schemes**.
- Deliver lifelong sustenance to non-pensioner war families and dependents.

Ministry and Implementing Agencies

- **Ministry:** Ministry of Defence (MoD), Government of India.
- **Nodal Department: Department of Ex-Servicemen Welfare (DESW)**.
- **Implementing Agency:** The **Kendriya Sainik Board (KSB) Apex Body** executes these policies nationally. Implementation filters locally through **Rajya Sainik Boards (RSBs)** at the state level and **Zila Sainik Boards (ZSBs)** at the district level.

Scheme Categorisation & Funding Mechanism

- **Nature of Scheme:** It is a **Central Sector Scheme** framework. The central government covers 100% of the core budget liabilities directly.
- **Flagship/Umbrella Status:** It operates under the **DESW Veterans Welfare Umbrella Framework**. This consolidates diverse schemes spanning health, pension, and financial relief.
- **Funding Mechanism:** Funded entirely by the Central Government via the **Armed Forces Flag Day Fund (AFFDF)** and the **Raksha Mantri Ex-Servicemen Welfare Fund (RMEWF)**.

Key Features

- **Liberalised Family Pension (LFP):** War widows receive a monthly pension equal to **100% of the last reckonable pay** drawn by the deceased soldier.
- **Education Grants:** Covers costs up to graduation for up to two children of deceased personnel, and supports **post-graduate education for widows**.
- **Marriage Grants:** Financial assistance explicitly allocated for the **marriage of daughters of war veterans or for widow remarriage**.
- **Institutional Ties:** Offers a **3% reserved housing quota** via the Army Welfare Housing Organisation (AWHO) alongside absolute **Priority-I allocation for MBBS/BDS seats** in medical colleges.

2026 Policy Updates and Achievements

- **100% Grant Rate Hikes:** The Ministry of Defence introduced massive rate adjustments:
  - **Penury Grants:** Doubled from ₹4,000 to **₹8,000 per month** for elderly non-pensioners and widows.
  - **Education Support:** Increased from ₹1,000 to **₹2,000 per month** per child/widow.
  - **Marriage Assistance:** Doubled from ₹50,000 to **₹1,00,000 per beneficiary**.
- **Budget 2026 Allocations:** The Union Budget allocated over **₹1.71 lakh crore for defence pensions**. The Ex-Servicemen Contributory Health Scheme (ECHS) received **₹12,100 crore** (a 45.49% rise).
- **SPARSH Digital Migration:** Over 34 lakh defence pensioners have successfully transitioned to the **SPARSH automated direct benefit portal**, accelerating document clearing cycles.
- **Legal Shield Initiatives:** The National Legal Services Authority launched the **Veer Parivar Sahayata Yojana** to extend fast-tracked legal assistance networks to families through Sainik boards.

Criticisms and Operational Hurdles

- **Digital Literacy Barriers:** Transitioning completely to online platforms like **SPARSH or KSB portal portals** leaves elderly, rural war widows dependent on third-party intermediaries to process claims.
- **Application Backlogs:** Systemic verification bottlenecks persist at the Zila and Rajya Sainik Board levels, occasionally causing critical delays in grant delivery.

- **Non-Pensioner Disparities:** Destitute widows who do not qualify for official pension schemes remain highly dependent on fixed welfare grants, exposing them to inflationary pressures despite recent balance hikes

18. Integrated Rocket-Cum-Missile Force:

The **Integrated Rocket-Cum-Missile Force** (also known as the Integrated Rocket Force (IRF)) is **not a socio-economic welfare scheme** (such as a Central Sector or Centrally Sponsored Scheme). Instead, it is a **major military structural reform and strategic raising**.

It falls directly under the **Ministry of Defence (MoD)**, with the **Indian Armed**

Administrative & Financial Structure

- **Ministry:** Ministry of Defence (MoD).
- **Implementing Agency:** Indian Armed Forces (initially integrated within the **Indian Army's Artillery Regiments** before potentially expanding into a tri-service or higher-level autonomous command).
- **Scheme Type:** This is **neither a Central Sector Scheme nor a Centrally Sponsored Scheme**, nor is it a flagship welfare program. It is an **organizational restructuring of national defense**.
- **Funding Mechanism:** Fully funded through the **Union Defence Budget (Capital Outlay)**. Large-scale procurement leverages the Defence Procurement Manual (DPM) and domestic private and public vendors.

Aims and Objectives

- **Conventional Deterrence:** Establish a dedicated conventional (non-nuclear) deep-strike capability to counter the PLA Rocket Force (PLARF) of China and Pakistan's Army Rocket Force Command (ARFC).
- **Non-Contact Warfare:** Operationalize stand-off, high-volume precision precision-strike systems. This allows kinetic impact without early escalation to the nuclear threshold.
- **Asset Centralization:** Consolidate fragmented land-based tactical ballistic missiles, cruise missiles, and multi-barrel rocket systems under a single unified tactical doctrine.

Core Features

- **Arsenal Core:** Synergizes long-range multi-barrel rockets like **Pinaka** with tactical ballistic and cruise missiles such as **Pralay** (150-500 km range) and **BrahMos**.
- **Separation of Thresholds:** Operates entirely independently of the Strategic Forces Command (SFC). This cleanly separates conventional strike operations from nuclear deterrence.
- **Integration Framework:** Tied directly to the "Years of Networking and Data" transformation agenda. It links with unmanned aerial systems (UAS) for real-time targeting telemetry.

2026 Status & Recent Achievements

- **Official Mandate:** Following operational assessments under **Operation Sindoor**, Army Chief Gen Upendra Dwivedi formally declared the force a necessary modern requirement.
- **Structural Progress:** Formations are taking shape initially within standard Artillery Regiments. New specialized units (like *Shaktibaan Regiments* for drone targeting) have been introduced to support targeting data loops.
- **Procurement and Inductions:** Contracts for conventional missiles spanning **300 km to 450 km ranges** have been finalized. Mass manufacturing of 22 indigenous Pinaka regiments is underway to phase out legacy Russian Grad BM-21 systems.

Criticisms & Inter-Service Challenges

- **Inter-Service Friction with IAF:** The Indian Air Force (IAF) historically views a dedicated ground-based Rocket Force as an encroachment on its traditional deep-penetration air strike mandate, potentially leading to command redundancy.
- **Command and Control Ambiguity:** Debate continues over whether the unit should permanently sit under the Army, the Ministry of Defence directly, or under the Chief of Defence Staff (CDS) ahead of full theatreisation.
- **Risk of Adversary Miscalculation:** Since systems like China's PLARF mix both nuclear and conventional delivery systems, critics warn that using conventional ballistic missiles in localized border skirmishes could cause dangerous escalation miscalculations by adversaries

19. Project 75I:

Project 75 (India), abbreviated as **P-75(I)**, is a major Ministry of Defence (MoD) acquisition initiative designed for the indigenous construction of **six advanced conventional diesel-electric attack submarines** for the Indian Navy.

Administrative & Financial Framework

- **Ministry:** Operating strictly under the **Ministry of Defence (MoD)**, Government of India.
- **Implementing Agencies:** Co-executed by the **Indian Navy** and **Mazagon Dock Shipbuilders Limited (MDL)**, collaborating with the German OEM **thyssenkrupp Marine Systems (tkMS)**.
- **Scheme Classification:** It is a **Central Sector Scheme**. The Union Government provides 100% of the funding directly from the national defence budget. It is **not** a Centrally Sponsored Scheme, as states do not contribute financial resources or handle implementation.
- **Scheme Type:** It functions as a standalone **Flagship Programme** for naval modernisation and "Make in India" in defence, nested under the broader **30-Year Submarine Building Plan** approved by the government.
- **Funding Mechanism:** Funded entirely through the **Capital Acquisition Budget** of the Ministry of Defence. The estimated cost stands at approximately **₹72,000 crore to ₹75,000 crore (~$8 billion)**.

Aims and Objectives

- **Subsurface Fleet Modernisation:** Replace the Indian Navy's ageing *Sindhughosh*-class (Russian Kilo-class) conventional fleet.
- **Strategic Indo-Pacific Deterrence:** Counter the expanding naval footprints of China and Pakistan in the Indian Ocean Region (IOR).
- **Technological Sovereignty:** Establish a robust domestic submarine-building ecosystem via extensive Transfer of Technology (ToT).
- **Boost Indigenisation:** Transition from a "Buyer's Navy" to a "Builder's Navy," targeting 45% indigenous content on the first boat and scaling up to 60% by the sixth.

Key Technical Features

- **Air-Independent Propulsion (AIP):** Equipped with mandatory fuel-cell-based AIP systems. This permits submarines to remain submerged for up to two weeks, compared to just 48 hours for standard conventional variants.
- **Enhanced Hull Size:** Larger displacement (~3,000 tonnes) than the predecessor *Kalvari*-class (Scorpène) vessels.
- **Heavy Firepower:** Integrated configurations for 12 Land Attack Cruise Missiles (LACM) alongside Anti-Ship Cruise Missiles (ASCM) and advanced torpedoes.
- **Advanced Acoustic Stealth:** Reduced noise signatures and low-frequency detection vulnerabilities.

2026 Status Update and Achievements

- **Down-Selection & Commercial Progress:** Following high-level clearances, India finalized cost negotiations with Germany's tkMS to supply the **Type-214 Next Generation (214NG)** submarine design, edging out Spain's Navantia.
- **Contract Finalization:** Contractual documentation is nearing its definitive signing deadline to formalize the industrial partnership between MDL and tkMS.
- **Predecessor Milestones:** The completion and operational deployment of all six *Kalvari*-class submarines under the original Project 75 cleared industrial capacity at MDL to transition into P-75(I) production.
- **Industrial Priority:** The government put additional interim submarine acquisition plans on hold to allocate financial resources and technical priority to fast-tracking P-75(I). Project milestones estimate the first platform joining the operational fleet by **2032–2033**.

Criticisms and Challenges

- **Compounding Bureaucratic Delays:** Conceived originally in 1997, the project suffered over two decades of paralysis due to shifting policy guidelines, complex liability issues, and rigid tender conditions.

- **The "Capability Gap":** With nearly 10 older conventional hulls slated for retirement over the decade, the delay in P-75(I) creates a critical operational shortfall while regional adversaries modernise rapidly.
- **Strict Procurement Criteria:** Early Request for Proposals (RFPs) faced heavy friction; multiple global vendors pulled out initially due to rigid requirements mandating a field-proven, operationally tested fuel-cell AIP system.
- **High Lifecycle Ownership Costs:** Critics point out that integrating foreign designs into local production lines escalates overall maintenance, training, and logistical support costs over the multi-decade lifespan of the boats

20. Mission Sudarshan:

Mission Sudarshan (officially announced as **Mission Sudarshan Chakra**) is India's next-generation strategic initiative launched to build a comprehensive, AI-enabled, multi-layered air and missile defence shield. Announced by Prime Minister Narendra Modi on August 15, 2025, the mission intends to safeguard the nation's strategic, civilian, and religious infrastructure by 2035.

Ministry and Implementing Agency

- **Ministry:** Ministry of Defence (MoD).
- **Implementing Agency:** Defence Research and Development Organisation (DRDO) is the lead R&D and executing agency, operating in coordination with the Indian Armed Forces.

Scheme Nature and Classification

- **Sector Type: Central Sector Scheme**. It is entirely managed and executed by the Central Government via the Union Ministry of Defence.
- **Classification:** It is a **flagship national security umbrella mission**. It integrates multiple separate sub-projects (such as Project Kusha) under one unified architectural command network.

Funding Mechanism

- **Source:** Funded 100% through the **Defence Capital Expenditure (CapEx)** allocations of the Central Budget.
- **Approach:** Capital is channelled into indigenous development under IDDM (Indigenously Designed, Developed, and Manufactured) frameworks, public-private defence partnerships, and technology transfers.

Aims and Objectives

- **Comprehensive Shield:** Create an impenetrable, nationwide multi-layered air defence shield by 2035.
- **Asset Protection:** Protect military installations, nuclear sites, public spaces, and cultural/religious hubs near international borders.

- **Strategic Autonomy:** Achieve 100% indigenisation in critical missile and radar technology, moving towards absolute *Aatmanirbhar Bharat* in defence.
- **Proactive Deterrence:** Operate on a "Shield and Sword" paradigm, blending quick interception with instantaneous offensive retaliation capabilities.

Core Features

- **Three-Layered Interception:**
  - *Outer Layer:* Space-based surveillance and long-range ballistic missile interception.
  - *Middle Layer:* Medium-range tactical missile defence networks.
  - *Inner Layer:* Point defence incorporating lasers, Directed Energy Weapons (DEWs), and anti-drone swarms.
- **AI Architecture:** Real-time threat modelling, automated tracking, and predictive target allocation.
- **Radars Linkage:** Seamlessly binds 6,000 to 7,000 ground radars, including Over-the-Horizon (OTH) tracking systems, into the Integrated Air Command and Control System (IACCS).

Status and Achievements (As of 2026)

- **Pre-Feasibility Completion:** By April 2026, the high-level committee under the DRDO Chairman officially completed and submitted the comprehensive project study and pre-feasibility roadmap to the Defence Minister.
- **Technical Milestones:** Successful flight tests of the Integrated Air Defence Weapon System (IADWS) combining Quick Reaction Surface-to-Air Missiles (QRSAM) and laser systems.
- **Strategic Partnerships:** Secured fast-track technology transfers with global allies like Israel to integrate advanced electronic warfare and counter-missile capabilities without buying readymade arms.

Key Criticisms

- **Massive Long-Term Cost:** Experts argue that a nationwide shield requires a sustained multi-billion dollar capital layout at a time when India's overall defence budget as a percentage of GDP has slightly dipped.
- **R&D Funding Gaps:** India's research investment (around 0.65% of GDP) remains significantly lower than global superpowers like the US and China, raising skepticism about sustaining fully indigenous 10-year timelines.
- **Inter-Agency Coordination:** Merging space, cyber, air force, and military elements across thousands of radar grids presents major structural and operational friction

21. "Rudra" integrated brigades

The **"Rudra" Integrated Brigades** are a revolutionary structural innovation, representing permanently integrated, self-contained, and technology-enabled all-arms combat formations of the **Indian Army**.

Core Nature, Classification, and Governance

- **Is it a Central Sector or Centrally Sponsored Scheme?** It is **neither**. It is not a welfare or socio-economic development scheme. It is an internal, structural military reorganisation and modernization project.
- **Flagship or Umbrella Scheme?** It is a **doctrinal and organizational transformation initiative**. It is part of the Indian Army's broader operational roadmap known as the *Decade of Transformation (2023–2032)*.
- **Ministry:** Under the **Ministry of Defence (MoD)**, Government of India.
- **Implementing Agency:** The **Indian Army** (specifically overseen by the newly established *Future and Transformation Cell* at Army Headquarters).
- **Funding Mechanism:** Funded entirely through the **Union Defence Budget** under Capital and Revenue heads, leveraging the emergency financial and procurement powers granted to the armed forces.

Aims and Objectives

- **Deterrence Shift:** Shift India's tactical doctrine from "Cold Start" to a faster, proactive **"Cold Strike" capability**.
- **Drastic Mobilisation Cut:** Reduce operational mobilization timelines from **weeks to mere hours** (target within 12–24 hours).
- **Eliminate Delay:** Remove the need to attach single-arm units (like artillery or armor) to infantry units only when a crisis erupts.
- **Hybrid Combat Readiness:** Execute swift, independent, multi-domain offensive operations along sensitive borders under a nuclear overhang.

Key Features

- **Permanent Integration:** Combines infantry, mechanized infantry, armor, artillery, engineers, signals, air defense, electronic warfare, and Special Forces under a single command.
- **Command Structure:** Commanded by a **Brigadier** (unlike Integrated Battle Groups or IBGs, which are designed to be led by Major-Generals).
- **Terrain-Specific Customization:** Outfits and compositions are tailor-made for specific operational sectors (e.g., heavily armored in western plains vs. infantry-heavy on high-altitude northern mountain borders).
- **Embedded Logistics:** Holds its own inbuilt ammunition supplies, fuel lines, maintenance cells, and field hospitals for total battlefield autonomy.
- **Tech-Driven Architecture:** Outfitted with indigenous loitering munitions, drone platoons, and advanced electronic warfare tools.

Status Update & Achievements (As of 2026)

- **Operational Validation:** The Rudra Brigade (exemplified by the *Black Mace* formation) successfully completed full tri-service operational validation during **Exercise Trishul** on the western front.
- **Active Deployments:** Multiple single-arm brigades have been completely converted. Active Rudra formations are deployed at highly sensitive border areas, including **Eastern Ladakh** and **Sikkim**.

- **Tactical Synchronization:** Successfully paired operations with the newly raised **'Bhairav' Light Commando Battalions** to bridge the operational gap between tactical infantry platoons and strategic Special Forces.
- **Doctrinal Integration:** Deployed in alignment with the operational strategies refined post-Operation Sindoor.

Criticisms and Challenges

- **Logistical Strain:** Operating an all-arms unit in high-altitude zones requires heavily specialized, decentralized maintenance, which strains supply lines.
- **Doctrinal Ambiguity:** Overlaps with the existing long-debated Integrated Battle Group (IBG) framework, creating initial confusion over scale, command structures, and optimal field employment.
- **Interoperability Friction:** Merging historically distinct military arms (like heavy armor and light infantry) into permanent peacetime units demands deep cultural, training, and communication changes.
- **Budget Demands:** The high cost of tech absorption (drones, AI, electronic warfare) requires sustained capital expenditure, creating a risk of resource diversion from standard infantry modernization

22. The **Defence Procurement Manual (DPM) 2025** is not a welfare scheme, Central Sector Scheme, Centrally Sponsored Scheme, flagship scheme, or umbrella scheme; it is a **public policy guideline and procedural manual** governing public procurement. Officially released on **23 October 2025**, and taking full effect on **1 November 2025**, it dictates the rules and processes for the **revenue procurement** of goods and services needed for the daily sustenance of India's Armed Forces.

Administrative Framework

- **Ministry:** Operating strictly under the Ministry of Defence (MoD).
- **Implementing / Drafting Agencies:** Drafted and implemented through the joint efforts of **Ministry of Defence (Finance)** and the **Headquarters Integrated Defence Staff (HQ IDS)**.
- **Applicability:** Governs the daily operations and revenue expenditures of the **Indian Army, Indian Navy, Indian Air Force**, and other allied MoD organizations.

Aims and Objectives

- **Operational Readiness:** Expediting administrative processes to eliminate delays in keeping forces mission-ready.
- **Aatmanirbharta (Self-Reliance):** Promoting the procurement of indigenous defence items made through local public/private channels.

- **Ease of Doing Business:** Reforming transaction procedures to provide business clarity, safety, and predictability to private industries.
- **Transparency & Accountability:** Fostering uniform procedures via digital e-procurement platforms to minimize commercial biases.

Funding Mechanism

- **Source:** Funded directly through the **Revenue Head** of the **Union Defence Budget**.
- **Financial Scale:** Dictates an estimated revenue expenditure of **₹1 Lakh Crore annually**.
- **Focus Area:** Funds day-to-day operations, sustenance, spare parts, and vehicle/fleet repairs. It is distinctly separate from capital hardware purchases governed by the Defence Acquisition Procedure (DAP).

Salient Features

- **Structure:** Comprises **14 Chapters split into 2 Volumes**. Volume I holds the procedural laws and Volume II features forms/appendices.
- **New Dedicated Chapters:** Incorporates three brand-new chapters detailing *Promoting Self-reliance through Innovation and Indigenisation*, *Information & Communication Technology (ICT) Procurement*, and *Consultancy/Non-Consultancy Services*.
- **Assured Orders:** Grants guaranteed continuous procurement orders **up to 5 years (extensible by another 5 years)** for components successfully designed under local indigenisation.
- **Relaxed Liquidated Damages (LD):** Lowers maximum penalties for delays. Delays on standard items max out at 10%, while local indigenisation projects carry a heavily relaxed penalty rate of **0.1% per week**.
- **No NOC Bottlenecks:** Dispenses with the prior obligation to obtain a "No Objection Certificate" (NOC) from the Ordnance Factory Board (OFB) structure when purchasing items from private sellers.
- **Efficiency Boosts:** Allows an auto-approved **15% "growth of work" clause** during ship/aviation refits to fix unexpected defects on the spot without pausing for new command approvals.

Update (As of May 2026)

- **Full Enforcement:** All fresh Requests for Proposals (RFPs) launched by the Armed Forces are processed exclusively under the DPM 2025 framework.
- **Synergy with DAP:** The manual works alongside concurrent updates to the Defence Acquisition Policy (DAP) to integrate dual-use commercial off-the-shelf items like drone swarms and cyber tools.

Achievements

- **Slashed Downtime:** The 15% repair margin has drastically reduced operational downtime for critical naval and aviation fleets.

- **MSME Integration:** Devoiced of old NOC roadblocks, domestic startups and academic labs (IITs/IISc) have entered direct localized contracts.
- **Reduced Legal Friction:** Lowered penalty structures have saved private suppliers from punitive contract cancellations.

Criticisms and Structural Challenges

- **Cultural Resistance:** Procurement branches suffer from risk-averse habits and need significant, ongoing structural retraining to move away from old compliance heavy-models.
- **Quality Match Disparity:** Small scale domestic suppliers still face a massive quality gap in meeting rigorous, harsh-environment military standards.
- **Budgetary Predictability:** Assured 5-to-10-year orders rely entirely on continuous fiscal allocations from the central government; any economic fluctuation risks eroding private industry trust

23. **AMCA Programme Execution Model:**

The **Advanced Medium Combat Aircraft (AMCA)** is India's sovereign programme to design, develop, and manufacture a **fifth-generation, twin-engine stealth fighter jet**. Administered by the **Ministry of Defence (MoD)**, it is classified as a **Central Sector Scheme** because it is 100% funded and executed by the Union Government. It functions as a **Standalone National Strategic Programme** rather than a standard social flagship or umbrella welfare scheme.

Core Programme Parameters

- **Implementing Agency:** The Aeronautical Development Agency (ADA), an autonomous body under the Defence Research and Development Organisation (DRDO), leads the design.
- **Funding Mechanism:** Fully funded via central defence capital allocation. The Cabinet Committee on Security (CCS) approved **₹15,000 crore** specifically for Phase-1 (Full-Scale Engineering Development and prototypes).
- **Execution Model:** Shifted away from public-sector monopolies. The MoD approved a new public-private **Industry Partnership Model**. Development is executed through a **Special Purpose Vehicle (SPV)** framework where private entities compete alongside or in consortia with state companies to build the prototypes.

Aims & Objectives

- **Air Dominance:** To replace aging IAF strike platforms with a deep-penetration stealth aircraft.
- **Aatmanirbharta:** To establish total self-reliance in cutting-edge aerospace engineering.
- **Industrial Synergy:** To build a robust private-public domestic defence production ecosystem.

- **Technology Ownership:** To master indigenous critical technologies like low-observability and advanced sensor fusion.

Key Technical Features

Feature	Specification / Detail
Weight & Class	25-tonne maximum takeoff weight (MTOW), twin-engine multirole fighter.
Stealth Design	All-aspect geometric stealth, Serpentine (S-duct) air intakes, and internal weapons bay.
Propulsion Split	**Mk1:** Twin GE-F414 engines; **Mk2:** Upcoming 110 kN indigenously co-developed engine.
Avionics & AI	GaN-based AESA Radar, advanced sensor fusion, and an AI-powered "electronic pilot".
MUM-T	Manned-Unmanned Teaming capable of controlling autonomous escort drones.

Programmatic Timeline & Status (As of 2026)

Following the issuance of the Expression of Interest (EoI), the structural selection shifted drastically in early 2026:

- **The HAL Omission:** State-owned Hindustan Aeronautics Limited (HAL) failed to clear the primary shortlist criteria for prototype integration due to constraints regarding its massive order-book backlog versus turnover ratio.
- **Private Shortlist:** Three private-sector industrial groups were selected to advance to the final evaluation phase to build the physical aircraft prototypes:

1. Tata Advanced Systems Ltd (TASL) as an independent bidder.

2. A consortium led by Larsen & Toubro (L&T) with Bharat Electronics Ltd (BEL).
3. A group led by **Bharat Forge** with BEML and Data Patterns.

- **Current Operational Roadmap:** The program targets a physical prototype rollout between late **2026 and 2027**, leading to a planned first flight by **2028** and full serial induction targeted for **2034–2035**.

Major Achievements

- **Aerodynamic Breakthrough:** The ADA successfully validated a novel stealth intake geometry, achieving an industry-leading **98% pressure recovery efficiency**.
- **Physical Prototyping Milestone:** A full-scale structural engineering model manufactured by private partner VEM Technologies was completed and publicly displayed.
- **Ecosystem Decentralisation:** Successfully broke away from legacy public-monopoly frameworks, transitioning defence aviation tasks directly to nimble private corporate consortia.

Criticisms & Vulnerabilities

- **Historical Timeline Slippage:** Critics frequently flag severe legacy delays; the project's initial conceptual phases began in 2011, pushing actual production timelines back by more than a decade.
- **The Engine Dependency:** Initial variants remain heavily reliant on imported US General Electric engines (GE-F414). Joint development for the 110kN indigenous powerplant with global partners (Safran/Rolls-Royce) has yet to be fully sealed.
- **Evolving Technology Risk:** Observers warn that because induction is slated for the mid-2030s, parts of the AMCA's 5th-generation architecture risk being technologically outpaced by global 6th-generation platforms entering service in the same era

24. The dedicated optical fibre cable network

The dedicated optical fiber cable (OFC) network for the Indian Armed Forces is officially named the Network for Spectrum (NFS) project. It was established via a historic agreement between the Ministry of Defence (MoD) and the Department of Telecommunications (DoT). Under this agreement, the military vacated precious radio frequency spectrum (2G and 3G bands) for commercial civilian use in exchange for a highly secure, state-of-the-art communication backbone.

Aims and Objectives

- **National Preparedness**: Boost the strategic communication capabilities and overall operational readiness of the Tri-Services (Army, Navy, and Air Force).

- **Spectrum Release**: Free up vital airwaves (such as 25 MHz of 3G spectrum and 20 MHz of 2G spectrum) to satisfy growing civilian commercial and mobile infrastructure demands.
- **Unified Command**: Provide a countrywide, secure, multi-service, and multi-protocol converged Next Generation Network (NGN).
- **Self-Reliance**: Create domestic forward linkages into national telecom equipment manufacturing and strategic infrastructure sectors.

Funding Mechanism & Scheme Classification

- **Total Budget**: The Union Cabinet increased the overall capital layout to **₹24,664 crore** to fund the enhanced infrastructure requirements.
- **Funding Type**: Funded entirely by the Central Government via budget allocations overseen by the Department of Telecommunications (DoT).
- **Scheme Classification**: It operates as a **Central Sector Scheme**. The Central Government provides 100% of the funding, and it is implemented directly by central agencies rather than state governments.
- **Nature**: It is a highly specialized, mission-critical **flagship defence telecom project**, rather than an umbrella development scheme.

Administrative Structure

- **Ministry**: Placed under the **Ministry of Communications** (specifically the Department of Telecommunications), working in close tandem with the Ministry of Defence.
- **Implementing Agency**: Bharat Sanchar Nigam Limited (BSNL) serves as the primary executing public sector undertaking (PSU). BSNL collaborates with domestic private infrastructure firms like Sterlite Technologies (STL) and HFCL for technical rollout.

Key Features

- **Massive Physical Footprint**: Incorporates a massive **~60,000-kilometer-long** optical fiber cable network route spanning across India.
- **Intrusion-Proof Design**: Employs an advanced fiber-based intrusion proof mechanism. Legitimate data routes through the inner core, while the outer layer triggers automated alarms at an Intrusion Proof System upon any physical tampering attempt.
- **Dense Wavelength Division Multiplexing (DWDM)**: Utilizes specialized DWDM terminal equipment to bundle and transmit massive pipelines of data across vast distances simultaneously.
- **Geo-Redundant Centers**: Features highly secure, geographically separated data centers, satellite tracking links, and backup communication nodes to preserve structural network alignment in emergencies.

2026 Status & Achievements

- **Strategic Frontier Penetration**: High-speed optical fiber links have successfully scaled the most hostile geographical terrains, establishing reliable connections at the **Siachen Glacier** and **Daulat Beg Oldi (DBO)** in eastern Ladakh.
- **Microwave Network Redundancy**: BSNL and its partners completed complementary **microwave communication networks**. These act as a wireless backup to keep forward border outposts linked if physical fiber lines are broken by landslides or shelling.
- **Civilian Economic Catalyst**: The vacation of military spectrum successfully catalyzed India's wider cellular expansion, paving the structural pathway for high-density 4G and 5G rollouts nationwide.
- **Budgetary Transition**: In the **2026–27 Union Budget**, India's defence allocation crossed ₹7.85 trillion. The financial integration of ongoing network operations has shifted into formalized internal "spectrum charges" to sustain dedicated bandwidth.

Criticisms & Structural Challenges

- **Severe Project Delays**: Originally intended to finish within a few years of its 2010 inception, the project faced nearly a decade of missed deadlines due to deep coordination differences between the MoD and DoT.
- **Escalating Cost Overruns**: Modifications requested by the armed forces and systemic ground delays forced the cabinet to nearly double the initial budget allocation.
- **Procurement Controversies**: The tendering process managed by BSNL drew internal scrutiny and media whistleblowing over alleged technical eligibility waivers given to select domestic suppliers.
- **Supply Chain & Security Vulnerabilities**: Technical experts raised concerns over legacy infrastructure segments, warning that components of older equipment risked containing sub-standard parts vulnerable to foreign surveillance or cyber interception

25. SPARSH digital pension portal

SPARSH (System for Pension Administration - Raksha) is the web-based, end-to-end digital pension platform of the Government of India. It processes pension claims and credits disbursements directly into the accounts of defense personnel without relying on external financial intermediaries.

Administrative Structure & Type

- **Ministry:** Ministry of Defence (MoD).

- **Implementing Agency: Defence Accounts Department (DAD)**, administered through the Principal Controller of Defence Accounts (Pensions) [PCDA-P], Prayagraj. Its technology partner is **Tata Consultancy Services (TCS)**.
- **Scheme Nature:** It is a **Central Sector Scheme** funded entirely by the Central Government via the Defence Pension Budget.
- **Classification:** It is a standalone **Flagship Scheme** aligned under the broader **"Digital India"** umbrella initiative.

Aims and Objectives

- **Direct Disbursement:** To eliminate external banking intermediaries and credit pensions Direct Benefit Transfer (DBT) directly into veterans' accounts.
- **Complete Lifecycle Visibility:** To provide a transparent, single-source view of a pensioner's profile from the initiation of service until cessation.
- **Three R's Principle:** To guarantee the **"Right Pension to the Right Pensioner at the Right Time."**
- **Administrative Agility:** To decentralize access through Service Centres while centralizing the processing core for efficiency.

Funding Mechanism

- **Budgetary Allocation:** Funded 100% through the **Defence Pension Budget** of the Government of India.
- **Transaction Savings:** The system is structured to save the national exchequer hundreds of crores annually by eliminating agency bank transaction commissions.

Key Features

- **Automated Sanctions:** Shortens the Pension Payment Order (PPO) generation timeline.
- **Pensioner Data Verification (PDV):** Allows retirees to digitally review and rectify service files before data finalization.
- **Integrated Grievance Portal:** Inbuilt lodging mechanism for rapid, localized issue correction.
- **SPARSH Service Centres:** Integration with over 4.63 lakh **Common Service Centres (CSCs)** and designated national banks to provide physical digital assistance.
- **Digital Identification:** Built-in mechanisms for submitting the annual Digital Life Certificate (DLC) using biometric and facial recognition.

Key Achievements (Updated to 2026)

- **Massive Onboarding Scale:** Over **31.69 lakh defense pensioners** and family beneficiaries (nearly 99% of total veterans) across India and Nepal have been integrated onto the portal.
- **Fast-tracked Implementation:** Successfully implemented mega-payout rollouts like **OROP-III (One Rank One Pension)**, disbursing ₹1,224.76 crore to over 20 lakh veterans inside 15 days.

- **Grievance Resolution Drop:** The average timeline to close a pensioner grievance dropped from 56 days to **17 days**.
- **DLC 4.0 Campaign Success:** Generated **20.94 lakh Digital Life Certificates** in record cycles, ranking top across all central government platforms.

Criticisms and Systemic Issues

- **Data Migration Glitches:** The transition of historical physical/banking logs to SPARSH resulted in **errors in biographical details** (such as names and dates of birth), halting calculations for super-senior age increments.
- **Pending Grievance Backlog:** Internal documentation reveals that around **20% of migrated pensioners** faced record-rectification issues, leading to unresolved backlogs at the PCDA offices.
- **Digital Divide & Access Barriers:** Elderly, rural, and widowed pensioners often struggle to navigate the portal, experience login credential failures, or face a lack of reliable internet connectivity.

26. **Rare Earth Permanent Magnets (REPM) Scheme:**

The **Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets (REPM)** is a landmark national initiative approved by the Union Cabinet. The scheme addresses India's complete import reliance on high-performance permanent magnets, which are critical for green and strategic technologies.

Ministry & Implementing Structure

- **Nodal Ministry:** Managed by the **Ministry of Heavy Industries (MHI)**, coordinating with the Department of Atomic Energy (DAE), Ministry of Mines, and NITI Aayog.
- **Implementing Agency:** The **Ministry of Heavy Industries (MHI)** serves as the direct administrative and implementing authority.
- **Scheme Classification:** It operates as a **Central Sector Scheme** (100% funded by the Central Government).
- **Umbrella Context:** It operates as a dedicated, independent production-linked technology scheme modeled after India's critical semiconductor and electronics manufacturing missions.

Aims & Objectives

- **Build Domestic Ecosystems:** Establish **6,000 Metric Tonnes Per Annum (MTPA)** of integrated domestic sintered NdFeB REPM manufacturing capacity.
- **Eradicate Import Vulnerability:** Eliminate supply dependencies on single external markets (specifically China, which supplies over 80% of India's permanent magnets).
- **Complete Value-Chain Integration:** Secure end-to-end local capability to convert raw Rare Earth Oxides into metals, metals into alloys, and alloys into final sintered permanent magnets.
- **Support Strategic Downstream Industries:** Feed essential hardware components safely into Electric Vehicles (EVs), wind turbines, defense missile systems, aerospace engineering, and consumer electronics.

Funding Mechanism

- **Total Fiscal Outlay: ₹7,280 crore** over a project life cycle of 7 years.
- **Sales-Linked Incentives: ₹6,450 crore** allocated to provide direct performance payouts on final REPM sales across a 5-year production tenure.
- **Capital Subsidy Support: ₹750 crore** dedicated toward supporting upfront structural capital costs for constructing the complex processing plants.

Key Features

- **Global Competitive Bidding:** Up to **five beneficiaries** are selected through a transparent Least Cost System (LCS) global bidding framework.
- **Strict Capacity Caps:** To encourage ecosystem resilience, each individual beneficiary is capped at a maximum of **1,200 MTPA** capacity.
- **Phased Roadmap:** Designed with a **7-year lifecycle**, consisting of a 2-year gestation/setup window followed by a 5-year incentive payout period.

Status & Achievements (As of 2026)

- **Framework Activation:** Formally approved by the Cabinet and officially notified to industry markets.
- **Global Procurement Phase:** MHI issued the comprehensive **Request for Proposal (RFP) global tenders** to onboard the five industrial beneficiaries.
- **Technological Milestones:** The Ministry of Mines, in tandem with state-run scientific bodies, successfully optimized indigenous processing technologies to refine domestic ores.
- **Infrastructure Allocations:** Mining and processing hubs have been identified for **four major critical mineral processing plants** across strategic mineral states. Production lines are on track to kick off operations.

Criticisms & Structural Challenges

- **Lack of Commercial Experience:** Critics point out that India has almost zero large-scale commercial operational experience in precision magnet manufacturing compared to established players like Japan and Germany.
- **Upstream Extraction Delays:** Though India has rich beach-sand monazite reserves (7.23 million tonnes of rare earth oxide equivalent), domestic mining and chemical separation of oxides remain sluggish and tightly regulated.
- **Risk of Raw Material Gaps:** If local mining facilities cannot rapidly provide pure oxides, selected magnet manufacturers will have to import raw oxides, leaving the baseline supply chain exposed to international blockades.
- **Threat of Technological Disruption:** Emerging global breakthroughs in AI-driven material science have led to the creation of high-performance alternative magnets that do not use any rare earth metals, potentially threatening long-term market longevity.

27. Domestic Procurement Reservation:

The **Public Procurement Policy for Micro and Small Enterprises (MSEs) Order** (broadly known under the umbrella of Domestic Procurement Reservation) mandates that Central Government entities must route a fixed percentage of their annual procurement value specifically toward domestic micro and small enterprises.

Core Framework

- **Nodal Ministry: Ministry of Micro, Small and Medium Enterprises (MoMSME)**.
- **Implementing Agencies:** The policy is directly implemented across all Central Ministries, Central Public Sector Undertakings (CPSUs), and Central Departments. Monitoring is executed digitally via the MSME SAMBANDH Portal.
- **Classification:** It functions as a regulatory policy mechanism and mandatory directive under the **MSMED Act, 2006** rather than a standard cash-disbursing Central Sector or Centrally Sponsored Scheme. However, its supportive interventions operate under **Central Sector** guidelines (100% funded and monitored by the Central Government).
- **Scheme Type:** It is a core component of the government's **Umbrella Policy framework** to promote domestic manufacturing and self-reliance (Atmanirbhar Bharat / Make in India).

Aims & Objectives

- **Market Guarantee:** To provide a secure, assured domestic market for small scale manufacturers and service providers.
- **Inclusive Growth:** To scale up economic opportunities for underserved demographics, particularly women and SC/ST entrepreneurs.
- **Socio-Economic Equity:** To enhance secondary sector employment and income distribution across grassroots industries.
- **Import Substitution:** To lower public reliance on foreign-made items by boosting localized capabilities.

Funding Mechanism

Because it is a regulatory reservation policy, it **does not require a distinct financial corpus**. Instead, funding is integrated directly into the normal annual procurement budgets of individual Central Ministries and CPSUs. Price matching mechanisms (allowing MSEs within a L1+15% price band to supply up to 25% of the order by matching the L1 price) are absorbed by the purchasing departments to safeguard local vendors.

Key Features

- **25% Mandatory Quota:** Every Central Ministry, Department, and CPSU must source a minimum of **25% of their total annual procurement** from registered MSEs.
- **Socio-Demographic Sub-targets:** Within the 25% allocation, specific sub-quotas are legally carved out:
  - **4%** reserved exclusively for MSEs owned by **SC/ST entrepreneurs**.
  - **3%** reserved exclusively for MSEs owned by **Women entrepreneurs**.
- **Exclusive Item List:** A dedicated registry of **469 items** (periodically expanded and updated through technical committees) is entirely locked for exclusive purchase from domestic MSEs.
- **Financial Concessions:** Eligible MSEs are granted complete exemptions from paying Tender Fees and Earnest Money Deposits (EMD).
- **Defence Procurement Alignment:** Following the implementation of the **Defence Procurement Manual (DPM) 2025**, the Ministry of Defence aligned its revenue procurements to natively enforce the 25% MSE reservation rule while removing procedural entry barriers.

2026 Status & Key Achievements

- **Procurement Surges:** As tracked via MSME SAMBANDH, overall procurement from MSEs by central entities continues to hover above the 30% mark, consistently exceeding the statutory 25% target.
- **GeM Platform Integration:** Seamless end-to-end digital integration with the Government e-Marketplace (GeM) has automated the identification of local MSE vendors, cutting procurement cycle delays significantly.
- **Defence Indigenisation:** Under the updated **DPM 2025 and ongoing draft DAP-2026 modifications**, private domestic defense startups and MSMEs successfully gained expanded access to defense production chains without being choked out by older No-Objection Certificate (NOC) constraints.
- **Item Registry Expansion:** The list of items exclusively reserved for domestic small industries stands modernized to include green tech, digital service segments, and advanced precision parts.

Key Criticisms

- **Sub-Target Underperformance:** While the overall 25% target is met, the explicit sub-targets—especially the 4% quota for SC/ST entrepreneurs—frequently fall short due to lack of vendor documentation and awareness.
- **Quality and Delay Trade-offs:** Public departments occasionally report technical non-compliance or prolonged contract delays when relying on micro-scale suppliers for high-complexity, modern tech procurements.
- **Fragmented State Adoption:** Because this policy strictly mandates central-level institutions, state-level procurement reservation laws remain wildly inconsistent, leading to legal friction over sub-quotas and localized financial limits.
- **Post-Award Scale Creep:** A lack of strict oversight after a contract is awarded leaves small vendors vulnerable to scope creep and extended payment delays by public departments

28. **INS Arighaat:**

The **INS Arighaat** is **not a welfare scheme, Central Sector Scheme, Centrally Sponsored Scheme, flagship scheme, or umbrella scheme**. It is a classified military asset built under a strategic defense program known as the **Advanced Technology Vessel (ATV) Project**.

Comprehensive Profile of INS Arighaat

1. Aims & Objectives

- **Nuclear Triad Completion:** Provides India with its most survivable sea-based leg of the nuclear triad (joining land and air delivery).
- **Second-Strike Capability:** Ensures a continuous, undetectable retaliatory capability. This aligns strictly with India's "No First Use" nuclear doctrine.
- **Strategic Deterrence:** counters growing hostile submarine footprints and naval expansionism in the Indian Ocean Region.

2. Administrative Architecture

- **Ministry:** Ministry of Defence (MoD), Government of India.
- **Implementing Agencies:** A highly classified, collaborative consortium. The core implementing bodies are:
  - **The Indian Navy**
  - Defence Research and Development Organisation (DRDO)
  - **Bhabha Atomic Research Centre (BARC)** / Department of Atomic Energy (DAE) (for the nuclear reactor)
  - **Ship Building Centre (SBC), Visakhapatnam** (the primary assembly yard).

3. Funding Mechanism

- **Direct Secret Budgeting:** Financed directly through the central government via classified capital defense allocations within the **Union Budget under the Ministry of Defence**.
- **No Center-State Sharing:** As a core national security asset, funding is 100% federal. State governments have zero financial or implementation obligations.

Technical Features & Specifications

Feature	Specification Details
Type	Ship, Submersible, Ballistic, Nuclear (SSBN)

Displacement	Approximately 6,000 tonnes
Dimensions	Length: 111.6 metres
Propulsion	83 MW Pressurised Light-Water Nuclear Reactor (developed with Russian tech input)
Speed	Submerged: 24 knots (44 km/h) | Surfaced: 12-15 knots
Armament	4 Vertical Launch System (VLS) tubes. Can carry: • 12 × **K-15 Sagarika SLBMs** (Range: ~750 km) OR • 4 × **K-4 SLBMs** (Range: ~3,500 km)
Indigenisation	Boasts **70% indigenous content**, introducing far superior domestic technologies than its predecessor, INS Arihant.

Update: 2026 Status & Recent Achievements

- **Commissioning Milestone:** INS Arighaat was formally commissioned into active naval service on **August 29, 2024**, at the Naval Dockyard in Visakhapatnam.
- **Operational Integration:** The submarine has successfully concluded deep-sea user trials and is integrated into the operational fleet under the command of the **Strategic Forces Command (SFC)**.
- **K-4 Missile Test Launch:** A nuclear-capable K-4 Submarine-Launched Ballistic Missile (SLBM) with a 3,500 km range was successfully test-fired from INS Arighaat in the Bay of Bengal.
- **Continuous Deterrence Patrols:** Alongside INS Arihant, it maintains rotational, high-readiness strategic deterrence patrols to ensure sea-based nuclear safety.
- **Paving the Way for S4:** The successful deployment of Arighaat accelerated the assembly of India's third and fourth SSBNs (such as INS Aridhaman), which expand on this design layout with a larger 7,000-tonne platform.

Criticisms & Program Challenges

- **Protracted Development Timelines:** The vessel was launched in November 2017 but faced a seven-year gap before commissioning in 2024 due to extensive refinement cycles.

- **The "Hump" Hydrodynamic Liability:** The submarine features a prominent spinal hump to accommodate vertical missile launch tubes. Defense analysts criticize this configuration as it creates additional hydrodynamic drag and elevates acoustic noise signatures underwater.
- **Limited Initial Strike Range:** Operating with the 750 km-range K-15 missiles requires the submarine to venture dangerously close to adversary coastlines to strike targets deep inland. Achieving a true deep-sea standoff capability depends entirely on the full operational deployment of the 3,500 km-range K-4 missile

29. LCA Tejas Mk1A:

The **LCA Tejas Mk1A** is an advanced 4.5-generation, single-engine, multi-role light combat aircraft developed to modernise the Indian Air Force (IAF) fleet and phase out aging legacy platforms like the MiG-21.

Administrative Framework

- **Ministry:** Operating under the **Ministry of Defence (MoD)**, Government of India.
- **Implementing Agencies:** The **Aeronautical Development Agency (ADA)** leads the design and development. **Hindustan Aeronautics Limited (HAL)** serves as the principal manufacturer and nodal production agency.
- **Scheme Classification:** The LCA Tejas program does not fall under standard socio-economic developmental classifications like a "Central Sector Scheme" or "Centrally Sponsored Scheme". Instead, it is classified as a **strategic, fully Union Government-funded defence acquisition and indigenisation program** executed under the 'Buy (India-IDDM)' category of the Defence Acquisition Procedure (DAP).
- **Program Umbrella:** It functions as a **flagship program** for India's aerospace sector under the macro **"Aatmanirbhar Bharat"** (Self-Reliant India) and "Make in India" initiatives.

Aims & Objectives

- **Squadron Replenishment:** Replacing retired MiG-21 platforms to arrest the drop in the IAF's fighter squadron strength.
- **Indigenous Competence:** Advancing domestic capabilities across aerospace design, aviation software, and manufacturing ecosystems.
- **Strategic Self-Reliance:** Sourcing critical electronics, radar variants, and warfare sub-systems locally to reduce dependency on foreign arms imports.

Technical Features & Upgrades

- **Advanced Radar:** Integrates the indigenously developed **UTTAM Active Electronically Scanned Array (AESA) Radar**.
- **Electronic Warfare:** Outfitted with the *Swayam Raksha Kavach* self-protection electronic warfare suite.
- **Aerodynamics & Speed:** Tailless, compound delta-wing configuration capable of hitting speeds up to **Mach 1.8**.

- **Weapons Integration:** Features a 4,000 kg payload capacity holding beyond-visual-range (BVR) air-to-air missiles, precision-guided precision munitions, and close-combat assets.
- **Combat Range:** Offers a ferry range of up to 3,000 km, assisted by an external mid-air refuelling probe.

Funding & Procurement Mechanism

The program is backed entirely by capital acquisition budgets cleared via the Cabinet Committee on Security (CCS) through two massive procurement blocks:

- **The 2021 Tranche:** A ₹48,000 crore contract signed for **83 Mk1A** jets.
- **The 2025 Tranche:** A ₹62,370 crore contract signed in late September 2025 for an additional **97 Mk1A** aircraft (68 single-seaters, 29 trainers). This brings the total ordered fleet size of the Mk1A variant to 180 aircraft.

Status Update (2026)

- **Production Status:** HAL has set up three active production lines (Bengaluru, Nashik, and Hyderabad) to scale output to 24 units annually. Multiple airframes are fully assembled and awaiting engine blocks.
- **Operational Footprint:** The IAF has readied deployment plans to base the incoming Tejas Mk1A squadrons at forward airbases in **Rajasthan near the India-Pakistan border**.
- **Review Delays:** Induction into active service has run behind the initial timeline. A crucial joint HAL-IAF technical review scheduled for early 2026 was delayed as engineers verified air-to-air missile testing standards and electronic warfare suites prior to formal military sign-off.

Key Achievements

- **Deepening Local Sourcing:** The domestic components threshold crossed **64% to 70% indigenous content** on newer orders.
- **Ancillary Ecosystem:** Mainstreamed over 105 private direct vendors and nearly 600 indirect micro-suppliers, generating thousands of technical engineering jobs.
- **Component Maturity:** Successfully developed and integrated complex home-grown systems like the UTTAM AESA radar and actuator mechanisms, reducing reliance on Western equivalents.

Criticisms & Vulnerabilities

- **Foreign Engine Dependencies:** The most critical bottleneck involves delays from US-based General Electric in supplying the primary **GE F404-IN20 engines**, leaving manufactured airframes parked without propulsion systems.
- **Timeline Slippages:** Due to supply chain limits and prolonged evaluation processes, delivery schedules are nearly two years late.
- **Performance Parameters:** Strategic critics highlight that its payload carrying capacity and short combat radius restrict its application in multi-day deep-strike scenarios compared to heavy-twin engine setups.
- **Safety Reviews:** The entire Tejas family faced rigorous fleet maintenance checks early in the year following minor landing incidents and historical peacetime ground crashes

30. LCH Prachand:

The **HAL Prachand Light Combat Helicopter (LCH)** is India's first indigenously designed and developed multi-role attack helicopter. It is explicitly engineered to fulfill offensive operations in high-altitude environments.

Administrative and Governance Structure

- **Governance Model:** The LCH Prachand is **not a Central Sector Scheme or a Centrally Sponsored Scheme**. It does not fall under any flagship or umbrella welfare/development schemes. It is a **Defence Capital Procurement Project** executed directly under the Defence Acquisition Procedure (DAP).
- **Administrative Ministry:** Ministry of Defence (MoD), Government of India.
- **Implementing Agency:** State-owned aerospace major [Hindustan Aeronautics Limited (HAL)](1.1.1, 1.1.2).
- **Funding Mechanism:** Funded entirely through the **Defence Capital Acquisition Budget** voted by the Parliament of India under the "Capital Outlay on Defence Services" head.

Aims and Objectives

- **Strategic Substitution:** Eliminating reliance on imported attack platforms by establishing an indigenous rotary-wing combat ecosystem.
- **High-Altitude Capability Gap Closure:** Providing uninterrupted close air support, search and rescue, and anti-tank operations in the Himalayas (e.g., Siachen Glacier, Eastern Ladakh) where heavier platforms struggle due to thin air.
- **Industrial Indigenisation:** Driving local manufacturing by achieving over 65% indigenous content and integrating local MSMEs into the global defence supply chain.

Technical Features & Weapon Systems

- **High-Altitude Mastery:** It is the world's only attack helicopter capable of landing and taking off at altitudes exceeding **5,000 metres (16,400 feet)** with a functional weapons payload.
- **Powertrain:** Equipped with a **5.8-tonne twin-engine Shakti** setup, co-developed by HAL and Safran.
- **Performance Parameters:** Features a maximum speed of **268 kmph**, a combat radius of **550 km**, and an endurance exceeding 3 hours.
- **Survability & Stealth:** Engineered with a narrow fuselage for a low Radar Cross Section (RCS), armor plating, crashworthy landing gear, and an Infrared (IR) Suppressor to lower thermal signatures.
- **Weaponry:** Outfitted with a 20mm M621 nose turret gun, 70mm FZ275 laser-guided rockets, Mistral air-to-air missiles, and anti-tank guided missiles (ATGMs).

Milestone Achievements (Updated to 2026)

- **Historic Mega Contract (2025):** The Ministry of Defence signed a historic **₹62,700 crore contract** with HAL for mass production of **156 upgraded Prachand helicopters** (90 for the Indian Army, 66 for the Indian Air Force).

- **Production Line Expansion (April 2026):** The Secretary of Defence Production officially operationalized a dedicated, advanced LCH assembly line and an Automated Storage & Retrieval System (ASRS) at HAL's **Tumakuru factory** to support a peak capacity of 30 units per year.
- **High-Altitude Firing Cleared:** The Indian Army's Gajj Corps successfully validated live, high-altitude weapon firing, proving its platform stability in mountainous zones.
- **Leadership Validation (February 2026):** The President of India, Droupadi Murmu, and the Chief of the Army Staff, General Upendra Dwivedi, successfully completed solo sorties in the helicopter, certifying its operational maturity.

Criticisms and Technical Obstacles

- **Prolonged Gestation Cycle:** The platform took nearly **two decades** from its initial policy conception post the 1999 Kargil War to reach institutionalized, mass-production contracts in 2025.
- **Inherited Safety Groundings:** In mid-2025, the entire Prachand fleet was temporarily grounded out of precaution following structural and design failures found in the sibling ALH Dhruv platform, before being modified and cleared.
- **Delays in Advanced Weapons Integration:** While the platform handles rockets and guns seamlessly, integrating dedicated anti-tank guided missiles (ATGMs) and specific modern air-to-air drone-killer variants has faced minor procurement delays

31. BrahMos Supersonic Cruise Missile System

1. Aims & Objectives

- Provide India with a **highly lethal, multi-platform, conventional tactical-strike weapon**.
- Establish regional deterrence by field-deploying the **world's fastest operational cruise missile** across the Indian Army, Navy, and Air Force.
- Transition India from a defense importer into a **global hub for high-tech precision missile exports**.

2. Institutional Framework

- **Ministry**: Ministry of Defence (MoD).
- **Implementing Agency**: **BrahMos Aerospace Private Limited (BAPL)**, a specialized Joint Venture where India's DRDO holds a **50.5% stake** and Russia's NPO Mashinostroyenia holds **49.5%**.
- **Funding Mechanism**: Funded through direct capital defense allocation, governed by the Defence Acquisition Council (DAC).

3. Core Features

- **Speed & Principle**: Travels at a supersonic speed of **Mach 2.8 to 3.0** and operates on a strict **"Fire and Forget"** principle.
- **Propulsion**: Two-stage system consisting of a solid propellant booster rocket and a liquid ramjet engine.
- **Versatility**: Multi-platform capability allows launching from **land, sea, sub-surface, and air platforms** (like modified Su-30MKI fighter jets).

4. Latest 2026 Status & Achievements

- **Operational Milestones**: Retrospectively confirmed as achieving its historic **first combat deployment in Operation Sindoor (May 2025)**, where air-launched variants were utilized against adversarial ground targets.
- **Financial & Export Scale**: BAPL officially crossed **₹5,200 crore in annual revenue for the financial year 2025–26**. Major export inroads include executing the landmark deal with the Philippines and confirming a new **$629 million export pipeline with Vietnam** as of May 2026.
- **Indigenization**: Local content reached **83% to 85% by early 2026**, successfully replacing foreign parts with indigenous airframes and guidance seekers.
- **Next-Gen Testing**: The compact, lighter **BrahMos-NG (Next Generation)** is scheduled for its autonomous flight-test phase in 2026 from the newly operational Lucknow facility.

5. Criticisms & Challenges

- **Geopolitical Vulnerabilities**: The critical 49.5% Russian stake poses long-term supply chain risks and exposure to international sanctions on Moscow.
- **Cost Constraints**: High unit cost (approx. ₹30–40 crore per missile) limits massive saturation numbers.
- **Accidental Deployments**: High-profile historical incidents—such as the accidental launch into Pakistan in 2022—exposed technical oversight and command-and-control vulnerabilities.

Pinaka Multi-Barrel Rocket Launcher (MBRL) System

1. Aims & Objectives

- Deliver **high-volume, saturation artillery fire** to neutralize enemy troop concentrations and forward posts.
- Completely replace aging, foreign-origin artillery systems like the Russian Grad BM-21.
- Advance the **"Aatmanirbhar Bharat"** design template by deploying a 100% indigenously designed weapon system.

2. Institutional Framework

- **Ministry**: Ministry of Defence (MoD).
- **Implementing Agency**: Developed by the **Armament Research and Development Establishment (ARDE)**, a laboratory under DRDO. Production is delegated to Indian entities including **Tata Advanced Systems, Solar Industries, and Munitions India Limited (MIL)**.

- **Funding Mechanism**: Publicly funded through standard MoD capital expenditures and domestic acquisition budgets.

3. Core Features

- **Salvo Capability**: A single Pinaka battery can fire a salvo of **12 high-explosive rockets in just 44 seconds**.
- **Guidance Systems**: Features advanced variants integrated with **GPS, NavIC, and proportional navigation systems** for pinpoint targeting.
- **Mobility**: Entirely mounted on heavy-duty Tatra trucks to facilitate swift shoot-and-scoot tactics.

4. Latest 2026 Status & Achievements

- **Export Milestone**: In **January 2026, Defence Minister Rajnath Singh flagged off the first batch of Guided Pinaka rockets to Armenia** under a landmark ₹2,000 crore defense contract.
- **Extended Strike Power**: Successful trials in late 2025 validated a new **120-km extended-range variant**, which fires from existing launcher frames.
- **Regimental Strength**: The Indian Army successfully operationalized its 7th Pinaka regiment, with the 8th undergoing active conversion in mid-2026 toward an ultimate target of 22 regiments.
- **Procurement Sizing**: The MoD signed production contracts valued at **₹10,147 crore in February 2025** for specialized Area Denial and High-Explosive ammunition.

5. Criticisms & Challenges

- **Production Backlogs**: Scaling up specialized propellant and ammunition manufacturing has faced delays, trailing behind the rapid induction rate of actual launcher trucks.
- **Electronic Warfare Susceptibility**: The guided variant depends heavily on external satellite constellations, creating potential vulnerabilities to battlefield electronic jamming.
- **Logistical Footprint**: Deploying and restocking heavy, vehicle-mounted rocket arrays requires broad, secure logistics corridors, limiting rapid deployment in high-altitude, rugged terrains

32. The digital transformation of India's military infrastructure :

The digital transformation of India's military infrastructure is driven by a portfolio of dedicated initiatives rather than a single standalone program. These efforts are collectively executed via **central sector schemes** managed directly under the Ministry of Defence (MoD).

Administrative and Funding Framework

- **Nodal Ministry:** Ministry of Defence (MoD), Government of India.

- **Implementing Agencies:** The **Defence Innovation Organisation (DIO)** operates as the core executive vehicle for innovation schemes. It works alongside the **Defence AI Project Agency (DAIPA)** and the Defence Research and Development Organisation (DRDO).
- **Scheme Type:** These are **Central Sector Schemes** with 100% funding provided by the Central Government. They do not require financial contributions from state governments.
- **Scheme Classification:** Operating as a hybrid model, it utilizes **flagship components** like Innovations for Defence Excellence (iDEX) alongside **umbrella frameworks** like the *Digital Army Programme* to centralize underlying technology networks.
- **Funding Mechanisms:** Financial allocations are structured directly via the Union Budget's Capital Outlay. Dedicated allocations include grants of up to ₹50 crore per project under the Technology Development Fund (TDF) and deep-tech grants up to ₹25 crore under the *ADITI scheme*. Furthermore, each Service Headquarter is authorized an autonomous budget window of ₹100 crore dedicated solely to AI-specific deployment.

Aims, Objectives, and Core Features

- **Strategic Self-Reliance:** Rapidly phase out critical foreign dependencies by shifting development to domestic MSMEs and startups.
- **Multi-Domain Capability:** Transition legacy military assets into a network-centric force optimized for integrated space, cyber, and electronic warfare.
- **Next-Gen Tech Adoption:** Build institutional frameworks to scale up Artificial Intelligence (AI), quantum encryption, and robotics across tactical systems.
- **Centralized Infrastructure:** Deploy software-defined data centers and secure internal cloud networks to support real-time data replication.
- **Administrative Efficiency:** Automate military supply chains, export processing, and internal asset verification using dedicated digital platforms.

Core Status and Key Achievements (Updated to 2026)

- **Dedicated Space Connectivity:** Final milestones have been reached for the launch of **GSAT-7B**, the Indian Army's first fully dedicated high-throughput secure communication satellite.
- **Supply Chain Transparency:** The MoD has successfully mapped over 40,000 active domestic defense firms and academic entities onto the SRIJAN-DEEP portal to streamline indigenous R&D.
- **Streamlined Procurement and Logistics:** Deployment of the *Defence Procurement Manual 2025* and updated automated cash management utilities have significantly cut down private sector billing cycles.
- **Deep-Tech Technology Scale:** The *ADITI scheme* has driven advanced product development budgets to accelerate 30 critical deep-tech projects.

- **Standardized Evaluation Frameworks:** The formal release of the *AI Maturity Assessment Model* has established clear, objective criteria for tracking tech absorption across command structures.

Criticism and Structural Bottlenecks

- **Persistent Bureaucratic Hurdles:** Despite the introduction of fast-tracked digital platforms, procurement tracks remain constrained by a conservative decision-making culture and multi-layered validation delays.
- **Cyber Vulnerabilities and Interoperability:** Integrating legacy, disjointed electronic infrastructure into centralized cloud networks opens up expanding cyberattack surfaces that require continuous patching.
- **Private Capital Bottlenecks:** Commercial defense startups continue to experience critical funding gaps during the capital-intensive transition from functional prototype to full-scale military mass production.
- **Technological Absorption Gaps:** Advanced tech acquisition does not automatically generate operational effectiveness, as matching tactics, operational doctrines, and workforce retraining lag behind rapid hardware procurement