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India's Defence Industrial Edge

Indigenisation, Innovation and Strategic Partnerships

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C295 industrial programme | PIB, Government of India | image cropped for layout

READER GUIDE

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ABOUT THIS REPORT

A policy-oriented research report examining how procurement, innovation and strategic partnerships can deepen the capabilities behind India's defence production. Reported results, budget allocations and proposed interventions are distinguished throughout.

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RESEARCH OVERVIEW

Abstract

India's defence industry has reached a scale at which procurement can build much deeper technological capability. Production was ₹1.78 lakh crore in FY2025-26 and exports ₹38,424 crore, while ₹1.39 lakh crore is earmarked for domestic capital acquisition in FY2026-27. The next challenge is to convert that demand into reliable delivery, the ability to adapt equipment and dependable support throughout its service life. This report defines that capacity as India's defence industrial edge. It maps the institutions and representative firms shaping the ecosystem and traces ten stages of the value chain. It then identifies five priorities for programme-level assessment: critical subsystems, materials and special processes, qualification capacity, usable integration and repair rights, and the transition from prototype to production. The proposed response connects development funding to named customers, qualification and repeat orders. Bilateral partnerships should create paid engineering work and retained Indian competence while giving foreign partners capable suppliers and sustainable business. The report sets out innovation opportunities, a proposed implementation sequence and research to test results. Its central argument is that indigenisation should be judged by the capability Indian organisations can reliably exercise, alongside the value of domestic production.

Keywords: India; defence industry; indigenisation; innovation; strategic autonomy; bilateral partnerships; industrial policy; value chains

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Executive summary

₹1.78 lakh cr

Production | FY2025-26

₹38,424 cr

Exports | FY2025-26

₹1.39 lakh cr

Domestic allocation | FY2026-27

India's growing procurement market can secure the engineering and supplier capabilities behind military equipment. The report defines the defence industrial edge as the ability of Indian organisations to deliver, adapt and sustain equipment reliably, alongside the value of domestic output.

The scale of demand makes that ambition consequential. Private industry contributed approximately 24 per cent of FY2025-26 production. The domestic capital allocation represents approximately 75 per cent of the FY2026-27 capital acquisition budget. These are different measures and should not be combined into a self-reliance ratio. [1, 2, 3]

Five priorities should guide programme assessment: critical subsystems; materials and special processes; testing and acceptance evidence; integration and repair rights; and the transition from prototype to production. They are screening categories, not a national ranking. Decisions should follow interruption risk, substitution time, cost, feasibility and repeat demand.

Development funding should connect a named customer to a qualification plan and realistic purchasing route. Bilateral partnerships should negotiate specific engineering tasks, recipient teams and usable rights. Paid work, demonstrated competence and repeat orders provide stronger evidence of industrial depth than broad technology-transfer announcements.

The next research stage should test bounded aerospace, electronics or software, and repair or materials cases. Trace qualification, contracting, delivery and payment to identify which interventions improve military availability at acceptable cost.

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Abbreviations

Abbreviation	Full form
ADITI	Acing Development of Innovative Technologies with iDEX
AVNL	Armoured Vehicles Nigam Limited
AWEIL	Advanced Weapons and Equipment India Limited
BDL	Bharat Dynamics Limited
BEL	Bharat Electronics Limited
CEMILAC	Centre for Military Airworthiness and Certification
DAC	Defence Acquisition Council
DAP	Defence Acquisition Procedure
DDP	Department of Defence Production
DGA	Direction générale de l'armement - France's defence procurement agency
DGAQA	Directorate General of Aeronautical Quality Assurance
DGQA	Directorate General of Quality Assurance
DIO	Defence Innovation Organisation
DPSU	Defence Public Sector Undertaking
DRDO	Defence Research and Development Organisation
DSA	Defence Space Agency
FY	Financial year
GRSE	Garden Reach Shipbuilders and Engineers

Abbreviation	Full form
HAL	Hindustan Aeronautics Limited
HQ IDS	Headquarters Integrated Defence Staff
IAF	Indian Air Force
iDEX	Innovations for Defence Excellence
INDUS-X	India-United States Defence Acceleration Ecosystem
L&T	Larsen & Toubro
MIDHANI	Mishra Dhatu Nigam Limited
MoD	Ministry of Defence
MoU	Memorandum of Understanding
MSME	Micro, Small and Medium Enterprise
OEM	Original Equipment Manufacturer
R&D	Research and development
SIPRI	Stockholm International Peace Research Institute
TASL	Tata Advanced Systems Limited
TDF	Technology Development Fund
TIDCO	Tamil Nadu Industrial Development Corporation
UAV	Unmanned Aerial Vehicle
UPEIDA	Uttar Pradesh Expressways Industrial Development Authority

Figure 1 The defence industrial ecosystem

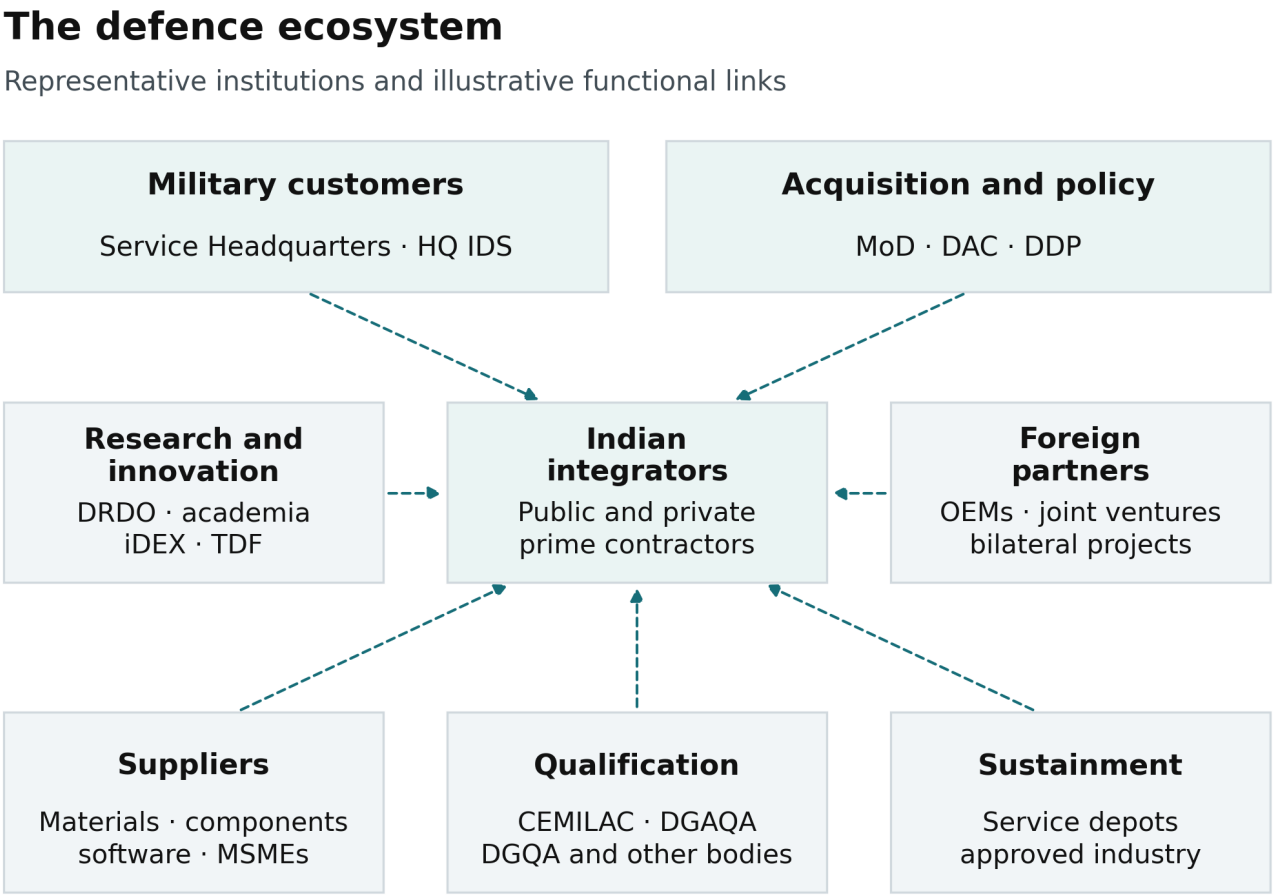
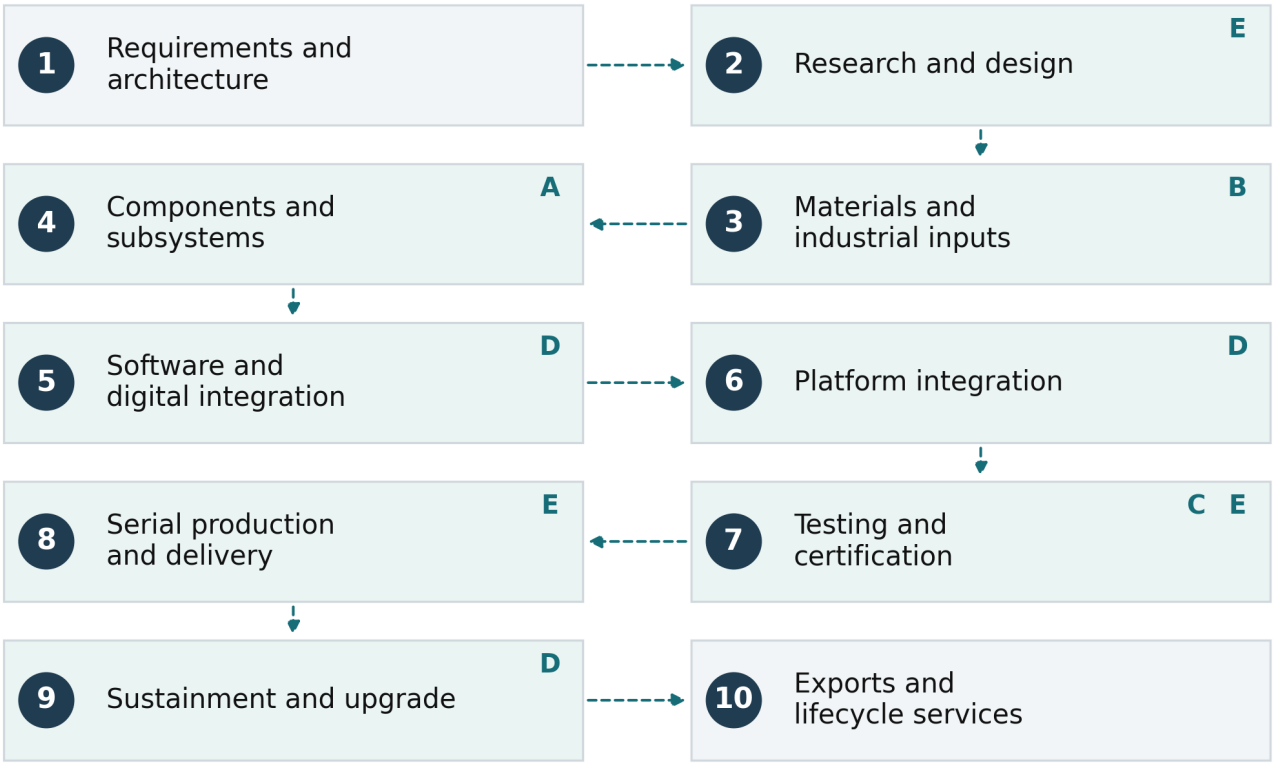


Figure 1 maps the institutional roles discussed in Table 2. Dashed arrows show illustrative functional links rather than formal reporting lines or verified supplier contracts. Author synthesis.

Figure 2 The value chain and indigenisation priorities

The value chain and five assessment priorities

Illustrative progression; design, testing and support involve iteration



ASSESSMENT PRIORITIES

- **A** Critical components and subsystems
- **B** Materials and special processes
- **C** Testing and acceptance evidence
- **D** Usable integration and repair rights
- **E** Transition from prototype to production

Author synthesis of the report's ten stages and proposed priorities.

Letters identify areas to assess; they do not rank verified national weaknesses.

Figure 2 traces the ten stages used in the report and connects them to five priorities for programme assessment. The priorities are analytical screening categories, not an audited ranking of weaknesses. Author synthesis; the full chain and proposed responses appear in Tables 3 and 4.

INDIAFORTH RESEARCH

Introduction

India's defence industry produced ₹1.78 lakh crore of equipment in FY2025-26. Its next test is whether that expanding output gives the armed forces more dependable supply and Indian firms greater responsibility for the technology they sell. Higher production creates the opportunity; the capabilities behind it determine the strategic return. [1]

The government has substantial purchasing power to shape that return. For FY2026-27, ₹1.39 lakh crore, approximately 75 per cent of the capital acquisition budget, is earmarked for procurement through domestic industry. Defence exports reached ₹38,424 crore in FY2025-26, up 62.66 per cent. India has a growing home market and an expanding overseas business. Procurement can connect both to the engineering, qualified suppliers and support services that make an industrial base durable. [2, 3]

The Tata-Airbus C295 programme shows how that learning can take place. It provides for 40 of 56 aircraft to be manufactured and assembled in India. Airbus's October 2024 account identified 37 India-based suppliers and 21 certified special processes. Qualifying suppliers and production methods creates capability that a final assembly line needs to function. The next opportunity is to turn those competences into additional work and responsibility. [4]

An aircraft programme also illustrates why industrial depth matters. GE's October 2026 statement confirms the use of its F404 engines in Tejas Mk1 and describes potential Indian manufacture of F414 engines as subject to final agreements and approvals. A platform's domestic production and the arrangements governing its critical subsystems must therefore be examined together. Local manufacture, licensed production and the ability to design or repair an item confer different capabilities. [5]

The strategic risk examined here is a gap between military reliance and the industrial means to respond when a critical input is delayed, restricted or compromised. It can persist beneath a high domestic content share. SIPRI identifies India as the second-largest recipient of major arms in 2021-25, with 8.2 per cent of global imports. Russia supplied 40 per cent of India's imports, down from 70 per cent in 2011-15. Diversifying partners can improve options, but each relationship still needs workable supply, integration and support arrangements. [6]

This report asks which gaps in the value chain most constrain India's ability to deliver, adapt and sustain military capability, and how procurement, innovation and partnerships can close them. That ability is the industrial edge in its title. Domestic production is one foundation. Industrial depth supplies the process knowledge, qualified inputs, people and evidence needed to keep production and support working.

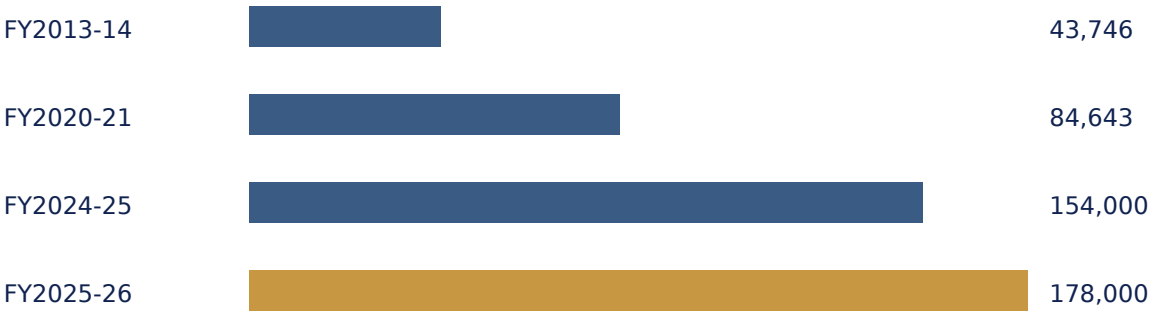
The policy implication is specific: a contract for a platform should also establish which capabilities India needs behind it and how they will be developed or secured. For one component, the best response may be an Indian design programme. For another, it may be licensed production, an authorised repair facility or a qualified alternative supplier. The decision should follow the military requirement, cost and realistic development time.

The report moves from the market and ecosystem to the value chain, then selects priorities for assessment. It uses those priorities to frame bilateral opportunities, innovation funding and a procurement agenda. Its recommendations are intended to turn expenditure into capability that Indian organisations can repeatedly exercise.

EVIDENCE AND ANALYSIS

1 The market and the remaining dependence

Defence production: an expanding industrial base



INR crore | Reported nominal output; not domestic value added. Source: MoD [1].

Table 1 The current industrial baseline

Measure	Latest verified figure	Interpretation
Annual defence production	₹1.78 lakh crore in FY2025-26; public enterprises approximately 76 per cent and private industry 24 per cent. [1]	Reported output value and production structure; not domestic value added or technological ownership.
Defence exports	₹38,424 crore in FY2025-26, up 62.66 per cent. [2]	Export value; not proof of indigenous design across every exported product.
Domestic capital acquisition allocation	₹1.39 lakh crore, approximately 75 per cent of the FY2026-27 capital acquisition budget. [3]	Budget earmarking; not completed procurement, supplier revenue or wholly Indian content.
Major arms imports	8.2 per cent of global imports in 2021-25; India ranked second. [6]	SIPRI transfer-volume measure covering major arms, not expenditure or all imported components.

Measure	Latest verified figure	Interpretation
DDP sixth indigenisation list	405 items notified in August 2026, with estimated business potential of ₹3,070 crore. [7]	A development and procurement opportunity; not evidence that all listed items have been localised.

The production, export, import and budget series have different definitions and periods. They should not be combined into a numerical self-reliance ratio. In particular, SIPRI's trend-indicator values are not comparable with rupee production or export totals.

The Department of Defence Production's August 2026 release reports more than 33,000 items offered for indigenisation through SRIJAN up to June, and more than 15,700 successfully indigenised. It estimates import substitution of about ₹9,000 crore over five years. The useful next question is which of those items remove consequential dependencies and remain supported in service. Counting items gives small and large components equal numerical weight. [7]

Reform is continuing. The Ministry's February 2026 publications describe DAP 2026 as a draft proposing changes to acquisition and indigenous design requirements. This report treats those provisions as proposals: the sources examined do not establish a subsequent final notification. Firms must check the procedure and tender conditions governing the actual procurement. [8]

EVIDENCE AND ANALYSIS

2 The institutions behind industrial capability

India's ecosystem combines military customers with public enterprises, private primes, specialist suppliers, research organisations and foreign technology owners. Its performance depends on the decisions connecting them. A research result needs an industrial partner; a new supplier needs qualification; an accepted product needs orders and support. The map below identifies those functions and representative participants.

Table 2 The institutional and commercial ecosystem

Function	Principal institutions and representative actors	What links them to the value chain
Military demand and acquisition	Ministry of Defence; Department of Military Affairs; Service Headquarters; Headquarters Integrated Defence Staff; Defence Acquisition Council and acquisition officials. [3, 9, 10]	Requirements, prioritisation, acquisition decisions and the eventual military customer.

Function	Principal institutions and representative actors	What links them to the value chain
Production policy and supplier development	Department of Defence Production; SRIJAN; Defence Innovation Organisation and iDEX; Defence Space Agency participation in innovation challenges. [7, 11, 12]	Indigenisation opportunities, innovation challenges and entry routes for industry.
Research and technology maturation	DRDO laboratories; DRDO Industry Academia Centres of Excellence; universities; Technology Development Fund participants. [13]	Research, prototypes, technology absorption and links between laboratories and producers.
Aerospace and electronics	HAL, BEL, BDL and Tata Advanced Systems; Data Patterns in specialist electronics. [4, 14, 15]	Platforms, avionics, electronics, missiles, integration and supplier purchasing.
Naval construction and engineering	Mazagon Dock, GRSE, Goa Shipyard and Hindustan Shipyard; private engineering suppliers. [14]	Ship construction and repair; integration of propulsion, electronics and other supplied systems.
Land systems and ammunition	L&T; Bharat Forge and Kalyani Strategic Systems; AVNL, Munitions India, AWEIL, Yantra India and other corporatised former ordnance entities. [16, 17, 18]	Production, industrial engineering, components and continuing support.
Materials and smaller technology firms	MIDHANI in strategic alloys; MSMEs and specialist manufacturers; ideaForge in UAVs. [19, 20]	Materials, parts, niche systems and engineering that may sit below the prime contract.
Qualification and quality	CEMILAC for military airworthiness; DGAQA for aeronautical quality assurance; DGQA for its Army, naval and common-user remit; relevant product-specific authorities. [21, 22, 23]	Evidence that a design and its manufactured output meet the applicable requirement.
Military sustainment and repair	Service maintenance organisations, including IAF Base Repair Depots and its Central Indigenisation and Manufacturing Depot; approved industrial repair partners. [24]	Spare development, diagnostics, repair and feedback from equipment in use.
Skills and technical learning	Company engineering teams, universities, DRDO research partnerships and apprenticeship routes. [10, 13]	Technicians, evaluators and engineers able to reproduce a process and pass knowledge to another team.
Foreign technology and integration partners	Airbus-TASL, GE-HAL, Hanwha-L&T and the BrahMos joint venture are documented examples. [4, 5, 25, 26]	Licensed inputs, industrial work and agreed technology access, with different rights in each arrangement.

Function	Principal institutions and representative actors	What links them to the value chain
Place and industrial infrastructure	State governments; UPEIDA in Uttar Pradesh; TIDCO in Tamil Nadu; established production centres outside both corridors. [27]	Land, utilities, industrial infrastructure and local supplier development.
Finance and market access	Buyers and prime contractors; banks and investors; DDP's defence export authorisation system and relevant foreign licensing authorities. [28]	Working capital, investment, payment, licensing and access to overseas customers.

The sectors connect through shared capabilities. Aerospace, naval and land programmes need materials, electronics, software and inspection; uncrewed and space-related innovation draws on many of the same inputs. The functional map therefore follows work and decisions as well as platform categories. Named firms illustrate activity, with programme-specific qualification still required.

Public enterprises remain important anchors. Their purchasing can create entry points for new suppliers, while their integration experience can help qualify a component for an actual platform. Policy should make that relationship commercially worthwhile: a small firm needs a clear technical requirement, access to the right information, an agreed qualification plan and a reasonable prospect of repeat orders.

Private firms add alternative integration and development paths. Bharat Forge's FY2024-25 annual report describes artillery production, aerospace components and an investment in an Italian underwater-technology design company. Data Patterns reports radar, electronic warfare and automatic test equipment capabilities. These examples show opportunities to deepen engineering and testing below the final platform. [15, 17]

Geography should follow production relationships

The two formal defence corridors are only part of the national ecosystem. Uttar Pradesh's six nodes are Aligarh, Agra, Jhansi, Kanpur, Chitrakoot and Lucknow; Tamil Nadu's five are Chennai, Hosur, Coimbatore, Salem and Tiruchirappalli. UPEIDA and TIDCO are their respective nodal agencies. [27]

Government figures published in August 2026 put Uttar Pradesh's April investment commitments at ₹42,057 crore, with ₹4,409 crore grounded. The same publication reported Tamil Nadu commitments of ₹32,699 crore, with ₹6,446 crore realised. These figures distinguish intentions from implementation; they do not measure plant utilisation or military deliveries. [29]

A national map must also connect aerospace and electronics in Bengaluru, materials and aircraft-component activity around Hyderabad, the C295 line in Vadodara, and shipbuilding centres such as Mumbai, Kolkata, Goa and Visakhapatnam. [4, 14, 19]

A corridor's useful output is a qualified production network. States should organise shared testing, metrology, skills and logistics around confirmed buyer requirements. Another industrial park will have limited value if its occupants cannot qualify products or obtain sufficient orders to keep

specialist teams employed.

EVIDENCE AND ANALYSIS

3 Where value and responsibility sit

The defence value chain begins before a factory order and continues after delivery. Design decisions set the materials and suppliers required; qualification establishes what can be used; operational experience feeds modifications and new research. Finance, skills, data rights, cyber protection and export permissions run across every stage.

Table 3 The defence value chain and the indigenisation task

Stage	Capabilities and representative anchors	What India should verify or develop
1 Requirements and architecture	Military users, acquisition teams, design authorities and integrators.	Stable operational needs, realistic interfaces and early visibility of foreign dependencies.
2 Research and design	DRDO, academia, company engineering teams, iDEX and TDF projects. [11, 13]	Ability to reproduce results, retain design knowledge and mature a prototype against a buyer's requirement.
3 Materials and industrial inputs	Strategic alloys, special steels, composites, chemicals, electronic materials and purchased manufacturing equipment; MIDHANI is one domestic anchor. [19]	Qualified input sources, process consistency and exposure to single suppliers or imported production tools.
4 Components and subsystems	Propulsion, bearings, actuators, electronics, sensors, communications and power systems; public and private suppliers. [7, 14, 15]	Production knowledge and accepted alternatives for the components that can hold up the whole platform.
5 Software and digital integration	Embedded software, command systems, simulation, AI applications and configuration management.	Controlled versions, necessary interfaces, cybersecurity, test evidence and rights to maintain agreed functions.
6 Platform integration	Aircraft, ships, vehicles and other systems; public primes, TASL, L&T and other integrators. [4, 14, 16]	Responsibility for system performance, integration knowledge and the ability to incorporate a qualified change.

Stage	Capabilities and representative anchors	What India should verify or develop
7 Testing and certification	Laboratories, test facilities, CEMILAC, DGAQA and relevant acceptance authorities. [21, 22]	Early agreement on evidence, accessible facilities and repeatable qualification processes.
8 Serial production and delivery	Primes, lower-tier suppliers, industrial engineering and quality teams.	Yield, quality, delivery rate, traceability, working capital and credible surge capacity.
9 Sustainment and upgrade	Depots, OEMs, Service maintenance organisations and approved repair suppliers.	Diagnostic information, repair skills, spares, obsolescence management and usable modification rights.
10 Exports and lifecycle services	Exporting firms, overseas customers, DDP and relevant partner authorities. [28]	Re-export permissions, customer support, training, parts and resources for long-term service obligations.

The map locates industrial work. A dependency assessment asks a narrower question: which missing capability could prevent a delivery or keep equipment out of service? That distinction allows procurement to target the stage that constrains the whole programme.

EVIDENCE AND ANALYSIS

4 The priorities for deeper indigenisation

The five priorities below are a screening framework, not a nationwide ranking of industrial weaknesses. A programme should establish the consequence of interruption, time to substitute, feasibility of domestic development and repeat demand. The resulting decision may favour domestic design, licensed production, an alternative supplier or assured external support.

Table 4 Five priorities for programme assessment

Dependency to examine	Why the capability matters	Response for the buyer to consider
Critical components and subsystems	One unavailable input can constrain a much larger platform; a replacement may need lengthy integration and qualification.	Compare domestic development, licensed production, a qualified second source, spares and assured external support against the delivery requirement.

Dependency to examine	Why the capability matters	Response for the buyer to consider
Materials and special processes	Repeatable processes can serve several programmes, spreading development costs and retaining specialist work.	Aggregate credible demand and fund a common qualification package with identified platform customers.
Testing and acceptance evidence	Suppliers need suitable facilities and evidence that the buyer and authorities can actually use.	Agree requirements early, arrange test access and purchase shared services where utilisation justifies them.
Integration and repair rights	Drawings, diagnostic information, software interfaces and permissions can determine whether a local team can resolve a problem.	Purchase the task-specific access, tools and training, then require a demonstration of the agreed work.
Prototype to production transition	A promising product needs an integrator, acceptance decision, production finance and a customer.	Name the user and route to procurement before development ends; connect funding to qualification and purchasing decisions.

Fund the capability behind the component

Propulsion makes the distinction tangible. The GE-HAL relationship includes engine supply, an agreement for an Indian F404 depot and proposed F414 manufacture. A depot can deepen maintenance capability; a manufacturing arrangement creates a different body of work. Neither should be described as unrestricted ownership of engine design. India should specify the competence and support rights it expects from each arrangement. [5]

The same reasoning applies further upstream. Replacing a foreign assembly can leave dependence on imported electronic inputs, production equipment or licensed software. A qualified Indian material or process may improve several programmes, but it needs engineering evidence and consistent production. Funding should purchase that qualification and the repeat work needed to retain it.

Build on the reforms already under way

Testing policy is changing. On 7 October 2026, the Ministry approved a revised procedure for industry access to proof ranges and test facilities. It waives proof and testing charges for iDEX, TDF, Make and other Ministry developmental projects. It also reserves three days per quarter at proof ranges for the specified development categories, including projects initiated by indigenous industry. Those provisions should improve access; their practical effect needs to be measured through waiting time, completed tests and accepted evidence. The waiver should not be assumed to cover every private project. [30]

Qualification also requires the right authority. CEMILAC and DGAQA cover distinct military aeronautical responsibilities; DGQA's remit includes Army stores, naval stores excluding naval armaments, and common-user IAF items. Involving the appropriate evaluator early helps a supplier plan the evidence needed for its actual product. [21, 22, 23]

Keep innovation connected to orders

The innovation system already extends beyond grants. At the March 2026 National Defence Industries Conclave, the Ministry reported 45 iDEX procurement contracts worth nearly ₹2,326 crore. It also launched 101 DPSU-funded challenges offering mentorship, testing and potential supply-chain integration. These arrangements provide a foundation for connecting new firms to buyers; their next test is repeatable delivery and follow-on business. [12]

ADITI's published framework allows grants up to ₹25 crore and up to 50 per cent of the product development budget, subject to its terms. A project should use that early support to reach an agreed qualification and procurement decision. Its plan must also account for cash needed to manufacture the first batch. [11]

A capital allocation, Acceptance of Necessity, signed contract, accepted delivery and payment are different commercial events. Buyers should make those distinctions visible to suppliers. Prime contractors can help viable small firms invest by providing clear requirements, workable payment milestones and credible demand. Finance can then follow an enforceable production opportunity rather than a speculative pipeline.

EVIDENCE AND ANALYSIS

5 Partnerships that deepen Indian capability

Bilateral cooperation should begin with the industrial task India wants to perform. The C295 and K9 programmes connect Indian manufacturers to established foreign platforms. BrahMos is a joint venture, while the GE-HAL relationship spans different supply and proposed manufacturing arrangements. These models offer different opportunities for learning and support; they require different negotiations over work, information and permitted markets. [4, 5, 25, 26]

The next attainable work package matters more than a broad promise of technology transfer. A partner might qualify an Indian special process, allocate component design work, help establish repair capability or support a jointly developed subsystem. India should identify the customer, recipient team and evidence of competence before committing public support.

Foreign firms also need a commercial return. They gain when Indian suppliers can provide dependable output, engineering capacity and lifecycle support. Indian firms gain when the paid work develops competence they can retain and apply. The partnership table connects established channels to proposed next tasks.

Table 5 Bilateral relationships and proposed industrial opportunities

Relationship and established basis	Proposed value chain opportunity	Conditions and mutual return
United States: INDUS-X innovation cooperation; GE-HAL relationships and proposed F414 manufacture. [5, 31]	Joint prototyping, qualified aerospace components, repair capability and supplier development.	Define the technology and support package actually releasable; US firms gain suppliers and lifecycle business, Indian firms gain paid work and competence.
France: defence industrial roadmap and DGA-DRDO technology cooperation; joint statement supports co-design and co-development. [32]	Propulsion-related engineering, naval systems, aerospace processes and shared evaluation projects.	Contract specific work and rights; distinguish research cooperation from a production commitment or complete technology transfer.
United Kingdom: ten-year Defence Industrial Roadmap, electric propulsion and advanced engine-technology cooperation in Vision 2035. [33]	Specialist engineering, electric propulsion work packages, test methods and sustainment services.	Agree milestones and customer demand; partners gain engineering capacity and market opportunities while developing complementary skills.
Russia: BrahMos joint venture and a substantial installed supplier relationship. [6, 25]	Approved localisation, lifecycle support, repair and selected co-development.	Map support and licensing dependencies; protect readiness while evaluating concentration and interruption exposure.
Israel: November 2025 MoU on defence, industrial and technological cooperation. [34]	Defined electronics, sensor, cyber and subsystem R&D projects responding to Indian requirements.	Verify release and re-export permissions; commercial opportunity should rest on qualified products and dependable support.
Japan: July 2026 dialogue sought progress on UNICORN transfer and further equipment cooperation. [35]	Shipboard systems engineering, integration and supplier qualification around agreed projects.	Treat transfer and implementation as work in progress; expand only after technical responsibilities and access are agreed.
Australia: July 2026 declaration supports industry integration, innovation, advanced science and resilient supply chains. [36]	Maritime sensing research, secure software evaluation, materials qualification and regional sustainment studies.	Start with a customer-backed pilot; both sides gain specific expertise or supply options rather than a general promise of market access.

Relationship and established basis	Proposed value chain opportunity	Conditions and mutual return
Spain and South Korea: Tata-Airbus C295 manufacturing and L&T-Hanwha K9 industrial cooperation. [4, 26]	Broaden component and special-process qualification, production engineering and lifecycle support.	Use existing programmes to earn additional work; negotiate follow-on orders and permitted exports without assuming design ownership.

The table separates existing relationships from proposed work. Japan's 2026 dialogue concerns implementation of technology cooperation; the C295 programme already establishes manufacturing responsibilities. A new agreement should identify how far the next task moves Indian participation along the value chain.

The Quad can complement bilateral projects through non-sensitive maritime awareness, cyber capacity, infrastructure resilience and technology standards. It is not a common defence procurement system. India is not an AUKUS member, and bilateral cooperation with an AUKUS country does not confer access to its restricted programmes. Projects should use the appropriate bilateral channel and obtain their own authorisations. [37, 38]

A practical Australia-India pilot could address releasable maritime data or maintenance support, combining an Indian development team with an Australian evaluator or industrial partner. Before funding, the participants should identify the buyer, information they can share, acceptance authority and rights to use the result. Successful cooperation would be evidenced by a paid and usable capability.

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6 Innovation with a route to market

Innovation should be targeted at the constraint a customer needs removed. Better inspection, diagnostic software and qualified materials can improve existing production while creating work for specialist firms. The opportunities below connect a development task to a delivery model and an evidence requirement; market size and commercial viability would need separate validation.

Table 6 Innovation opportunities linked to purchasing decisions

Opportunity	Proposed delivery model	Evidence required before scale
Materials and special processes	A laboratory, materials producer and two platform customers qualify a bounded process or input.	Consistent batches, accepted properties, cost and a credible repeat-order requirement.
Components and electronics	An integrator sponsors alternate-source development for a consequential, repeatedly purchased component.	Qualification, traceable inputs, production yield and lead time under realistic demand.
Testing as a shared service	A cluster-based team offers test planning, measurement and configuration evidence to multiple MSMEs.	Acceptance of the evidence by relevant authorities; lower qualification time or cost without weaker standards.
Repair and obsolescence engineering	A prime and approved domestic support firms develop authorised diagnostic and repair tasks.	Demonstrated repairs, necessary rights, turnaround time and improved service availability.
Secure software and AI support	Bounded training, maintenance or document workflows with human oversight, protected data and controlled changes.	End-to-end task performance, security evaluation and a tested recovery process; no automatic extension to weapon functions.
Manufacturing productivity	Producers trial inspection automation, traceability and process monitoring on an existing line.	Lower defects or rework and improved delivery, measured against the previous process.
Export support and training	Indian suppliers sell spares, approved upgrades and support alongside qualified products.	Licensing, customer demand, support staffing and lifecycle costs that preserve commercial viability.

Domestic design ownership can strengthen these opportunities, but it should not be demanded indiscriminately. A licence or negotiated support right may be sufficient for one task; another may require control of the design. The relevant question is what India must be able to do and whether the contract enables it.

Civil aerospace, automotive engineering, electronics and energy systems can provide skills and manufacturing methods. Entry into defence nevertheless requires product-specific qualification, security and demand. Policy should finance the transition where a military requirement justifies it, rather than treating every adjacent supplier as already defence-ready.

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7 A procurement agenda for industrial depth

Table 7 A proposed implementation sequence

Period and responsible participants	Action	Reviewable result
First 3 months: selected capability owners and primes	Select a small portfolio of consequential dependencies using delivery and availability requirements.	A bounded register of inputs, owners, support arrangements and verified unknowns.
Months 3 to 6: buyers, design authorities and evaluators	Define qualification evidence, usable rights, alternative support and realistic demand.	A costed work package and named customer for each selected intervention.
Months 6 to 12: industry, research teams and finance providers	Competitively contract development and qualification; fund suitable milestones.	Demonstrated tasks and credible production plans, with unsuccessful approaches stopped or revised.
Months 12 to 24: buyers, primes and state agencies	Place justified follow-on orders and expand shared facilities where utilisation supports them.	Accepted deliveries, repeatable quality and shorter support or delivery lead times.
Throughout: bilateral project authorities	Select foreign contributions that close a defined gap and obtain necessary permissions.	Contracted work, transferred capability where agreed, and documented residual dependence.
Annual review: programme owners and independent assessors	Compare costs, delivery, supplier diversity and military availability.	Evidence for continuing, changing or ending the intervention.

Each intervention should be reviewed against a small set of outcomes: qualification time, accepted delivery, repair turnaround, demonstrated technical tasks and repeat customer orders. Record the cost and residual dependence alongside them. A domestic monopoly can become a bottleneck too; capacity and continuity matter alongside location.

Contracts should record the engineering task, information package and outcome being purchased. Payment for technology transfer should be tied to the recipient's demonstrated ability to perform agreed work, including repeat production or support where relevant. A catalogue, training visit or set of drawings may be useful inputs, but none proves absorption on its own.

Industrial incentives should follow that evidence. Public support could purchase qualification, shared infrastructure or additional capacity where those interventions resolve a verified constraint. Firms should retain a commercial reason to improve performance and win customers beyond one protected order.

EVIDENCE AND ANALYSIS

8 Research that tests the industrial gains

This report maps the ecosystem's functions and visible relationships. The next stage should verify what remains unknown at programme and supplier level. IndiaForth could begin with public documents and voluntary interviews across three bounded cases: an aerospace component chain, an electronics or software subsystem, and a repair or materials chain. Access and participation would need to be secured.

Table 8 Research questions that can change procurement

Research question	Method	Decision it informs
Does a high domestic content share reduce consequential dependence?	Compare documented local content with the origins, rights and substitution times of critical inputs in each case.	Which inputs deserve targeted development rather than another aggregate localisation target.
Where does an innovative supplier lose time or money before an order?	Trace dated milestones from problem statement to qualification, contract, delivery and payment.	Whether testing, changing requirements, finance or procurement conversion is the binding constraint.
Does bilateral work create retained Indian competence?	Compare contracted tasks with demonstrated engineering, production and support ability; record rights and limitations.	Which work packages and transfer conditions merit further investment.
Do clusters improve supplier performance?	Compare firms with different access to shared testing, skills and anchor buyers; account for firm size and product complexity.	Which common facilities are useful and where new infrastructure is unnecessary.
Does local repair improve readiness at acceptable cost?	Use authorised maintenance records to compare turnaround, cost and availability before and after a defined intervention.	Whether to purchase domestic repair capacity, spares or assured external support.

The study should publish its case-selection method and distinguish participant claims from verified records. Findings from accessible firms should not be presented as nationally representative. Technical material, commercial confidences and restricted information should remain outside public outputs.

A useful final product would be a procurement guide linking each dependency to an industrial response and an evidence requirement. It should also identify cases where indigenisation is too costly or immature to improve readiness in the required period. Strategic autonomy requires sound choices about dependence, not the elimination of every international input.

INDIAFORTH RESEARCH

Conclusion

India's defence market can sustain more than final production. It can support qualified materials, specialist components, engineering services and repair businesses that strengthen several programmes at once. Procurement decides how much of that opportunity becomes lasting industrial capability.

The practical task is to connect a military requirement to the team that can meet it, fund the qualification and give successful suppliers a credible route to repeat work. Bilateral partnerships can accelerate that process where they provide technology, knowledge or customers that Indian firms cannot efficiently secure alone.

India's industrial edge will be visible when equipment arrives reliably, local teams can undertake agreed changes and support remains available through disruption. Those results give the armed forces greater freedom of action and Indian firms a stronger basis for winning the next order.

INDIAFORTH RESEARCH

Research method and limits

This report is a qualitative synthesis of primary public sources available on 23 October 2026: Indian and partner-government statements, original SIPRI research, corporate disclosures and published institutional mandates. It separates reported results, allocations, proposals and recommendations. The ecosystem is a functional map with representative participants, not a complete supplier census or audited bill of materials. The priority matrix is an assessment framework. No interviews, classified access or programme-level performance tests were undertaken. Indian fiscal years run from April to March. One crore is ten million rupees; one lakh crore is one trillion rupees. No exchange-rate conversions or aggregate self-reliance ratio are used.

INDIAFORTH RESEARCH

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PUBLICATION AND ENQUIRIES

About IndiaForth

India intelligence for the world.

IndiaForth is an independent strategic intelligence, research and advisory platform based in Sydney with a global outlook, focused on India's economic transformation, international relationships and growing role in the global political economy.

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Visual and source notes

Analytical ecosystem and value-chain figures: author synthesis, reproduced from the supplied manuscript. The production chart uses Ministry of Defence figures [1]. Tables preserve the manuscript's distinctions between reported evidence and proposed interventions. All original numbered references and available source links are retained.

Photography: C295 industrial programme, PIB Research Unit, Government of India, October 2024. Source: static.pib.gov.in/WriteReadData/specificdocs/documents/2024/oct/doc20241029426101.pdf. Photography illustrates the programme and is not evidence of current delivery status.