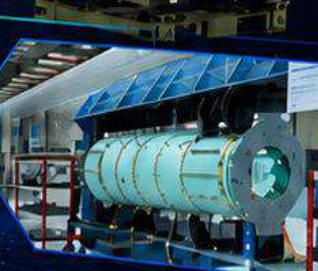




DEMYSTIFYING DEFENCE PROCUREMENT, IDEX, TPCR & TESTING PROCEDURES FOR MSMES AND START-UPS



POLICY RECOMMENDATIONS REPORT

GENERAL

1. For decades, the defence sector has operated within a highly specialised ecosystem governed by stringent regulations, complex procurement frameworks, rigorous testing protocols, and long development cycles. While these processes are essential to ensure operational reliability, national security, and value for public expenditure, they often appear daunting to new entrants seeking to contribute to the defence ecosystem. As warfare increasingly becomes technology-driven, innovation can no longer remain confined to traditional defence manufacturers alone. The rapid emergence of advanced technologies such as artificial intelligence, autonomous systems, advanced materials, cyber capabilities, quantum technologies, and unmanned platforms has created unprecedented opportunities for Micro, Small and Medium Enterprises (MSMEs) and start-ups to become key contributors to India's defence modernisation efforts. However, the complexity of defence procurement procedures, qualification requirements, testing mechanisms, and acquisition pathways continues to pose significant challenges for many innovative enterprises seeking to enter the sector.

2. Demystifying defence procurement has therefore become a strategic imperative. By simplifying and clarifying the Defence Acquisition Procedure (DAP), Technology Perspective and Capability Roadmap (TPCR), testing and certification frameworks, and indigenous development initiatives such as iDEX and Make projects, stakeholders can gain a clearer understanding of how innovative solutions can transition from concept to capability. Particular emphasis on high-priority procurement avenues such as Buy (Indian-IDDM), Make-I, Make-II, and other indigenisation-focused categories that offer significant opportunities for domestic industry participation is yielding significant dividends. Creating greater awareness about these lowers the entry barriers for MSMEs and start-ups, fostering a more vibrant innovation ecosystem aligned with the objectives of **Atmanirbhar Bharat** and **Viksit Bharat@2047**. In doing so, complex procedural requirements can be transformed into a practical roadmap that enables industry, academia, start-ups, and the Armed Forces to collaborate effectively to develop next-generation technologies and strengthen India's long-term defence preparedness and technological sovereignty.

3. A two-day workshop on “**Demystifying Defence Procurement, iDEX, TPCR and Testing Procedures for MSMEs and Start-ups**” was organised by HQ IDS (Indigenisation Directorate) in collaboration with the Centre for Joint Warfare Studies (CENJOWS) on 11–12 June 2026. The workshop was conceived to enhance awareness and understanding of India's defence acquisition ecosystem and to familiarise participants with the various procurement pathways, procedures, and opportunities available within the defence sector. Particular emphasis was placed on key acquisition mechanisms, including Requests for Proposal (RFPs), the Defence Acquisition Procedure (DAP), Technology Perspective and Capability Roadmap (TPCR), testing and certification processes, and indigenisation initiatives such as iDEX and Make projects. The schedule of the workshop is attached at **Appendix A**.

4. The workshop also sought to bridge the knowledge gap between the defence establishment and emerging industry participants by providing insights into the operational, technical, and procedural requirements governing defence procurement.

Discussions focused on General Staff Qualitative Requirements (GSQRs), technical evaluation methodologies, testing protocols, defence offset provisions, and the processes through which innovative technologies can transition from concept to induction. By bringing together representatives from the Armed Forces, DRDO, industry, MSMEs, start-ups, and academia, the workshop aimed to facilitate greater participation of indigenous industry in defence manufacturing and innovation, thereby contributing to the national objectives of self-reliance, technological advancement, and strengthening of the defence-industrial ecosystem.

5. To maximise the outreach and benefits of the seminar on the chosen subject, participation was facilitated through both physical and online modes. In addition to in-person attendance, the proceedings were live-streamed on the CENJOWS YouTube channel, enabling wider participation from industry representatives across the country. The recorded sessions continue to remain accessible on the CENJOWS YouTube channel, allowing stakeholders to revisit the discussions and derive sustained value from the seminar content. The number of attendees was as under:

5.1. Physical : 175.

5.2. Online : 375.

6. **Industries Opted for Attendance.** The details of Industry representatives, venture capital firms and Friendly Foreign Countries Delegates who had opted to attend are provided in **Appendix B**.

7. **Media Coverage.** Extensive media coverage was undertaken using CENJOWS' platforms, PIB, HQ IDS, and ADU. Broad details are placed at **Appendix C**.

8. **Glimpses of Workshop.** Some of the photographs capturing key moments, interactions, and highlights of the workshop, reflecting the spirit of collaboration and knowledge exchange that characterised the event, are placed in **Appendix D**.

Preparatory Steps Prior to Conduct of Seminar

9. As part of the preparatory activities, industry stakeholders were reached out to and encouraged to submit their questions, concerns, and requests for clarification related to defence procurement. A total of 43 queries were received, consolidated, and forwarded in advance to the earmarked speakers.

10. All speakers were briefed on the content to be covered and were provided with the questions and clarifications received from industry stakeholders. They were asked to address these issues during their presentations to ensure that the seminar offered practical solutions and meaningful guidance, rather than being limited to theoretical discourse. The details of Questions/queries, along with corresponding responses, are enclosed in **Appendix E**.

11. A broad-based Pan-India outreach effort was undertaken through targeted social media campaigns disseminated in 12 vernacular languages, alongside multiple English-language posts, thereby ensuring wider engagement across diverse stakeholder groups.

AIM

12. The workshop sought to create an actionable roadmap for participants to engage effectively with the defence procurement system. **The overarching objective was to empower domestic industry, particularly MSMEs and start-ups, to become active contributors to India's defence modernisation efforts and the broader vision of Atmanirbhar Bharat and to dispel the notion that the defence procurement ecosystem is too complex to navigate.** In broad terms, the aims and objectives of the event were: -

12.1. To familiarise MSMEs, start-ups, innovators and industry stakeholders with the defence acquisition ecosystem, including the Defence Acquisition Procedure (DAP), Innovations for Defence Excellence (iDEX), Technology Development Fund (TDF), Make procedures, and other indigenisation initiatives.

12.2. To provide a comprehensive understanding of the various pathways available for industry participation in defence procurement, capability development, import substitution, innovation programmes, and indigenous technology development initiatives.

12.3. To enhance awareness of the future capability requirements of the Armed Forces through the Technology Perspective and Capability Roadmap (TPCR), Positive Indigenisation Lists, SRIJAN Portal, and other long-term planning and capability development frameworks.

12.4. To explain the processes associated with product development, prototype validation, user trials, testing, evaluation, certification, quality assurance, and induction of defence technologies into service.

12.5. To familiarise participants with operational requirements, Services Qualitative Requirements (SQRs/GSQRs), user expectations, lifecycle support obligations, and the standards required for successful participation in defence acquisition programmes.

12.6. To bridge the knowledge and communication gap between MSMEs, start-ups, innovators, academia and industry on one hand, and the Armed Forces, Ministry of Defence, DRDO, acquisition agencies and other defence stakeholders on the other.

12.7. To facilitate direct interaction, knowledge sharing, and networking among industry participants, Service Headquarters, DRDO laboratories, defence public sector undertakings, venture capital firms, incubators, and policy makers.

12.8. To promote collaboration, co-development, technology partnerships, investment opportunities, and innovation-driven solutions that support indigenous capability development and defence self-reliance.

12.9. To provide practical guidance on navigating defence procurement procedures, funding mechanisms, intellectual property management,

technology development schemes, and available support frameworks for innovators and industry.

12.10. To address industry concerns, clarify procedural issues, and provide actionable insights on defence procurement reforms, acquisition procedures, innovation frameworks, testing protocols, certification mechanisms, and procurement opportunities through direct interaction with subject matter experts.

12.11. To encourage industry stakeholders to align their research, development, manufacturing, and innovation efforts with emerging operational requirements and future technology needs of the Armed Forces.

12.12. To support the national objectives of **Atmanirbhar Bharat**, defence indigenisation, technological self-reliance, and defence exports by creating greater awareness of opportunities available within India's evolving defence ecosystem.

12.13. To develop an actionable understanding among participants of how to effectively engage with the defence sector, transition technologies from concept to procurement, and contribute to strengthening India's defence-industrial and innovation ecosystem.

IMPORTANT ASPECTS THAT EMERGED FROM THE WORKSHOP CUM EXHIBITION

13. **Strategic Importance of Defence Indigenisation.** The seminar repeatedly emphasised that defence procurement reforms are no longer merely acquisition reforms but are instruments of strategic autonomy. The Armed Forces highlighted the necessity of reducing dependence on foreign supply chains and building sovereign capability in critical technologies. Indigenous manufacturing, indigenous intellectual property and indigenous lifecycle support emerged as central pillars of future capability development.

13.1. **Ongoing Transformation of Defence Procurement.** The proposed DAP 2026 reflects a shift from merely "Make in India" towards "Design, Develop, Own and Sustain in India". Greater emphasis is being placed on indigenous intellectual property, source code ownership, lifecycle support and technology sovereignty.

13.2. **Emergence of MSMEs and Start-ups as Strategic Stakeholders.** A recurring theme across all sessions was the recognition that MSMEs and start-ups are no longer peripheral participants but integral stakeholders in national defence preparedness. Several operational examples were cited where start-ups had directly contributed to capability enhancement and operational success.

13.3. **iDEX as a Key Defence Innovation Mechanism.** The iDEX framework has emerged as one of the most successful innovation models for defence technology development. The seminar highlighted its growing role in attracting innovators, supporting prototype development and facilitating interaction between users and developers.

13.4. Bridging the Prototype-to-Procurement Gap. While prototype development under iDEX and TDF has witnessed considerable success, participants repeatedly identified delays in transitioning successful prototypes into procurement contracts as a major challenge.

13.5. Bottlenecks in Testing and Certification. Testing, evaluation, certification, and quality assurance emerged as among the most critical challenges faced by MSMEs and start-ups. A lack of awareness of documentation requirements, trial methodologies, and certification standards often delays project progress.

13.6. Spiral Development is Essential for Emerging Technologies. The increasing adoption of spiral development approaches, wherein technologies are inducted in limited numbers after demonstrating substantial capability and continue to evolve through iterative improvements, is giving rich dividends.

13.7. TPCR as a Mechanism for Future Requirement Visibility. The TPCR was highlighted as a major planning tool that provides long-term visibility into future Armed Forces requirements. The Army, Navy and Air Force collectively identified more than 500 capability requirements spanning conventional and emerging technology domains.

13.8. Industry–Service Collaboration for Capability Development. Despite the publication of the TPCR and capability documents, industry engagement remains below expectations. Structured interaction mechanisms are required.

13.9. Strengthening of Defence Financing Ecosystem. The panel discussion with venture capitalists highlighted the unique challenges associated with defence technology investments, including long gestation periods, uncertain procurement timelines and limited commercial scalability.

13.10. Expansion of Indigenous Testing Ecosystems. The need for additional testing infrastructure, simulation facilities, digital twin environments and certification agencies was emphasised repeatedly.

13.11. Collaboration as a Driver of Self-Reliance. Successful defence innovation and capability development can no longer be achieved by any single stakeholder operating in isolation. It requires a collaborative ecosystem that brings together the operational expertise of the Armed Forces, the technological capabilities of DRDO, the research strengths of academia, the manufacturing capacities of industry, the agility and innovation of MSMEs and start-ups, and the financial support of venture capitalists and incubators. Strengthening these partnerships across the entire innovation-to-induction lifecycle is essential for accelerating indigenous technology development, reducing import dependence, and building a globally competitive defence-industrial ecosystem.

14. Challenges Identified. The seminar highlighted several persistent challenges affecting the growth of the defence innovation ecosystem. Participants identified

bottlenecks in testing and certification, delays in transitioning prototypes to procurement, and limited access to specialised infrastructure and trial facilities. These are as follows: -

14.1. Lack of Awareness and Understanding of Defence Procurement Processes. Many MSMEs, start-ups, and innovators continue to perceive defence procurement as complex, opaque, and difficult to access. Despite significant reforms, there remains limited understanding of DAP provisions, procurement categories, acquisition procedures, testing requirements, and procurement opportunities.

14.2. Gap Between Innovation and Procurement. While several initiatives such as iDEX, TDF, and Make projects have successfully generated prototypes, transitioning these prototypes into actual procurement contracts remains a significant challenge. The "prototype-to-procurement" journey remains lengthy and uncertain.

14.3. Funding Constraints for MSMEs and Start-ups. A recurring concern was the difficulty faced by start-ups and MSMEs in raising capital during both development and production phases. Many firms struggle to secure working capital after obtaining orders, while investors remain cautious due to long gestation periods and procurement uncertainties.

14.4. Limited Venture Capital Participation in Defence Technologies. Defence technologies typically require patient capital, longer development cycles, extensive testing, and delayed revenue generation. This makes defence investments less attractive compared to conventional technology sectors, limiting the availability of private investment.

14.5. Testing, Evaluation and Certification Bottlenecks. Limited access to testing infrastructure, lengthy evaluation timelines, high certification costs, inadequate awareness of military standards and documentation requirements, and repeated testing and validation cycles continue to impede the timely progression of indigenous defence technologies.

14.6. Inadequate Understanding of User Requirements. Many innovators develop solutions without fully understanding operational requirements, Services Qualitative Requirements (SQRs/GSQRs), environmental conditions, lifecycle support obligations, and military operational constraints.

14.7. Documentation and Compliance Deficiencies. Several speakers observed that promising technologies often face delays due to poor documentation, incomplete certification records, inadequate quality assurance processes, and insufficient compliance planning.

14.8. Limited Industry Engagement with TPCR and Future Capability Roadmaps. Despite the publication of TPCR 2025 and other planning documents, Service representatives noted that relatively few companies actively engage with these documents. Industry participation in shaping future capability development remains below expectations.

14.9. **Technology Maturity Gap.** Many technologies emerging from academia and research institutions remain at lower Technology Readiness Levels (TRLs), while the Armed Forces generally require technologies at higher readiness levels for operational deployment. Bridging this gap remains a challenge.

14.10. **Weak Academia–Industry–Military Linkages.** Although significant research is being conducted in academic institutions, mechanisms for transferring these technologies into commercially viable defence products remain inadequate.

14.11. **Dependence on Imported Critical Technologies and Subsystems.** While progress has been made in platform-level indigenisation, critical technologies, sub-systems, advanced materials, electronic components, propulsion systems, sensors, and semiconductor-related technologies continue to rely heavily on imports.

14.12. **Short Technology Life Cycles.** Rapid technological evolution, particularly in AI, cyber, autonomous systems, electronic warfare, and quantum technologies, is reducing technology life cycles. Procurement and development processes often struggle to keep pace with technological change.

14.13. **Challenges in Emerging Technology Development.** Significant capability gaps persist in emerging domains such as AI, autonomous systems, underwater technologies, quantum technologies, cyber and electronic warfare, directed energy weapons, space technologies, and digital twins, requiring sustained indigenous R&D investment and stronger industry–academia–defence collaboration.

14.14. **Limited Access to Testing Infrastructure for MSMEs.** Smaller firms often lack the resources to access specialised testing facilities, simulation environments, EMI/EMC testing centres, environmental test facilities, and validation ranges.

14.15. **Procurement Timelines and Delays.** Long procurement cycles, multiple approval stages, and extended evaluation timelines continue to affect industry confidence and increase project risks.

14.16. **Policy Uncertainty in Innovation Programmes.** Concerns were raised regarding evolving procurement policies, including discussions surrounding L1-based selection mechanisms within innovation programmes. Start-ups expressed apprehension about changes to the rules after making substantial investments.

14.17. **Lack of Structured Defence Financing Mechanisms.** Unlike conventional sectors, dedicated financing instruments for defence manufacturing, working capital support, and innovation funding remain limited.

14.18. **Need for Greater User–Industry Interaction.** Industry participants repeatedly sought more frequent interaction with Service Headquarters,

acquisition agencies, and users to better understand requirements and reduce ambiguity in procurement processes.

14.19. **Inadequate Defence Competency Visibility.** Many innovative firms remain unaware of existing indigenous capabilities, opportunities for collaboration, available testing facilities, and potential technology partners across the country.

14.20. **Human Resource and Skill Challenges.** The development of advanced defence technologies requires specialised multidisciplinary expertise in aerospace, electronics, AI, cyber, materials science, systems engineering, and defence standards. Availability of such skilled manpower remains a challenge.

15. **Pain Points.** The concerns were raised regarding regulatory complexities, funding constraints, supply-chain dependencies, and the need for stronger industry–Service collaboration to accelerate capability development and indigenous defence production. The Pain Points are as follows: -

15.1. **Difficulty in Understanding Defence Procurement Procedures.** Many MSMEs and start-ups find DAP provisions, procurement categories, acquisition processes, and documentation requirements difficult to understand and navigate.

15.2. **Limited Visibility of Procurement Opportunities.** Industry participants often become aware of opportunities only after RFIs or RFPs are issued, limiting their ability to prepare technologies and capabilities in advance.

15.3. **Lack of Clarity on User Requirements.** Innovators frequently struggle to interpret operational requirements, SQRs/GSQRs, and user expectations, resulting in solutions that do not fully meet military needs.

15.4. **Delays in Prototype-to-Procurement Transition.** Even after successful development and validation, many projects face prolonged delays before procurement decisions are taken.

15.5. **Limited Access to End Users and Decision-Makers.** MSMEs and start-ups often find it difficult to interact directly with Service Headquarters, user agencies, and acquisition authorities for clarifications and feedback.

15.6. **Inadequate Access to Testing and Trial Infrastructure.** Testing facilities, specialised ranges, certification laboratories, and environmental testing infrastructure are not always easily accessible, particularly for smaller firms.

15.7. **High Cost of Testing and Certification.** The financial burden associated with compliance testing, certification, quality assurance, and repeated trials is often prohibitive for start-ups and MSMEs.

15.8. **Documentation and Compliance Burden.** Many innovators are technically competent but lack familiarity with military documentation,

certification standards, quality assurance procedures, and lifecycle support requirements.

15.9. **Funding Constraints During Development and Scale-Up.** Start-ups face difficulties in securing capital not only during technology development but also after receiving orders when working capital is required for production.

15.10. **Long Procurement and Decision Cycles.** Extended acquisition timelines increase financial risks, discourage investors, and affect business sustainability.

15.11. **Uncertainty Regarding Future Procurement Volumes.** Industry often lacks confidence regarding the scale and timing of future procurement, making investment decisions difficult.

15.12. **Limited Awareness of Available Support Mechanisms.** Many participants were unaware of schemes such as iDEX, TDF, Make-I, Make-II, ADITI, SRIJAN, and Defence Competency Mapping initiatives.

15.13. **Insufficient Industry–Academia–Defence Collaboration.** Research outcomes from academia frequently fail to transition into deployable products due to weak linkages between researchers, users, and industry.

15.14. **Challenges in Commercialising Emerging Technologies.** Technologies such as AI, quantum systems, autonomous platforms, cyber tools, and underwater systems require long gestation periods and substantial investment before generating returns.

15.15. **Lack of Dedicated Defence Financing Mechanisms.** The absence of specialised defence-focused venture funds, guarantee mechanisms, and contract-backed financing limits growth opportunities for innovative firms.

CORE POLICY RECOMMENDATIONS

16. Based on the deliberations, presentations, panel discussions, interactive sessions, industry feedback, and extensive exchanges between representatives of the Armed Forces, Ministry of Defence, DRDO, academia, venture capital firms, MSMEs, start-ups, and industry stakeholders during the seminar, a number of systemic challenges, capability gaps, and opportunities for strengthening the defence procurement and innovation ecosystem were identified besides addressing the pain points. Accordingly, the following core policy recommendations are proposed for consideration by the relevant stakeholders to enhance defence indigenisation, accelerate technology development and induction, improve industry participation, and support the national objectives of **Atmanirbhar Bharat** and defence self-reliance: -

16.1. **Establish a Defence Innovation and Procurement Facilitation Cell.** Create a dedicated single-window mechanism to guide MSMEs, start-ups, and innovators on procurement procedures, testing requirements, certification processes, funding schemes, and available development

pathways. HQ IDS is the most suited vertical for the purpose which can function in sync with similar such cells at Service HQs.

16.2. Accelerate Prototype-to-Procurement Transition. Institute fast-track procurement mechanisms for technologies successfully developed under IDEX, TDF, Make, and other innovation programmes to reduce delays between prototype validation and induction.

16.3. Expand and Democratise Access to Testing Infrastructure. Increase the number of accredited testing, certification, EMI/EMC, environmental testing, and validation facilities, while simplifying access procedures and reducing costs for MSMEs and start-ups.

16.4. Strengthen Industry–User Engagement Mechanisms. Institutionalise regular interactions between Service Headquarters, acquisition agencies, DRDO, and industry to improve understanding of operational requirements and reduce ambiguities in SQRs and GSQRs.

16.5. Enhance Visibility of Future Capability Requirements. Periodically update and actively disseminate TPCRs, capability roadmaps, operational problem statements, and indigenisation opportunities to enable industry to align investments with future requirements. While this document is being revised once every five years, a yearly review in the form of an addendum may be advantageous given the pace of technological development.

16.6. Create Dedicated Defence Financing and Venture Capital Mechanisms. Establish defence-focused venture funds, contract-backed financing models, and risk-sharing mechanisms to address the unique funding challenges associated with long-gestation defence technologies. An entity could be created to assess and certify TRL levels.

16.7. Promote Spiral Development and Incremental Induction. Adopt procurement models that permit limited operational induction of promising technologies while enabling continued capability enhancement through iterative development cycles.

16.8. Strengthen Indigenous Intellectual Property and Technology Ownership. Continue prioritising policies that encourage indigenous design, source-code ownership, critical technology development, and domestic intellectual property creation to enhance technological sovereignty.

16.9. Develop an Integrated Defence Competency and Technology Mapping Platform. Expand the Defence Competency Mapping Portal to provide visibility of indigenous capabilities, technology providers, testing facilities, research institutions, and potential collaboration partners.

16.10. Foster Emerging Technology Ecosystems. Launch focused challenge programmes, Centres of Excellence, and collaborative research initiatives in priority domains such as Artificial Intelligence, autonomous systems, cyber security, quantum technologies, underwater systems, electronic warfare, space technologies, and digital twins.

16.11. Strengthen Academia–Industry–Defence Collaboration. Create structured mechanisms to accelerate the transition of academic research into deployable defence technologies through incubators, innovation hubs, challenge grants, and collaborative development programmes.

16.12. Simplify Testing, Certification and Compliance Procedures. Develop standardised guidance documents, digital compliance toolkits, and advisory support mechanisms to assist MSMEs and start-ups in meeting military testing and certification requirements.

16.13. Institutionalise Periodic Outreach and Capacity-Building Programmes. Conduct regular regional seminars, workshops, webinars, and awareness campaigns to improve understanding of defence procurement, indigenisation initiatives, innovation schemes, and emerging opportunities. **In addition to the centrally conducted seminar in Delhi, four regional seminars should be organised annually in major industrial clusters to broaden outreach and enhance industry participation. During the initial year, the seminars may be conducted in the Rajkot–Ahmedabad, Pune–Mumbai, Hyderabad–Bengaluru, Chennai–Coimbatore, Kanpur–Lucknow, and Kolkata–Guwahati industrial corridors. The locations should be rotated in subsequent years to ensure wider geographical coverage and to facilitate engagement with a larger cross-section of industries across the country.**

16.14. Encourage Greater Participation of MSMEs and Start-ups in Defence Acquisition. Introduce additional incentives, simplified procedures, and dedicated procurement pathways to enhance the participation of innovative enterprises in defence capability development.

16.15. Follow-up Study. **HQ IDS (Indigenisation Directorate) should sponsor a dedicated study through CENJOWS to examine and recommend sustainable financing mechanisms for start-ups. The study should explore options such as a dedicated Fund, enhanced access to bank financing, venture capital support, and other innovative funding models for Service-sponsored projects.**

16.16. Establish a Continuous Feedback and Policy Review Mechanism. Create a structured mechanism to capture industry feedback and incorporate lessons learned into future reviews of DAP, iDEX, TDF, testing procedures, and indigenisation policies.

17. Draft DAP 2026: Proposed Transformative Leap in India's Defence Procurement Framework. DAP 2026 intends to evolve from a procurement-centric framework to a capability-development framework that seamlessly integrates innovation, indigenous technology development, testing, certification, production, lifecycle support, and operational induction, thereby accelerating India's transition towards technological self-reliance and defence indigenisation. The salient points of **Draft DAP 20 26**, which were highlighted during the seminar, are as follows: -

17.1. Procurement Categories Reduced from Five to Four.

The five older DAP 2020 categories were reduced to four. The rationalisation of procurement categories is expected to simplify acquisition procedures, reduce ambiguities in categorisation, and improve ease of participation for industry. A simplified framework should facilitate faster decision-making and reduce procedural complexity, particularly for MSMEs and start-ups.

17.2. Indigenous Design Defined in DAP to Promote Atmanirbhar Bharat. Under DAP 2026, Indigenous Design means an Indian entity must own the design documents, software source code, system architecture, and critical technical data. The formal definition of indigenous design is a significant step towards promoting technology ownership and intellectual property creation within the country. It shifts the focus from mere manufacturing to indigenous design and development, thereby strengthening long-term technological sovereignty.

17.3. Indigenous Content Increased from 50% to 60% in the Buy (Indian–IDDM) Category with Additional Incentives. The draft DAP 2026 officially raised the minimum Indigenous Content (IC) requirement in the Buy (Indian–IDDM) category from 50% to 60%. This strategic shift from "Make in India" to "Owned by India" enforces deeper, indigenous technology ownership and offers financial incentives to domestic manufacturers. The increase in indigenous content requirements is expected to deepen localisation of supply chains and encourage greater domestic value addition.

17.4. Involvement of Subject Matter Experts in SQR Formulation and Trial Oversight. This reform is likely to improve the realism, relevance, and trialability of qualitative requirements while reducing the possibility of impractical specifications. Expert involvement should also contribute to more objective and technically robust evaluation processes.

17.5. Introduction of Long-Term Bulk Acquisition and Low-Cost Capital Acquisition Procedures. This inclusion aims to improve industry visibility and expedite the procurement of fast-moving tech items. Long-Term Bulk Acquisition has the potential to provide the industry with greater visibility regarding future demand, thereby encouraging investment in capacity creation and technology development. The Low-Cost Capital Acquisition route is particularly relevant for rapidly evolving technologies where lengthy procurement cycles often render solutions obsolete before induction.

17.6. Introduction of Technology Readiness Level (TRL)-based Categorisation. TRL-based categorisation provides a standardised framework to objectively evaluate the maturity of technologies being developed and acquired. This is expected to improve planning, risk assessment, funding decisions, and technology transition from development to induction.

17.7. Ab-initio Single-Vendor Procurement is permitted for Buy (Indian–IDDM) projects at TRL 6–9. This provision recognises the realities of indigenous innovation, where pioneering technologies may initially have only one capable supplier. This provision will remove that barrier to accelerate acquisition timelines for advanced, homegrown technologies. It can significantly encourage innovation and indigenous technology development while reducing

delays arising from artificial competition requirements.

17.8. Provision for Two-Stage Trials. The Provision for Two-Stage Trials under the drafted DAP 2026 is designed to accelerate defence procurement by splitting evaluations into two phases: essential trials occur first, followed by the remaining trials post-contract. It allows for single-terrain trial flexibility and compensates vendors who clear the trial evaluations. The introduction of two-stage trials is expected to improve efficiency by enabling early identification of deficiencies and reducing the burden of comprehensive testing at a single stage. This may also help innovators refine products progressively before final validation.

17.9. Refinement of Fast Track Procedure with Greater Delegation for Emerging Technologies. This reform acknowledges the rapid pace of technological evolution in domains such as AI, cyber, autonomous systems, and electronic warfare. Greater delegation and faster decision-making should enable the Services to acquire emerging capabilities more effectively.

17.10. Compensation for all Vendors Successful in Trial Evaluations. The proposal addresses a long-standing industry concern about the financial burden of participating in trials. Compensation can incentivise wider participation, particularly by MSMEs and start-ups, while reducing the risk of investing in developmental programmes.

17.11. Review of Development-cum-Production Partner (DcPP) selection for DRDO Projects. The proposed changes are aimed at creating a more transparent and equitable framework for selecting industry partners in DRDO programmes. This should encourage wider industry participation and improve confidence in collaborative development models.

17.12. Incorporation of Spiral Development and five years of assured orders for Make/iDEX projects. This is one of the most significant reforms proposed in DAP 2026. Spiral development enables early induction of promising technologies while allowing continued refinement, whereas assured orders improve investor confidence, strengthen business viability, and encourage greater participation by start-ups and MSMEs.

17.13. Flexibility for Services to choose the mode of Quality Assurance and trials. Providing flexibility in QA and trial methodologies can help tailor evaluation processes to the specific characteristics of different technologies and reduce avoidable delays, particularly in software-intensive and rapidly evolving domains.

17.14. Monitoring acquisition timelines from the RFI stage and planning concurrent activities. This reform directly addresses one of the most frequently cited industry concerns—extended procurement timelines. Concurrent processing and timeline monitoring have the potential to substantially reduce acquisition cycles and improve predictability for industry participants.

18. Need Identification. Discussions during the seminar underscored the

importance of robust and transparent mechanisms for identifying needs to guide defence innovation and capability development. Participants highlighted the value of early articulation of operational requirements, continuous engagement between the Services and industry, and greater visibility of future capability needs through initiatives such as the Technology Perspective and Capability Roadmap (TPCR). The seminar deliberations led to the identification of the following needs: -

18.1. There is a need to further demystify defence procurement processes for MSMEs, start-ups and innovators, as many potential participants continue to perceive defence acquisition as complex, time-consuming and difficult to access despite numerous policy reforms and digital outreach initiatives.

18.2. Industry requires greater visibility of future capability requirements of the Armed Forces through mechanisms such as TPCR, Positive Indigenisation Lists, SRIJAN Portal, iDEX challenges and long-term acquisition plans to facilitate informed investment and technology development decisions.

18.3. There is a need to establish a smoother transition pathway from innovation and prototype development to procurement and induction, as many promising technologies face challenges in crossing the so-called “valley of death” between successful development and large-scale acquisition.

18.4. Emerging technology domains such as Artificial Intelligence, autonomous systems, cyber warfare, electronic warfare, underwater technologies, quantum technologies, directed energy systems, space technologies, advanced materials and digital twins require focused support due to existing capability gaps and rapidly evolving operational requirements.

18.5. There is a need for enhanced awareness regarding funding opportunities, venture capital participation, intellectual property management, certification requirements, quality assurance procedures and acquisition pathways available to innovators and MSMEs.

19. Trial and Testing.

19.1. **Expand Access to Defence Testing Infrastructure.** A wider network of military testing facilities, ranges, laboratories, certification agencies, and quality assurance establishments should be made accessible to MSMEs, start-ups, and innovators through a transparent, affordable, and time-bound access mechanism.

19.2. **Reduce Testing and Certification Timelines.** Measures should be implemented to streamline testing, certification, and trial procedures, thereby shortening development cycles, reducing costs, improving investor confidence, and accelerating the adoption of indigenous technologies.

19.3. **Standardise Testing and Evaluation Procedures.** A harmonised and transparent framework for testing, evaluation, certification and quality assurance should be developed to provide industry with greater clarity, predictability and consistency while maintaining operational and safety standards.

19.4. **Leverage Digital Testing Methodologies.** The adoption of digital engineering tools, simulation environments, digital twins, model-based testing, modular evaluation methodologies and two-stage trial concepts should be expanded to optimise resources and shorten acquisition timelines.

19.5. **Create a Single-Window Trial Facilitation Mechanism.** Wherever feasible, testing, quality assurance and certification activities should be conducted concurrently rather than sequentially to compress timelines and accelerate the prototype-to-procurement transition.

19.6. **Develop Dedicated Testing Support for Emerging Technologies.** Specialised testing and validation frameworks should be established for emerging technology domains such as Artificial Intelligence, autonomous systems, cyber technologies, quantum applications, digital twins and unmanned systems, where conventional testing methodologies may not be fully applicable.

20. Initiative Recommendations for HQ IDS.

20.1. The conduct of periodic national-level seminars, workshops and outreach programmes improves awareness of defence procurement procedures, innovation initiatives and emerging capability requirements.

20.2. Establish a structured industry engagement framework under HQ IDS to facilitate continuous interaction among Service Headquarters, DRDO, testing agencies, industry associations, MSMEs, start-ups and academia.

20.3. Create a consolidated digital knowledge repository covering DAP, TPCR, testing facilities, certification procedures, procurement opportunities, funding mechanisms and frequently asked industry queries. This could be backed up with printed publications in explanatory language.

20.4. Institutionalise regular dissemination of emerging technology requirements and operational problem statements to enable industry to align research and development efforts with future defence needs.

20.5. Facilitate stronger engagement between innovators and venture capital firms to improve access to risk capital for defence technology development.

20.6. Monitor implementation of key DAP 2026 (once it is released) reforms relating to spiral development, assured procurement, TRL-based acquisition, low-cost capital acquisition and indigenous design promotion, and periodically obtain industry feedback for policy refinement.

20.7. Encourage creation of a unified tri-service mechanism for tracking indigenous technology projects from concept to induction, ensuring better visibility, coordination and handholding for innovators.

20.8. Promote wider utilisation of iDEX, TDF, Make and other indigenous development schemes to accelerate technology development, strengthen

defence self-reliance and support the objectives of **Atmanirbhar Bharat** and **Viksit Bharat 2047**.

20.9. **On the lines of TDF in DRDO, create an exclusive funding model in DRDO/ elsewhere for nurturing start-ups. SA to CISC could lead the initiative.**

20.10. **All expenses of the vendors to be supported once they succeed in the trials.**

20.11. **The entire development cost, from prototype to deployment, should be borne by the defence forces if the product meets their requirements.**

21. **Time-Linked Actions.** Based on the deliberations, expert talks and interaction during the workshop, a phased implementation roadmap is recommended. The recommendations below prioritise actions that can be implemented immediately, those requiring policy and institutional changes, and those aimed at long-term transformation of the defence innovation ecosystem.

21.1. **Short-Term Recommendations.**

21.1.1. **Establish a Defence Innovation and Procurement Facilitation Cell.** A dedicated single-window Defence Innovation and Procurement Facilitation Cell should be established under HQ IDS (Indigenisation Directorate) to guide MSMEs, start-ups, and innovators on defence procurement procedures, testing and certification requirements, available funding schemes, and technology development pathways. The cell should function as a central interface between industry and the defence establishment and work in close coordination with similar entities in the Service Headquarters.

21.1.2. **Institutionalise Industry Outreach and Capacity Building.** A structured outreach programme should be launched to improve awareness of defence procurement opportunities and procedures. In addition to a centrally conducted seminar in Delhi, regional seminars should be organised annually in major industrial clusters.

21.1.3. **Strengthen Industry–User Interaction Mechanisms.** Regular and institutionalised engagement between Service Headquarters, acquisition agencies, DRDO, industry, MSMEs, and start-ups should be established. Such interactions would improve understanding of operational requirements, reduce ambiguities in qualitative requirements, and facilitate the development of solutions better aligned with military needs.

21.1.4. **Enhance Visibility of Future Capability Requirements.** Future capability requirements should be disseminated more effectively through periodic updates to TPCR, capability development roadmaps, Positive Indigenisation Lists, and the SRIJAN portal. Annual updates or addendums to TPCR may be considered to keep pace with rapid

technological developments and provide industry with greater planning certainty.

21.1.5. Simplify Testing, Certification and Compliance Processes. Standardised testing and certification guidelines, digital compliance toolkits, and advisory support mechanisms should be developed to assist MSMEs and start-ups. Greater transparency in trial methodologies and certification requirements would reduce delays and improve preparedness among innovators.

21.1.6. Undertake a Study on Defence Innovation Financing. HQ IDS should sponsor a dedicated study through CENJOWS to examine sustainable financing models for defence start-ups and MSMEs.

21.2. Medium-Term Recommendations.

21.2.1. Create Dedicated Defence Financing Mechanisms. A dedicated defence financing ecosystem should be established to address the unique funding requirements of defence technology development. This should include defence venture capital funds, contract-backed financing mechanisms, credit guarantee schemes, and specialised funding windows for emerging technologies and indigenous capability development.

21.2.2. Expand Testing and Evaluation Infrastructure. Additional accredited testing, certification, environmental, EMI/EMC, and simulation facilities should be established across the country, particularly within defence industrial corridors. Access procedures should be simplified and testing costs reduced to encourage greater participation by MSMEs and start-ups.

21.2.3. Accelerate Prototype-to-Procurement Transition. Fast-track procurement mechanisms should be instituted for technologies successfully developed under iDEX, TDF, Make, and similar programmes. Greater adoption of spiral development, low-cost capital acquisition, and limited operational induction models should be encouraged to reduce delays between prototype validation and induction.

21.2.4. Develop an Integrated Defence Competency Mapping Platform. An integrated digital platform should be created to map indigenous technological capabilities, manufacturing capacities, testing facilities, academic institutions, research centres, and innovation hubs. This would improve visibility of available competencies and facilitate collaboration among stakeholders.

21.2.5. Strengthen Academia–Industry–Defence Collaboration. Structured mechanisms should be developed to accelerate the transition of academic research into deployable defence technologies. Defence innovation clusters, collaborative research programmes, incubators, and challenge-based development initiatives should be expanded to strengthen linkages between academia, industry, and the Armed Forces.

21.2.6. Institutionalise Technology Readiness Assessment Frameworks. Technology Readiness Level (TRL) and Manufacturing Readiness Level (MRL) assessment mechanisms should be institutionalised to provide objective evaluation of technology maturity. Such frameworks would support better funding decisions, procurement planning, and the transition of technology into operational service.

21.3. Long-Term Recommendations.

21.3.1. Establish a National Defence Innovation Ecosystem. India should progressively develop a fully integrated defence innovation ecosystem that seamlessly connects innovation, technology development, testing, certification, acquisition, production, sustainment, and exports. Such an ecosystem would significantly accelerate indigenous capability development and defence self-reliance.

21.3.2. Build Sovereign Capability in Critical Technologies. Focused national programmes should be launched to achieve self-reliance in critical technologies, including semiconductors, advanced materials, sensors, propulsion systems, electronic warfare systems, quantum technologies, artificial intelligence, autonomous systems, directed energy weapons, and space technologies. Reducing dependence on foreign suppliers in these domains should remain a strategic priority.

21.3.3. Establish Centres of Excellence in Emerging Technologies. Dedicated Centres of Excellence should be created in priority technology domains including artificial intelligence, autonomous systems, cyber warfare, quantum technologies, electronic warfare, underwater systems, digital twins, and military space applications. These centres should serve as hubs for research, experimentation, testing, and capability development.

21.3.4. Develop a Sustainable Defence Financing Architecture. A long-term financing architecture should be created to support defence innovation and manufacturing. This architecture should integrate government funding, private investment, venture capital, institutional investors, and specialised defence financing instruments capable of supporting technologies with long development cycles and high capital requirements.

21.3.5. Transition to a Capability-Driven Acquisition Ecosystem. The defence acquisition system should progressively evolve from a procurement-centric framework to a capability-development framework that integrates innovation, indigenous technology development, testing, certification, procurement, production, and lifecycle support. Continuous spiral development and capability-based acquisition models should become the foundation of future defence procurement.

21.3.6. Position India as a Global Defence Innovation and

Manufacturing Hub. India should leverage its expanding defence innovation ecosystem, indigenous industrial base, and technological capabilities to emerge as a leading global defence manufacturing and export hub by 2047. This vision should be supported by sustained investments in innovation, indigenous intellectual property creation, advanced manufacturing capabilities, and export-oriented defence production.

CONCLUSION

22. The seminar successfully brought together representatives from the Armed Forces, Ministry of Defence, DRDO, acquisition agencies, testing establishments, venture capital firms, MSMEs, start-ups, academia and industry to deliberate on the evolving defence procurement ecosystem and the opportunities available under India's indigenisation and innovation initiatives. The discussions highlighted that while significant reforms have been introduced through DAP, iDEX, TDF, TPCR, Positive Indigenisation Lists and the SRIJAN Portal, there remains a need to further simplify procedures, enhance awareness, improve stakeholder engagement and accelerate the transition of indigenous technologies from development to operational induction.

23. The deliberations underscored that the future of India's defence capability development will increasingly depend upon indigenous innovation, technology ownership, and effective collaboration among users, developers, researchers, investors and industry partners. Participants identified several challenges relating to funding, testing and certification, technology maturation, procurement timelines and industry-user interaction. At the same time, the seminar showcased the significant opportunities emerging in critical technology domains such as Artificial Intelligence, autonomous systems, cyber and electronic warfare, quantum technologies, underwater systems, space technologies, advanced materials and digital engineering. The proposed reforms under Draft DAP 2026, particularly those related to spiral development, assured procurement, indigenous design promotion, TRL-based acquisition and streamlined procurement processes, were widely viewed as positive steps towards creating a more innovation-friendly acquisition environment.

24. The seminar reaffirmed that achieving the national objectives of **Atmanirbhar Bharat** and technological self-reliance will require a whole-of-ecosystem approach involving the Armed Forces, DRDO, academia, industry, MSMEs, start-ups and financial institutions. Implementation of the recommendations emerging from the seminar would strengthen the innovation-to-induction pipeline, improve industry participation, enhance indigenous capability development, and contribute significantly to building a resilient, technologically advanced, and globally competitive defence-industrial ecosystem capable of meeting India's future security requirements.

Appendix A

(Refers to Paragraph 3 of Policy Recommendations Report)

WORKSHOP SCHEDULE

Date & Time	Subject	Speaker	Remarks
Day 1 (11 Jun 26)	UNDERSTANDING THE DEF PROCUREMENT ECO-SYSTEM		
INAUGURAL SESSION (0900-1030 HRS)			
0900-0915 hrs	Opening Address	DG CENJOWS	
0915-0930 hrs	Keynote Address	DCIDS (PP&FD)	
0930-1000 hrs	Building Indigenous Def Capabilities: An overview	Maj Gen AK Channan, PVSM, SM, Retd	
1000-1030 hrs	Revenue Procurement Parameters	Rep 7 BRD	
1030-1100 hrs	Tea Break		
SESSION 1: DEFENCE ACQUISITION FRAMEWORK (1100-1345 HRS)			
1100-1230 hrs	<ul style="list-style-type: none"> ● Overview of Draft DAP 2026 : Imp Provisions ● Procurement Categories 	Maj Gen Rohit Gupta, SM, Retd	Focused on Challenges faced by Industry reps along with Q & A
1230-1300 hrs	Salient Aspects of RFP	Col Debashish Sinha Col RFP (Lgs Services)	
1300-1345 hrs	Industry Queries and issue Resolution	Maj Gen CS Mann, PVSM, AVSM, VSM, ADG ADB	Exclusive Q & A Session
1345-1445 hrs	Lunch Break		
SESSION 2: INDIGENISATION AND REFORMS (1445 -1715 HRS)			
1445-1530 hrs	'Atmanirbharta Schemes – Opportunities for Industry'	Cmde Sandeep Deshmukh, Dol (N)	Focused on Overview of GoI Schemes, Guiding documents, Positive Indigenisation Lists & Swavlamban
1530-1545 hrs	Competency Mapping Portal	Capt (IN) Pankaj Yadav, Capt (Ind)	
1545-1630	SRIJAN portal & Import Substitution Mapping	Maj Gen Abhay Dayal, AVSM, VSM, Retd	
1630-1715 hrs	Protecting IPR – Raksha Gyan Samiti	Mr Lalit Ambastha	
Day 2 (12 Jun 26)	iDEX, TESTING, CERTIFICATION & QUALITY ASSURANCE		
SESSION 3: DEEP DIVE INTO iDEX (0900-1035 HRS)			
0900-1015 hrs	<ul style="list-style-type: none"> ● iDEX : The Catalyst for Defence Start-up Ecosystem ● DISC, Open Challenges, SPRINT ● Grant Structure and Milestone-Based Funding ● Evaluation Mechanisms 	Mr Vivek Virmani DDG, iDEX & COO, DIO	Incl Q & A
1015-1035 hrs	Proto type development cycle, transition from prototype to procurement	Col Jasrotia, Col Fd Fmn, ADB	Focused on iDEX
		Col Ashish Pradhan, Col Engr, ADB	Focused on MAKE
1035-1100 hrs	Tea Break		
SESSION 4: TESTING AND CERTIFICATION SYSTEM (1100-1500 HRS)			

Date & Time	Subject	Speaker	Remarks
1100-1120 hrs	Testing and Evaluation of Mil Products	Maj Gen Bimalendu Mohapatra, ADG (Armaments) DGQA	Incl Q & A
1120-1150 hrs	Technical Trials vs User Trials	Brig Navneet Tanwar, Brig CD - A	
1150-1210 hrs	NCNC Demo and Difference with Trials	Maj Gen CS Mann, PVSM, AVSM, VSM, ADG ADB	Incl Q & A
1210-1230 hrs	MET Trials	Col Amit Ranjan, DCSE (LE Wing), HQ TG GP EME	
1230-1300 hrs	User Evaluation Trials and Documentation before Trials	Maj Gen Rohit Gupta, SM, Retd	
1300-1315 hrs	Airworthiness Certification	Rep from Air Force	
1315-1330 hrs	Environmental and EMI / EMC Testing	Brig Satya Patidar, Cdr ACE, Mhow	
1330-1415 hrs	Lunch Break		
1415-1430 hrs	Common Compliance gaps & timeline optimisation strategies	Maj Gen SQ Ahmad, Retd	
1430-1500 hrs	DRDO's Role in R&D <ul style="list-style-type: none"> • Collaboration for TOT • TDF Provisions 	Shri Sanjeev Kumar, Sc 'F', DIIQM, DRDO	Incl Q & A
SESSION 5: TPCR AND BEYOND (1500-1730 HRS)			
1500-1530 hrs	TPCR Structure and purpose	Col Navratan Jaiman, Col FT, FT Dte, HQ IDS	
1530-1615 hrs	TPCR (Army, Navy, AF)	Army - Col Manoj Silot Col Sigs, ADB Navy – Cdr Lokesh, DNP AF - Gp Capt Amarender Thakur, Gp Capt (Innovation), DAD	15 Min each
1615-1645 hrs	Technology Readiness Levels (TRL1-9), TRL Gates and Rolling Updates	Mr Lalit Ambastha	
1645-1715 hrs	Panel Discussion with Venture Capitalists	Moderator Maj Gen AK Channan, PVSM, SM, Retd and Col Vivek Nautiyal (Retd)	
1715-1745 hrs	Industry Queries	Maj Gen CS Mann, PVSM, AVSM, VSM, ADG ADB	Exclusive Q & A Session
1745-1800	Closing Address	DG CENJOWS	

Appendix B

**DETAILS OF INDUSTRY REPRESENTATIVES, VENTURE CAPITAL FIRMS
AND FRIENDLY FOREIGN COUNTRIES DELEGATES**

(Refers to Paragraph 6 of Policy Recommendations Report)

Ser No	Company Name	Point of Contact	Email Address	Contact Number
1.	3 Frames Software Labs	Virender Kumar	virender@3frameslab.com	9958811441
2.	Accord Eng Corp	Ketan Gajera	ketan@accordcasting.com	9998844445
3.	ADEL Agro	Aditya Dalal	adityadalal87@gmail.com	9820213169
4.	Aegion Aerospace	Bhavya Dua	bdua@aegion.in	7982835304
5.	Aerodome Tech	Vibhor Jain	vibhor@vyomic.space	9166836673
6.	Aerosearch Tech	Abhinav Tiwari	aerosearchTech@gmail.com	9999396306
7.	AiDrone	Ani Sam Varghese	anisam@aidrone.in	9645343850
8.	ALGOFET	Ankit Mishra	ankit@algofet.com	9891495999
9.	Alphasine Tech	Manu Agarwal	marketing@alphasine.in	9591333278
10.	Amber Wings	Vignesh R	vignesh@amberwings.co	9380251614
11.	Anaar Global	Sumeer Bhasin	sam@anaarglobal.com	9810244549
12.	Anadrone System	Priyanshu Raj	priyanshu.raj@anadrone.com	7761071254
13.	APCO Worldwide	Atul Kumar	atkumar@apcoworldwide.com	9818767929
14.	Araina Enterprises	Nalin Kohli	nalink@arainaenterprises.com	9899557234
15.	Arihant Electricals	Arun Sharma	arun.sharma@arihantelectricals.com	7387512348
16.	Arka Aerospace	Geethika	geethika@arkaerospace.com	9000275013
17.	Artemon Aerospace	Wg Cdr B Parab (Retd)	bd@artemoninfra.com	9419047630
18.	Arvona Solution	Rahul Dashora	rahuldashora@arvonasolution.com	7742495593
19.	AryaShipX Aerospace	Malaya Asis Singh	singhmalaya@gmail.com	9861321824
20.	Asteria Aerospace	Sundeep Jangir	sundeep.jangir@asteria.co.in	7353430654
21.	AutomicroUAS AeroTech	Anshu Singh	singh.anshu@automicrouas.com	7985453325
22.	Bansal calibration & test lab	Vipul bagga	Vipul@bcstestlab.com	9999756804
23.	Bayt Ventures	Navdeep Balwada	navdeepbalwada111@gmail.com	9555674124
24.	Benori Knowledge	Charu Malik	Ek25charu@iimk.ac.in	9717573173
25.	Bes Space	Sitharamkumar Vadapalli	Skumar@blueeyesoft.com	8367694344
26.	Bhagvati Industries	Aniket Mittal	aniketm@shopatbi.in	7986714972
27.	Big Bang Boom Solutions	Annesha Talukdar	annesha.t@bigbangboom.com	7982811930
28.	BlueWay Advance Sys	Ashish Patil	Ashish@bluewayadvance.Sys	9158883849
29.	BotLab Dynamics	Pranav Virmani	pranav.virmani@botlabdynamics.com	8168887233
30.	Bravecore	Cmde U Mathew (Retd)	udaymathew@gmail.com	8169205518
31.	Cemantica Tech	Cdr Gaurav Sharma (Retd)	gaurav.sharma@cemantica.in	9491831475
32.	Centum Electronics	Wg Cdr S Mohan (Retd.)	smohan@centumelectronics.com	7696135050
33.	Cle&ex Tech	Ujjwal Muku	ujjwal@cle&ex.in	8452046121
34.	CoreEL Tech (I)	Ishwar Ch&ra Jha	ishwar.j@coreel.com	8867491303
35.	Cosmoserv Space India	Sejal Jain	sejal@cosmoserve.space	6362984266
36.	Cyber Intelligence Global	Vishnu Datt	info@cyberintglobal.com	9716638340
37.	Cyran AI Solutions	Kunal Joshi	k.joshi@cyran.in	8769135770
38.	DeepLase Tech	Kanak Agrawal	kanak.agrawal210@gmail.com	8462069622
39.	Defmate	Puneet Gupta	puneet@defmate.com	9910301069
40.	dezynForge	Subhendu M	dezynforge@gmail.com	9818308962
41.	DG Propulsion	Chirag Gupta	chirag.gupta@dgpropulsion.com	8587855508
42.	Digital Agents Interactive	Mukul Tajane	mukul.tajane@digitalagents.in	9168353239
43.	Drones24x7.com	Sourabh Saxena	Drones24x7@gmail.com	9811842269
44.	EHNU Solutions	Amiya Kumar Dash	amiya.dash@bmu.edu.in	9439231211
45.	Embassy of Lithuania	Kristina Brazevic	kristina.brazevic@urm.lt	918826007501
46.	inuvity Nexus Tech LLP	Libin Abraham	info@inuvitynexus.com	8075998325

Ser No	Company Name	Point of Contact	Email Address	Contact Number
47.	ensur	Vrishabh Tayade	hello@hedgept.com	8390625495
48.	FalkeAI	Vidhut Kumar Singh	vidhut.singh@falkeai.com	9920701915
49.	Flextride	Pankaj Chauhan	pankaj.chauhan@flextride.com	9899112160
50.	Found for Adv Sc & Tech	Rahul Nayar	rahul@fast-india.org	9205694282
51.	Girnar Precision Tech	Ankit Santoshi	ankit@sensegiz.com	9315996674
52.	Gofloat Tech	SARANG BORA	Sarang@gofloat.Tech	8237464373
53.	H & H Precision	Cmde Aseem (Retd)	aseem.an&@hhservices.in	9971181144
54.	Hariom Forgings	Harshit Bhalla	sales@hariomforgings.com	9599264800
55.	Helios Dynamic Solutions	Zeel Shah	shahzeel7865@gmail.com	8976078325
56.	Hustle Minds Solutions	T.R.Parthathasarathy	Parthatr.hms@gmail.com	98841 17406
57.	IDR R & D	Mayank Pratap Singh	idr.mayankpratapsingh@gmail.com	7827479788
58.	IESA	D Yadav	Dharmendra.yadav@iesasonline.org	9065533110
59.	Inbound aerospace	Capt A Bhutey (Retd)	Abhijit@inboundaerospace.com	9960285265
60.	Independent consultant	Rasik Sachdev	rasiksachdev4@gmail.com	9958890508
61.	Indo Wings	Himanshu Mishra	Himanshu@indowings.com	7669032830
62.	Indrones Solutions	Vipin Singh Negi	vipin@indrones.com	8655366231
63.	InterTech	Akhilesh Suthar	associate@interTechglobal.com	9911696338
64.	Ironfist arms	Jaidev	Jaidev1537mehla@gmail.com	9607224000
65.	Johnnette Tech	Abhinav Varrey	av@johnnette.com	7780108418
66.	JSW GECKO Motors	Yogesh Khattar	yogesh.khattar@jsw.in	8587039050
67.	Jyoti Cero Rubber	Manoj Kumar	cerorubber@yahoo.com	919204750294
68.	Kapoor ineers	Shivam Kapoor	shivam@kapoor ineers.in	9198566709
69.	Kronix Tech	Raja Sheikh Tahir	rajasheikhtahir@kronixTech.in	6383988713
70.	Kshipra Allocon	Saketh Reddy	saketh@kshipra.ai	9121134567
71.	Laxmi Machine Tools	Jitendra Sharma	Info@laxmimachinetools.com	9999000559
72.	Lenviz Tech	Prabhat Sharma	prabhat@lenviz.com	8826030870
73.	Leospear Defence	Akarsh Deshp&e	avd@thedefencecompany.com	9731471965
74.	LuminASIC	Aashish Kumar	Aashish@luminasic.com	8285154399
75.	Magal Security Sys	Akash Shrivastava	akashs@magal-s3.in	9229686247
76.	W4S	Amit Goel	amitgoel9828pg@gmail.com	7503663994
77.	MARG	Apurba Paul	apurbapaul746@gmail.com	7004767556
78.	Mariteam Naval Sys	Anirban Bera	anirban@mariteam.group	9899349198
79.	Mechphy A.W.E. Robotics	Saksham Mishra	saksham.mechphy@gmail.com	9811188131
80.	Mindsprintz	Brigadier NP Singh (Retd)	Mindsprintz101@gmail.com	9589311107
81.	Minerva Spl pur Veh	Mr TKS Varma	tkms@mspv.in	7410097576
82.	MMTC, Min of Com	Sushil Kumar Mittal	skmittal2312@gmail.com	9868947323
83.	Quartermaster Tech	Rohan Suresh	rohan@mosaicdefence.com	7276599888
84.	Motionmatics	Lt Cdr T Budhrani (retd)	tarun@motionmatics.in	8590327158
85.	Nebula Def-SAT	Pravash Dey	br&india3@gmail.com	9638413900
86.	Oceanautics	Abhishek Bokinala	abhishek.b@oceanautics.net	9940697553
87.	OnEarth SpaceTS	Mayank Aggarwal	mayank.aggarwal@space-ts.com	9667782468
88.	Onepws	Abhinav Chauhan	abhinav.chauhan@onepws.com	9968894574
89.	OrbitAID Aerospace	Naresh Kannan	naresh@orbitaid.com	9952436749
90.	Orion Chem	Nikita Mohatta	NIKITA.MOHATTA@GMAIL.COM	8928892978
91.	Pass Drone Research	Garima Vij	garimav0333@gmail.com	9766360367
92.	Pentagon Press	Shivam Arya	shivamaryaa1@gmail.com	9958799771
93.	pi-labs	jaivertic	jai.singh@pi-labs.ai	9646084122
94.	Pramanik Aero & Def	Manik An&	directorpramanik@gmail.com	7888892119
95.	Pravahan Engineering	Rakshin Ramesh	rakshin.pravahan@gmail.com	9629761351
96.	Prayanam Industries	Pranav Gurav	gurav.pranav877@gmail.com	9021498713
97.	Radio Advance Epitaxy	Prashant Tyagi	prashant.tyagi@raepitaxy.com	8826541323
98.	Rakshasetu	Akshat Negi	akshat@rakshasetulabs.com	9469088991
99.	RCA ESSD	Shiraz A	shirazanto@gmail.com	9419023669
100.	Reliance Defence	Meenal Singhvi	meenal.singhvi@reliancegroupindia.com	7498592608

Ser No	Company Name	Point of Contact	Email Address	Contact Number
101.	Rosa Tech	Rohit An&	speak@rosaTech.in	8002394734
102.	RRV Defence	Ravi R Patel	ravi@rrvdefence.in	9909600024
103.	Rudra Forum	Dr. Satbir Yadav	drsaty1964@gmail.com	7087801144
104.	S.S. Medical Sys (I)	Amit Chakarbarty	strategyhead.east@ssmedworld.com	81760 00774
105.	S&eep EdgeTech	Samyak Jain	samyak@s&eepedgeTech.com	96549 56888
106.	Sanyark Space Tech	Shivam Kumar Singh	shivam@sanyark.com	9182269974
107.	Sapidblue Tech	Somnath Chowdhury	snch2050@yahoo.com	9899030780
108.	Promobi Tech	Ankit Chauhan	ankit.chauhan@scalefusion.com	918668781580
109.	Shree Refrigerations	Cdr M Parashar (Retd)	manojparashar16nec@gmail.com	7303881387
110.	Siliconia Tech	Sushil Ghule	bd@siliconiaTech.com	8888996777
111.	SixtyFourX TechLab	Col S C Kharbanda (Retd)	sixty4Techlabs@gmail.com	7351126779
112.	SP INEERS	GAURAV	sp ineers@me.com	9999967001
113.	SpotlightSP	Anil Taneja	aniltaneja.g@gmail.com	93583 58133
114.	Star Aerospace	Col Sushil Kapoor (R)	sushilkapoor@gmail.com	9596857171
115.	Stratasys India	Pradeep Kumar	pradeep.kumar@stratasys.com	9818705098
116.	T&EV TECH	Smridh Gupta	ADMIN@T&EV.IN	9466529385
117.	Techlanz	Vikram Gill	vikram.gill@Techlanz.com	7717318119
118.	Technotreon	Harsh Pathak	research@Technotreon.in	9760685808
119.	Tecknotrove	Amit Baveja	amitbaveja@gmail.com	8527390120
120.	Owl Idea Ventures	Lt Col SM Joshi (Retd)	saumjoshi@gmail.com	7063592567
121.	ThinkDrones Res	Samrat Pravin Patel	samratppatel@gmail.com	7021786005
122.	Tolle Labs	Kartik Matad	kartik@tolle.in	9538195516
123.	Toplines Ltd	Shyam Bh&eri	shyambh&eri_1670@yahoo.in	9799305355
124.	Trenchless Eng Ser	Shubhangi Gupta	shubhangi@trenchless.in	9560600982
125.	Trustoryx	Nikhil Kumar	nikhilkumar@trustoryx.in	6201784889
126.	Turbonautics Eng	Wg Cdr A Patil (Retd.)	gashwinipatil@gmail.com	9622141177
127.	UnmannD Autonomy	Yeshwanth Reddy	yeshwanth@unmannD.com	9167469792
128.	UrbonNook	Vivek Shukla	vivekshukla3719@gmail.com	8299638749
129.	Vector One Consul	Capt Shakil Ahmed	captshakilahmed@gmail.com	9930030499
130.	Vel Atomics	Kartikeya Sethi	kartikaymsvv@gmail.com	9643719636
131.	Vikash Geosensing	Vikas	vkbhai5512@gmail.com	9718355824
132.	ViSecure Sys	Dr. Ankit Shukla	ankitshukla0165@gmail.com	7023692934
133.	VyomIC	Varaa Sharma	varaa@vyomic.space	9818063632
134.	Warfare Labs	Parth Sane	parthsane@laer.in	9309984690
135.	Wobble Lab	Purusottam Ajay Kumar	purusottamajay@gmail.com	8871578088
136.	Xdlinx Space Labs	Lt Col SK Mahala (Retd)	sanjaykumar.m@xdlinx.space	9425015655
137.	Xorian Industries	Vishal Yadav	vishal.yadav@xorianindustries.com	9555783313
138.	Yathartha Labs	Rohit Sabdhani	yatharthalabs@gmail.com	9782772012
139.	Zen Tech	Wg Cdr M Dubey (Retd)	arjundutt@zenTech.com	7032307609
140.	Zenerative Minds	Vikash sharma	vikash.s@generativeminds.com	9350004551
141.	Zeta U Technology	Sivasankar G A	info@zetauTechnology.com	8667651272
142.	Continental Group	Amit Selot	amit.selot@continentalgroup.com	
143.	IIT Madras PTF	Lt Col A Bhardwaj	amitbhardwaj@iitmpravartak.net	
144.	Rushil Jalavadia	Spincraft Strategic Sys	rushil.jalavadia@spincraft.in	
Venture Capital Firms				
145.	247VC	Shashank Randev	shashank@247vc.in	9967104706
146.	35north Ventures Pvt Ltd	Mansy Chandrachud	Mansy@35northventures.com	7720040577
147.	360ONE Asset	Tanay Valia	Tanay.valia@360.one	8828802542
148.	Acumen Advisors	Gaurav Jitendra Karnawat	gaurav@manikchandgroup.com	9705900034
149.	Blue Ocean Venture Partners	Swadeep Pillarisetti	swadeep@blueoceanvp.com	8971697285
150.	Blue Ocean Ventures	Maj Gen M Indrabalan	md@vdt-ai.in	8606868825
151.	Ideaspring Capital	Sulesh Kumar	sulesh@ideaspringcap.com	9900860609
152.	Jamwant Ventures	Navneet Kaushik	navneet@jamwantventures.com	9560611391
153.	Jamwant ventures	Neetu Dhulia	Neetudhulia@jamwantventures.com	9810700864

Ser No	Company Name	Point of Contact	Email Address	Contact Number
154.	Infra Devel & Mgt Ser	Rakesh Sharma	rakeshsarma1@gmail.com	9730042181
155.	Mark AB Capital	Maj Gen M K Hada (Retd)	mkhada@markabcapital.net	9650840123
156.	MountTech Growth Fund Kavachh	Ankit harjai	emailtoankitharjai@gmail.com	8130450608
157.	Oxford India Forum	Sidharth Sethi	sidharth.sethi.MBA22@said.oxford.edu	9815800025
158.	Pinnacle Advisory LLP	Ashit Ranjan	Ashit@pinnacleadvise.com	9910943703
159.	Bharat Tech Fund	Satyadeep Singh	satyadeep@pipserica.com	8787026470
160.	Sahasrar Capital	Jatin Jadhav	Jatin@sahasrarcapital.com	9665539635
161.	Sanhit	Sammeer karwall	Sameer@sanhitventures.com	9650961768
162.	TTL Defence Services	Lt Cdr Toni Thomas (Retd)	india.toni@gmail.com	9037505584
Friendly Foreign Countries Delegates				
163.	Embassy of Lithuania	Kristina Brazevic	kristina.brazevic@urm.lt	918826007501
164.	Embassy of Bulgarian	Ivo Kafedzhiev	i.kafedzhiev@mi.government.bg	



Appendix C

(Refers to Paragraph 7 of Policy Recommendations Report)

MEDIA COVERAGE DETAILS OF WORKSHOP

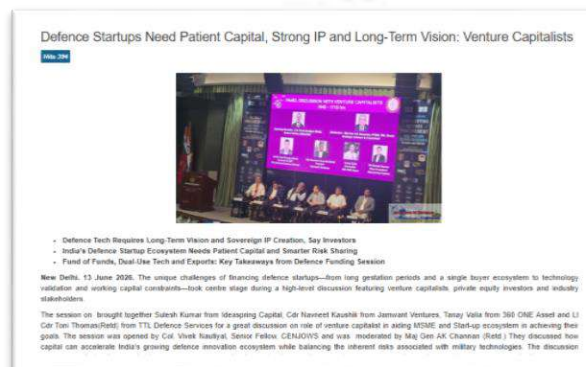
1. “CENJOWS set to demystify defence procurement: Advancing India’s vision of defence indigenization at <https://www.aviation-defence-universe.com/cenjows-set-to-demystify-defence-procurement-advancing-indias-vision-of-defence-indigenisation/>



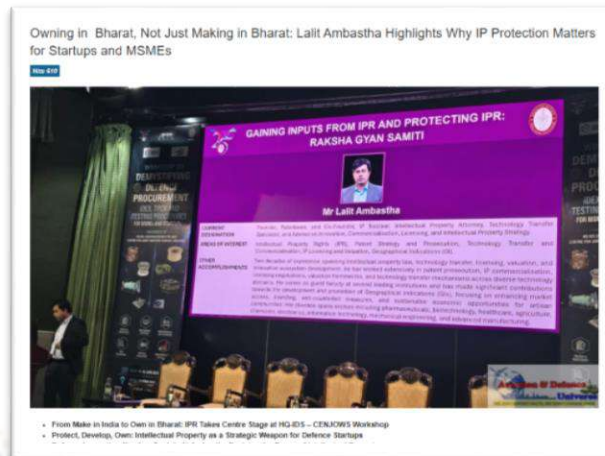
2. “Deep Dive into iDEX: Vivek Virmani Decodes India’s Defence Innovation Ecosystem for Startups” at <https://www.aviation-defence-universe.com/deep-dive-into-idex-vivek-virmani-decodes-indias-defence-innovation-ecosystem-for-startups/>



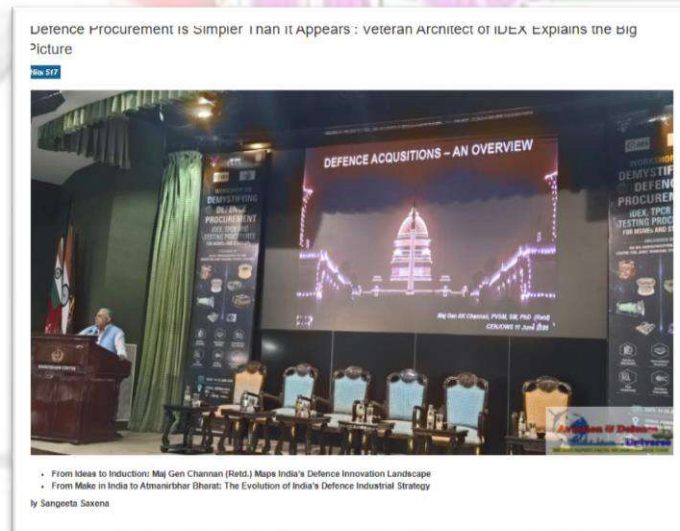
3. “Defence Startups Need Patient Capital, Strong IP and Long-Term Vision: Venture Capitalists” at <https://www.aviation-defence-universe.com/defence-startups-need-patient-capital-strong-ip-and-long-term-vision-venture-capitalists/>



4. “Owning in Bharat, Not Just Making in Bharat: Lalit Ambastha Highlights Why IP Protection Matters for Startups and MSMEs” at <https://www.aviation-defence-universe.com/owning-in-bharat-not-just-making-in-bharat-lalit-ambastha-highlights-why-ip-protection-matters-for-startups-and-msmes/>



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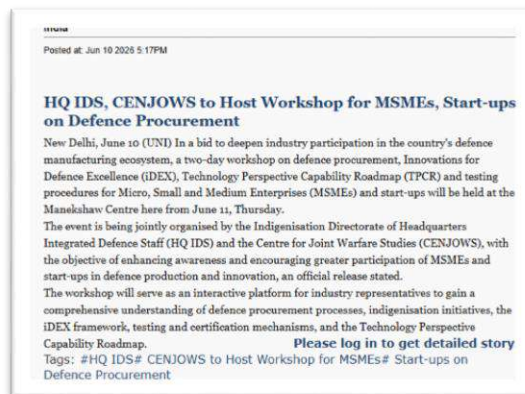
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13. Defence Seminar Helps Start-ups Navigate Procurement Ecosystem,
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14. Defence Seminar Boosts MSME, Start-up Participation
<https://www.electronicforyou.biz/industry-buzz/defence-seminar-boosts-msme-start-up-participation/>
15. Two-day workshop on strengthening industry participation in defence acquisition & innovation ecosystem
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<https://finovista.com/demystifying-defence-procurement-idex-tpcr-msmes/>
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Appendix D

(Refers to Paragraph 8 of Policy Recommendations Report)

PHOTOGRAPHS THAT CAPTURE KEY MOMENTS OF THE WORKSHOP



Fig 1: Maj Gen Ashok Kumar, VSM, PhD (Retd), DG CENJOWS delivering the Opening Address



Fig 2: Air Marshal PK Vohra, UYSM, AVSM, VM, DCIDS (PP&FD) delivering the Keynote Address



Fig 3: Maj Gen AK Channan, PVSM, SM, PhD (Retd) speaking on Building Indigenous Def Capabilities: An overview



Fig 4: Lt Gen Rohit Gupta (Retd) speaking on Overview of Draft DAP 2026: Imp Provisions.



Fig 5: Maj Gen CS Mann, PVSM, AVSM, VSM, ADG ADB responding to Industry Queries and issue Resolution



Fig 6: Cmde Sandeep Deshmukh, DoI (N) speaking on 'Atmanirbharta Schemes – Opportunities for Industry'



Fig 7: Col Suryavanshi (Retd), KPMG speaking on Defence Competency Mapping Portal: Features, Functionality and Demonstration



Fig 8: Maj Gen Abhay Dayal, AVSM, VSM (Retd) speaking on SRIJAN portal and Import Substitution Mapping



Fig 9: Mr Vivek Virmani, DDG, iDEX & COO, DIO speaking on iDEX: The Catalyst for Defence Start up Eco System



Fig 10: Maj Gen Bimalendu Mohapatra, ADG (Armaments), DGQA speaking on Testing and Evaluation of Mil Products



Fig 11: Esteem Guests and Industry Reps



Fig 12: Col Amit Ranjan, DCSE (LE Wing) speaking on Maintainability Evaluation Trials (MET) Trials



Fig 13: Maj Gen SQ Ahmad (Retd) speaking on Common Compliance gaps & Timeline Optimisation Strategies



Fig 14: Mr Lalit Ambastha speaking on Technology Readiness Levels (TRL1-9), TRL Gates and Rolling Updates



Fig 15: Panel Discussion with Venture Capitalists

APPENDIX E

(Refers to Paragraph 10 of Policy Recommendations Report)

PARTICIPANT QUESTIONS/ QUESTIONS, CONCERNS, AND REQUESTS FOR CLARIFICATION AND CORRESPONDING RESPONSES

Query	Reply
SESSION 1 – DEFENCE ACQUISITION FRAMEWORK	
How can a start-up engage with GoI for defence product design, development and supply?	Start-ups can engage through multiple innovation and acquisition pathways, including iDEX, the Technology Development Fund (TDF), Make-I and Make-II projects under DAP, the Army Design Bureau (ADB), the SRIJAN Portal, Technology Perspective and Capability Roadmap (TPCR), and Service-specific innovation cells. These mechanisms provide opportunities for participation in problem statements, prototype development, technology demonstrations, trials, and eventual procurement. Start-ups were encouraged to actively monitor challenge announcements and engage regularly with Service Headquarters and innovation organisations.
Navigating the DAP (Procurement Policy).	The DAP provides a structured framework for defence procurement through multiple acquisition categories. Industry representatives were advised to familiarise themselves with key stages of the acquisition cycle, including Acceptance of Necessity (AoN), Request for Information (RFI), Request for Proposal (RFP), technical evaluation, field trials, commercial negotiations, and contract conclusion. Particular emphasis was placed on understanding indigenous content requirements, Make procedures, innovation schemes, and opportunities available for MSMEs and start-ups.
What changes in DAP 2026 will help small companies grow faster?	The proposed DAP 2026 reforms are expected to significantly improve opportunities for MSMEs and start-ups. Key provisions include support for spiral development, assured procurement for successful innovation projects, Technology Readiness Level (TRL)-based acquisition pathways, simplified procurement procedures, enhanced indigenous content requirements, and low-cost capital acquisition mechanisms. The draft also seeks to reduce procedural delays and provide greater visibility regarding future procurement requirements, thereby enabling small companies to scale their capabilities with greater confidence.
How can MSMEs and start-ups participate without prior defence experience?	Prior defence-sector experience is no longer a mandatory prerequisite under several innovation and acquisition programmes. MSMEs and start-ups can participate through iDEX challenges, TDF projects, Make categories, Service innovation initiatives, and open competitions. The emphasis has shifted towards technological capability, innovation potential, and successful prototype demonstration rather than prior experience. Industry was encouraged to leverage partnerships with academia, research institutions, and established industry players to enhance their competitiveness.
Future requirements are not clearly stated in RFPs.	Participants were informed that future capability requirements are communicated through several channels, including the TPCR,

Query	Reply
	<p>Positive Indigenisation Lists, the SRIJAN Portal, Service outreach programmes, and industry interaction forums.</p> <p>While detailed technical specifications are generally released only during the acquisition process, these mechanisms provide valuable indicators of future capability gaps and procurement priorities. Industry was encouraged to proactively monitor these sources and engage with stakeholders to better align technology development efforts with future military requirements.</p>
<p>Suo-moto proposals are not taken seriously.</p>	<p>Industry representatives were encouraged to continue submitting innovative proposals through recognised channels such as ADB, iDEX Open Challenges, Service innovation cells, TDF schemes, and the SRIJAN Portal. It was emphasised that well-developed proposals that address identified operational challenges are more likely to receive attention. Participants also recommended establishing clearer mechanisms for proposal tracking, feedback, and engagement with designated points of contact to improve transparency and responsiveness.</p>
<p>Supply orders after contracts are sporadic.</p>	<p>Draft DAP 2026 introduces long-term bulk acquisition and assured procurement provisions to provide greater visibility and predictability in orders.</p>
<p>When can a single-window defence technology system be established?</p>	<p>While no dedicated single-window system currently exists, there was broad consensus among participants on the need for greater integration among existing platforms, including TPCR, SRIJAN, iDEX, Make project portals, and acquisition management systems. Such an integrated interface would simplify industry engagement, improve visibility of opportunities, reduce duplication of effort, and provide a more streamlined mechanism for technology development, project monitoring, and procurement interaction.</p>
<p>How much time from shortlisting to contract signing?</p>	<p>The time from project shortlisting to contract conclusion varies significantly with project complexity, technology maturity, trial requirements, financial approvals, and acquisition category. While some innovation projects can progress relatively quickly, larger acquisition programmes may require extensive evaluations and approvals. DAP 2026 reforms seek to reduce timelines through concurrent processing, simplified procedures, digitisation, and enhanced delegation of powers, thereby improving overall acquisition efficiency.</p>
<p>How can products be offered without involving DPSUs?</p>	<p>MSMEs and start-ups can directly engage with Service Headquarters, iDEX, TDF, Make projects, the Army Design Bureau, Naval Innovation and Indigenisation Organisation (NIO), and Indian Air Force innovation initiatives without mandatory DPSU participation. Several procurement categories specifically encourage direct participation by private industry. Nevertheless, collaboration with DPSUs may still be beneficial in certain cases involving large-scale production, system integration, certification, or access to specialised infrastructure.</p>
<p>SESSION 2 – INDIGENISATION AND REFORMS</p>	
<p>How will indigenised solutions move beyond pilots to procurement?</p>	<p>One of the key objectives of the proposed DAP 2026 reforms is to bridge the long-standing gap between successful prototype development and large-scale procurement. Provisions such as spiral development, limited series production, assured procurement for</p>

Query	Reply
	successful indigenous solutions, and long-term acquisition planning are intended to provide innovators with a clearer pathway from demonstration to induction. These measures are expected to reduce uncertainty, encourage industry investment, and improve the transition of indigenous technologies into operational service.
We have anti-jamming radios but cannot find the right stakeholders.	Industry was advised to engage through multiple channels, including the Technology Perspective and Capability Roadmap (TPCR), Army Design Bureau (ADB), Naval Innovation and Indigenisation Organisation (NIIO), Indian Air Force innovation organisations, iDEX challenges, and designated points of contact identified in Service outreach documents. Participants emphasised the importance of regular engagement with user directorates, field demonstrations, and participation in innovation forums to ensure technologies are visible to relevant stakeholders.
What are the priority technology areas?	The Services identified several priority technology domains aligned with future warfare requirements. These include Artificial Intelligence (AI), autonomous and unmanned systems, cyber warfare, electronic warfare, space technologies, underwater systems, quantum technologies, directed energy weapons, advanced sensing systems, secure communications, robotics, decision-support systems, and technologies supporting multi-domain operations. Industry and academia were encouraged to align their research and development efforts with these emerging capability requirements.
What is the strategy for Life Cycle Support and MRO indigenisation?	The Services are increasingly focusing on indigenous maintenance, repair and overhaul (MRO) capabilities, lifecycle support, and domestic supply chains to reduce dependence on foreign vendors. Future acquisition programmes are expected to place greater emphasis on local support infrastructure, availability-based maintenance models, spares indigenisation, and technology transfer arrangements. Participants highlighted that lifecycle support and sustainment capabilities are becoming critical evaluation parameters in procurement decisions.
How can Academia-Industry-Research collaboration be promoted?	Collaboration can be strengthened through existing programmes such as iDEX, TDF, DRDO-industry partnerships, defence innovation hubs, incubators, Centres of Excellence, and challenge-based innovation schemes. Participants recommended greater integration between academic institutions, research laboratories, start-ups, MSMEs, and defence users to accelerate technology maturation. Joint research projects, collaborative prototyping, shared testing facilities, and co-development initiatives were identified as important enablers of innovation and technology development.
Five-year roadmap for EO/IR sensors?	The Services acknowledged a continuing and growing requirement for electro-optical and infrared (EO/IR) technologies across intelligence, surveillance, reconnaissance, targeting, border management, unmanned systems, maritime surveillance, and air defence applications. While detailed capability development plans remain classified, industry was advised that indigenous EO/IR technologies continue to be an important area of focus under ongoing modernisation and indigenisation efforts.
Semiconductor priority bands?	Participants were informed that defence requirements exist across the Short-Wave Infrared (SWIR), Mid-Wave Infrared (MWIR), Long-

Query	Reply
	Wave Infrared (LWIR), Near Infrared (NIR), and visible spectrum bands. These technologies support a wide range of military applications including surveillance, target acquisition, night vision, underwater sensing, missile seekers, ISR systems, and advanced imaging solutions. Indigenous development of sensor materials, detectors, and associated semiconductor technologies was considered a strategic priority.
Is there a public list of defence sensor applications?	Broad capability requirements and technology areas are available through the TPCR, SRIJAN Portal, Positive Indigenisation Lists, and various Service outreach initiatives. However, detailed operational specifications, performance parameters, and deployment concepts are generally released only through formal procurement processes due to operational security considerations. Industry was encouraged to utilise publicly available documents to identify capability gaps and potential areas for technology development.
Technologies open for start-up participation?	Start-ups can participate in a wide range of technology areas through TPCR projects, Positive Indigenisation Lists, SRIJAN items, iDEX challenges, Make projects, TDF programmes, and Service innovation initiatives. Opportunities exist across AI, robotics, autonomous systems, communications, sensors, cyber security, electronic warfare, space technologies, advanced materials, defence healthcare, and dual-use technologies. Participants were encouraged to proactively monitor challenge announcements and innovation portals for emerging opportunities.
Procurement volume for imaging sensors?	Specific procurement volumes are generally not disclosed in the public domain due to operational and security considerations. However, indicative requirements and broad capability needs are often reflected in TPCR documents, indigenisation lists, and future acquisition plans. Industry was advised to use these indicators to guide capacity planning and investment decisions while remaining prepared for varying procurement timelines and quantities.
Is there scope for chemicals?	Significant opportunities exist for the chemical industry in defence applications. These include propellants, explosives, specialised coatings, composite materials, corrosion-protection systems, NBC-protection equipment, defence healthcare products, energy-storage technologies, fuels, lubricants, and sustainment-related consumables. Participants highlighted that chemical technologies represent an important component of defence self-reliance and indigenous capability development.
Defence applications for microwave technologies?	Microwave technologies have applications across a broad spectrum of defence domains, including radar systems, electronic warfare, communications, sensing, directed energy systems, healthcare applications, navigation aids, surveillance systems, and specialised military equipment. Emerging technologies involving microwave sensing, non-kinetic effects, and advanced detection systems were identified as areas of growing interest for future military capability development.
In-roads for landmine detection solutions?	Industry was encouraged to engage through the Army Design Bureau, iDEX challenges, TPCR capability requirements, DRDO programmes, and field demonstration opportunities. Technologies offering enhanced detection accuracy, reduced false alarms, portability, autonomous operation, and integration with unmanned

Query	Reply
	systems are of particular interest. Participants highlighted that innovative solutions addressing humanitarian demining and military mobility requirements continue to receive attention from user agencies.
Need SOP for regular industry interaction.	The suggestion was strongly endorsed. The establishment of structured, periodic mechanisms for interaction among the Services, DRDO, acquisition agencies, academia, start-ups, and industry was recommended. Such engagement could include quarterly technology interaction forums, capability briefings, innovation workshops, sector-specific working groups, and digital collaboration platforms to improve communication, provide feedback, and enhance transparency across the defence innovation ecosystem.
SESSION 2 – INDIGENISATION AND REFORMS	
Is manufacturing assistance available for prototype development?	Yes. Several government initiatives provide support to innovators during the prototype development stage. Programmes such as iDEX, the Technology Development Fund (TDF), and Service Project Facilitation Teams offer technical guidance, user interaction, mentorship, access to testing and validation facilities, and assistance in refining operational requirements. Participants were informed that these mechanisms are designed to help innovators bridge the gap between concept development and field-ready prototypes while reducing technical and procedural barriers.
How will testing and validation risks be reduced for investors?	Testing and validation have traditionally represented significant risks for both innovators and investors due to uncertainty regarding user acceptance and procurement outcomes. The proposed DAP 2026 reforms seek to mitigate these risks through spiral development, phased trials, Technology Readiness Level (TRL)-based assessments, compensation mechanisms for successful trial participants, and limited-series production opportunities. These measures are expected to provide greater confidence to investors by creating clearer pathways for technology maturation and eventual induction.
Can Make-I projects be shifted to iDEX?	The possibility of transitioning projects between acquisition and innovation frameworks was acknowledged. Depending upon the nature of the technology, project scope, funding requirements, development timelines, and user needs, certain projects may be considered for execution under alternative schemes such as iDEX. However, such decisions would be taken on a case-by-case basis after evaluating the project's complexity, financial implications, and suitability within the respective framework.
How can innovators arrange demonstrations?	Innovators can organise demonstrations through Service innovation organisations, the Army Design Bureau (ADB), Naval Innovation and Indigenisation Organisation (NIIO), Indian Air Force innovation cells, iDEX, Project Facilitation Teams, and designated user agencies. Participants were encouraged to engage early with potential users, seek opportunities during innovation events and technology showcases, and leverage existing defence innovation platforms to demonstrate the operational relevance and maturity of their solutions.

Query	Reply
Opportunities for cybersecurity, AI verification and secure infrastructure?	Significant opportunities exist across cyber defence, AI-enabled decision support systems, AI verification and validation, secure communications, trusted computing, cloud security, digital infrastructure protection, information warfare, data analytics, and cyber resilience technologies. As the Armed Forces increasingly adopt digital and network-centric capabilities, demand is expected to grow for indigenous solutions that enhance cybersecurity, ensure the trustworthiness of AI systems, and strengthen the security of critical defence networks and infrastructure.
Recommended pathway for start-ups?	Participants recommended a structured progression for defence start-ups: iDEX Challenge Participation → Prototype Development → User Trials and Evaluation → Spiral Development → Limited Series Procurement → Mainstream Acquisition and Induction . This pathway allows innovators to progressively mature their technologies while receiving user feedback, validating operational utility, and reducing development risk. The approach is intended to improve the transition rate of innovative technologies from the concept stage to operational deployment.
Are fast-track mechanisms available?	Yes. Several mechanisms have been established to accelerate the development and procurement of innovative technologies. These include iDEX, TDF, Fast Track Procedures (FTP), Low-Cost Capital Acquisition provisions, emergency procurement mechanisms, and proposed spiral development pathways under DAP 2026. Such initiatives are designed to reduce acquisition timelines, facilitate rapid prototyping, and expedite the induction of technologies that address urgent operational requirements.
Will iDEX funding increase?	Innovation and indigenisation remain key priorities, and support for defence innovation continues to expand. While specific funding allocations are subject to government approval and budgetary processes, the overall trend points towards an increased emphasis on innovation ecosystems, start-up participation, technology development, and the creation of indigenous capability. Participants expressed optimism that successful outcomes under iDEX would continue to attract enhanced institutional and financial support in the future.
SESSION 4 – TESTING AND CERTIFICATION SYSTEM	
Why is testing limited to DRDO?	Concerns about the limited availability of accredited testing facilities and their impact on development timelines were raised. It was recommended that the testing ecosystem be expanded through wider accreditation of private laboratories, academic institutions, and industry-owned facilities capable of meeting defence standards. Such an approach would increase testing capacity, reduce bottlenecks, lower costs, and accelerate the validation and certification of indigenous technologies while maintaining the required levels of quality assurance and security.
How can certifications be obtained?	Certification requirements vary depending upon the type of equipment, intended application, and operational environment. The process may involve agencies such as the Directorate General of Quality Assurance (DGQA), Directorate General of Aeronautical Quality Assurance (DGAQA), Centre for Military Airworthiness and Certification (CEMILAC), Naval Quality Assurance organisations,

Query	Reply
	and user-specific certification authorities. Participants were advised to engage with the relevant agencies at an early stage of product development to understand applicable standards, testing requirements, documentation needs, and certification procedures.
How can companies work with Defence for drones?	Companies developing drone technologies can engage with the Armed Forces through iDEX challenges, drone-specific procurement programmes, Army Design Bureau initiatives, Naval Innovation and Indigenisation Organisation (NIIO), Indian Air Force innovation channels, TDF projects, and Service innovation cells. Participants were encouraged to undertake field demonstrations, participate in challenge-based competitions, and align their solutions with operational requirements in areas such as surveillance, logistics, swarm operations, counter-drone systems, and precision targeting.
Product is ready; how do we obtain trials?	Innovators with mature products were advised to approach the relevant Service Headquarters, Army Design Bureau, iDEX programme office, Project Facilitation Teams, or designated points of contact identified through the TPCR and innovation ecosystem. User agencies may facilitate technical evaluations, demonstrations, and field trials based on the technology's relevance to operational requirements. Early engagement with potential users and submission of comprehensive technical documentation were recommended to expedite consideration for trials.
Can defence standards be made available?	While certain standards and specifications remain restricted for security reasons, it was recommended that non-sensitive standards, testing methodologies, interface requirements, and certification guidelines be made more readily available. Such measures would improve industry preparedness, reduce development uncertainty, and enhance alignment between user expectations and indigenous technology development efforts.
Are certifications mandatory before SSCT?	Greater clarity regarding the sequencing of certification and evaluation processes, particularly in relation to staff evaluations, demonstrations, and user trials was recommended. It was also recommended that clearer guidance be issued regarding certification requirements at various stages of product development and acquisition. Harmonisation of procedures among user agencies, certification authorities, and start-ups would help reduce ambiguity and facilitate smoother progression from prototype development to operational evaluation.
Opportunities for testing and field trials?	Service representatives indicated their willingness to facilitate testing, field evaluations, access to selected facilities, and operational feedback for promising indigenous technologies. Participants noted that structured trial opportunities are essential for validating performance, identifying areas for improvement, and building user confidence. Enhanced cooperation between Services, testing agencies, innovation organisations, and industry was considered critical for accelerating the development and induction of indigenous defence technologies.
Approval process for indigenous rescue and surveillance systems?	Indigenous rescue and surveillance systems are required to undergo a structured evaluation process that typically includes technical assessment, user trials, certification, quality assurance, safety validation, and procurement approvals in accordance with DAP provisions and Service-specific procedures. The exact process may

Query	Reply
	vary depending upon the nature of the equipment and its intended operational role. Industry was encouraged to engage early with user agencies and certification authorities to ensure compliance with applicable standards and operational requirements.
How can MSMEs scale field trials?	Through early engagement with user directorates, Project Facilitation Teams and operational units.

SESSION 5 – TPCR AND BEYOND

How can a product accepted by one Service be extended to other Services?	It was informed that products successfully evaluated or inducted by one Service can potentially be adopted by other Services through joint-service evaluations, interoperability assessments, user demonstrations, and engagement with the respective Service HQs. Increasing emphasis on jointness and integrated capability development under the TPCR framework is creating greater opportunities for tri-service adoption of technologies that address common operational requirements. Early engagement with multiple user communities and demonstration of interoperability across diverse operational environments can significantly enhance the prospects of wider adoption and procurement.
In-roads for landmine detection solutions?	Landmine detection and counter-mine technologies remain an important operational requirement for the Armed Forces, particularly in support of mobility operations, border management, counter-insurgency missions, and humanitarian demining activities. Innovators were encouraged to engage through the Army Design Bureau (ADB), iDEX challenges, TPCR capability requirements, DRDO programmes, and user demonstrations. Technologies offering improved detection accuracy, reduced false alarm rates, enhanced portability, autonomous operation, integration with unmanned systems, and all-weather performance are likely to attract significant interest. Participants were advised to pursue field demonstrations and user evaluations to validate operational effectiveness and facilitate progression towards trials, certification, and eventual induction.