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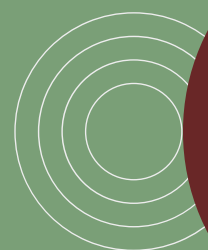
SPACE STRATEGIC GROUP (SSG) REPORT 2026

SPACE AS A STRATEGIC SECURITY DOMAIN: FROM DIALOGUE TO PREPAREDNESS

In association With



MERI
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FROM THE DESK OF THE PRESIDENT

The convergence of space and defence today stands as one of the most consequential strategic developments shaping national security. Space is no longer a distant technological enabler operating in isolation; it has become integral to the defence of the nation and to the preservation of strategic stability. Modern military operations, secure communications, navigation, intelligence gathering, and real-time decision-making increasingly rely on assured access to space-based capabilities. In this evolving environment, the effectiveness of defence preparedness is closely tied to the resilience, security, and continuity of space-enabled systems.

Across the world, space is being recognised not merely as a support function but as a domain that shapes deterrence, operational advantage, and long-term national resilience. The growing integration of commercial, civil, and military space assets, coupled with rapid technological advances and intensifying geopolitical competition, has transformed the character of the domain. For India, whose economic growth, digital infrastructure, and governance systems are deeply supported by space applications, safeguarding space-enabled capabilities is synonymous with safeguarding national continuity itself. The need of the hour is therefore not only technological advancement, but also strategic coherence and institutional preparedness.

Strengthening India's defence space posture will require a shared national outlook that brings together the armed forces, policymakers, industry, academia, and the strategic community. Preparedness in the space domain must be collaborative, anticipatory, and anchored in long-term thinking. It is through sustained coordination and structured engagement that India can ensure resilience against emerging threats while harnessing the full potential of space as an enabler of national power.

The establishment of the Space Strategic Group reflects this collective recognition. By creating a platform that aligns perspectives across stakeholders and encourages forward-looking dialogue, it contributes to building a coherent and resilient approach to defence space preparedness. Such initiatives will play an important role in ensuring that India's expanding space capabilities continue to serve as a secure, sovereign, and enduring pillar of national defence and comprehensive national strength.

Dr Subba Rao Pavuluri
President, SIA-India

FROM THE DESK OF THE DIRECTOR GENERAL

From an industry perspective, the transformation underway in the defence space domain represents not only a strategic imperative but also a structural shift in India's industrial ecosystem. Over the past few years, India's space sector has moved from a predominantly government-driven model to a more diversified architecture that actively integrates private industry, start-ups, MSMEs, and academia. With the national space economy projected to grow significantly in the coming decade, and defence modernisation accelerating in parallel, the convergence of defence requirements and industrial capability is both timely and necessary.

The policy reforms introduced in recent years, including the liberalisation of the space sector, the operationalisation of IN-SPACe, and enhanced FDI norms, have opened pathways for private participation across satellite manufacturing, launch services, ground infrastructure, and downstream applications. At the same time, the defence allocation of ₹1.39 lakh crore for domestic procurement provides a strong demand signal to Indian industry, reinforcing the commitment to indigenisation in aerospace and strategic technologies. For industry, long-term visibility of defence-space requirements is critical to mobilising capital, investing in R&D, and building resilient supply chains capable of supporting mission-critical systems.

Equally important is the growing integration between academia, research institutions, and industry. Advanced defence space capabilities require deep technological collaboration and sustained innovation pipelines. Universities and research centres play a pivotal role in developing next-generation technologies, skilled human capital, and foundational research, while industry translates these innovations into deployable systems. Structured engagement between defence users, academia, and private industry will therefore be central to bridging the gap between conceptual innovation and operational capability.

SIA-India sees its role as a facilitator within this expanding ecosystem. By creating platforms for dialogue, policy feedback, and structured collaboration, the Association seeks to ensure that industrial growth aligns with national security priorities. The objective is not merely expansion of the space industry in quantitative terms, but the development of a strategically aligned, technologically advanced, and globally competitive defence space ecosystem that contributes to both national security and economic growth.

Mr Anil Prakash

Director General, SIA-India

FOREWORD

The establishment of the Space Strategic Group (SSG) under the Chairmanship of Lt Gen (Dr) PJS Pannu, PVSM, AVSM, VSM (Retd), who is the Senior Advisor to SIA, arises from a clear and timely recognition: India's growing reliance on space-based capabilities must be matched by an equally coherent framework for long-term strategic preparedness. Space systems today underpin not only military effectiveness, but also critical infrastructure, economic continuity, digital governance, and national resilience. As this dependence deepens, the need for structured and sustained engagement across the armed forces, policymakers, industry, academia, and strategic institutions has become both evident and urgent.

Over the past decade, India has made significant strides in expanding its space capabilities and reforming its policy architecture. However, the strategic environment in which these capabilities operate is evolving rapidly. Space is no longer viewed solely through a developmental or technological lens; it has become integral to national security planning and multi-domain operations. Existing consultations and roundtables have been valuable in surfacing these realities, but episodic dialogue is insufficient to address the scale, complexity, and pace of emerging challenges. What was required was an institutional mechanism capable of providing continuity, one that could align operational insight, policy direction, technological evolution, and industrial capacity within a unified strategic framework. The Space Strategic Group represents that institutional step forward. The SSG seeks to move India's defence space discourse from fragmented engagement to structured alignment. By bringing together operational, policy, technological, legal, and industrial perspectives within a single forum, the Group aims to bridge long-standing gaps between capability development and doctrinal evolution. Its purpose is not to replace existing institutions, but to complement them by fostering anticipatory thinking, resilience planning, and sustained coordination in a domain that is increasingly central to national security.

The timing of this initiative is significant. As geopolitical competition intensifies and technological diffusion accelerates, preparedness in the space domain can no longer be reactive. It must be deliberate, forward-looking, and institutionally anchored. The SSG is intended to support this transition, ensuring that India's expanding space capabilities are underpinned by a coherent strategy, resilient architecture, and aligned stakeholder engagement.

SSG Chairman: Lt Gen (Dr) PJS Pannu (Retd)
PVSM, AVSM, VSM,

Former Deputy Chief of Integrated Defence Services

EXECUTIVE SUMMARY

Outer space has assumed unprecedented strategic salience within the contemporary international security environment. Once regarded primarily as a scientific and developmental domain, it now functions as a critical enabler of military effectiveness, economic stability, governance continuity, and technological competitiveness. Intensifying geopolitical rivalry, rapid technological diffusion, and the growing interdependence between civilian and military infrastructures have collectively transformed space into a contested operational environment. In this context, the resilience and security of space-enabled systems are increasingly synonymous with national resilience itself.

The global expansion of space activity over the past decade has significantly elevated both the opportunities and vulnerabilities associated with space dependence. Satellite-based services now underpin a wide spectrum of functions, including command-and-control networks, intelligence and surveillance, navigation and timing, financial transactions, disaster response, and digital governance. Concurrently, the proliferation of commercial constellations, dual-use technologies, and private-sector participation has expanded the operational ecosystem while complicating traditional distinctions between civilian and military space assets. This convergence has rendered space infrastructure deeply embedded within national security architectures, thereby amplifying the systemic consequences of disruption or denial.

India's space ecosystem reflects these global trends while presenting distinct strategic characteristics. Over the past two decades, India has developed credible capabilities across communications, remote sensing, navigation, and launch systems, supported by an expanding commercial and industrial base. Space-enabled applications now underpin a broad array of national functions spanning defence operations, border and maritime surveillance, disaster management, financial networks, and digital public infrastructure. This expanding reliance has elevated space from a sectoral capability to a systemic national dependency, reinforcing the need for resilience, continuity of operations, and secure access in an increasingly contested domain.

At the same time, the character of strategic competition in space is undergoing a qualitative shift. Contemporary contestation is increasingly conducted through non-kinetic, reversible, and plausibly deniable means, including cyber intrusion, electronic warfare, spectrum interference, supply-chain compromise, and disruption of commercial or dual-use services. These forms of grey-zone activity can impose significant operational and strategic effects without triggering overt escalation thresholds, thereby complicating attribution and response. The integration of commercial space assets into military and national-security functions has further expanded both capability and vulnerability, underscoring the need for comprehensive mission assurance and cross-domain resilience.

Despite notable progress in capability development and policy reform, India's defence space preparedness continues to face structural, doctrinal, and institutional challenges. Existing frameworks for governance, acquisition, and operational integration remain partially aligned with a civil-centric model of space activity, while mechanisms for sustained civil-military-industry coordination and scenario-based planning are still evolving. The absence of a formally articulated military space doctrine, limited integration of space considerations within joint operational planning, and fragmented procurement pathways contribute to a widening gap between operational reliance on space-enabled systems and the institutional frameworks governing their protection and use. Addressing this gap requires a coherent strategic vision supported by sustained institutional alignment and anticipatory planning.

It is within this context that the establishment of the Space Strategic Group (SSG), spearheaded by SIA-India, in association with the Centre for Land Warfare Studies (CLAWS) and the MERI Group of Institutions, assumes particular significance. Emerging from a series of structured consultations among military practitioners, policymakers, industry representatives, and subject-matter experts, the SSG represents an important institutional innovation in India's defence space landscape. Conceived as a continuing national-level platform, the Group seeks to move beyond episodic dialogue toward a sustained mechanism capable of aligning policy, operational requirements, technological development, and industrial capability. Its mandate encompasses strategic assessment, doctrinal evolution, capability prioritisation, and the facilitation of coordinated responses to emerging risks within the space domain.

The deliberations of the Strategic Group highlight several core imperatives for strengthening India's long-term defence space preparedness. First, space systems must be formally recognised as critical national infrastructure, requiring integrated protection across orbital, ground, cyber, and supply-chain layers. Second, defence space planning must evolve from fragmented capability development toward a unified strategic framework that aligns national security objectives with technological and industrial capacities. Third, resilience must be institutionalised as a foundational design principle across all space-enabled systems, encompassing mission assurance, supply-chain integrity, cyber protection, and rapid reconstitution capabilities. Fourth, clearer doctrinal and legal articulation is required to enable confident and consistent integration of space within military planning, escalation management, and multi-domain operations.

This report outlines a phased pathway for implementation. In the near term, emphasis must be placed on institutional alignment, strategic articulation, and the integration of space considerations into national security planning and exercises. In the medium term, focus should shift toward consolidating resilient multi-orbit architectures, strengthening mission assurance frameworks, and stabilising coordination between operational authorities and industry. Over the long term, India's objective must be to develop a mature, adaptive, and resilient defence space posture capable of operating effectively in contested and degraded environments.

The Space Strategic Group is conceived as a continuing national-level mechanism to strengthen strategic coherence, institutional alignment, and long-term preparedness across India's defence space ecosystem. As reliance on space-enabled systems deepens, sustained coordination and anticipatory planning will be essential to securing national interests in and through space.

GENESIS OF THE SPACE STRATEGIC GROUP

The Space Strategic Group (SSG) emerged from a deliberate convergence of three complementary institutional pillars, strategic thought, industry capability, and academic engagement. Convened initially through high-level roundtables led by the Space Industry Association of India (SIA-India), in collaboration with the Centre for Land Warfare Studies (CLAWS), India's premier defence think tank, the initiative brought together operational military insight and industry perspective within a structured strategic framework. Its formal institutionalisation at the MERI Group of Institutions in January 2026 added an academic anchor to the process, reinforcing continuity, research depth, and structured national discourse.

This coming together of a defence think tank, an industry body, and an academic institution is particularly relevant in the space domain, where preparedness requires alignment across doctrine, technology development, policy interpretation, and innovation ecosystems. The engagements recognised space not merely as a technological frontier, but as a core pillar of national power shaping deterrence credibility, operational effectiveness, and systemic resilience.

The consultations brought together senior representatives from the armed forces, Ministry of Defence, strategic agencies, industry, academia, and policy institutions (participants listed in Annexure A) to assess emerging threats, capability gaps, and institutional challenges influencing India's defence space preparedness. The roundtables focused on several interlinked strategic themes that formed the basis of the DefSat 2026 agenda, including space as a warfighting domain, national critical infrastructure protection, cyber and ground-segment vulnerabilities, doctrine and treaty alignment, resilience and reconstitution, industry–military integration, and multi-domain wargaming preparedness.

Key Themes Anchoring DefSat 2026 & Roundtables

- Securing Space as National Critical Infrastructure: Protection of orbital assets, ground segments, cyber layers, spectrum, and EW resilience
- Decoding Adversarial Military Space Postures: Understanding global military space doctrines, counter-space technologies, and evolving threat environments
- Building a Military–Industrial–Space Complex: Structured industry–government–academia collaboration, indigenous supply chains, and strategic autonomy
- Persistent and Assured Space Capability: Multi-orbit architectures, redundancy, interoperability, rapid reconstitution, and mission continuity
- Strategic Regional, EU & Indo-Pacific Defence Space Partnerships: Space-enabled security cooperation, joint missions, and technology collaboration

- C₅ISR & Command Network Modernisation: Satellite operations centres, secure command networks, real-time data fusion, and automation
- Procurement Reform & Service-Based Models: DAP 2025-26, iDEX, service-led acquisition pathways, and acceleration of private participation
- Deep Precision, A₂AD & the Space Triad: Integration of communications, navigation, and ISR for deep precision strike and area-denial capabilities
- Responsive Launch & On-Orbit Servicing: Rapid launch capability, mission recovery, in-orbit sustainment, and operational flexibility
- AI-GIS & Mosaic Warfare Enablement: Indigenous geospatial platforms, AI-driven intelligence fusion, and decision superiority

The institutionalisation of the Space Strategic Group, therefore, marks a shift from discussion to preparedness. Conceived as a continuing national-level mechanism, the SSG is mandated to anchor sustained strategic assessment, guide the evolution of an Indian Military Space Vision, and ensure that India's growing dependence on space-enabled systems is matched by institutional coherence and long-term defence readiness.

CHARTER OF THE SPACE STRATEGIC GROUP

Vision

To serve as a strategic platform that advances India's preparedness in the space domain by aligning doctrine, policy, industry, and operational capability, ensuring that space remains a secure, resilient, and sovereign pillar of national security and comprehensive national power.

Mission

The Space Strategic Group (SSG) seeks to facilitate sustained dialogue and structured engagement among defence practitioners, policymakers, industry leaders, and academia to bridge the gap between emerging strategic realities and practical capability development. Through collaborative deliberation, analytical inputs, and scenario-based exercises, the Group aims to support the evolution of a coherent and future-ready defence space posture for India.

Core Objectives

The Space Strategic Group shall endeavour to:

- **Enable Strategic Assessment:** Provide a forum for continuous examination of emerging threats, technological developments, and institutional challenges affecting India's defence space preparedness.
- **Support Doctrinal Dialogue:** Contribute to informed discussions toward the articulation of a Military Space Vision and greater clarity in the use of space within multi-domain operations.
- **Facilitate Capability Alignment:** Identify priority capability areas and encourage alignment between operational needs, acquisition pathways, and industrial innovation.
- **Promote Scenario-Based Preparedness:** Design and support wargaming and simulation platforms, including IndSpaceX to test resilience, mission assurance, and cross-domain integration under contested conditions.
- **Strengthen Industry–Military Collaboration:** Encourage structured engagement between the armed forces, strategic agencies, private industry, and academia to advance indigenous, dual-use, and resilient space capabilities.
- **Foster Knowledge Continuity and Coordination:** Serve as a platform for sustained exchange, ensuring that insights from dialogue, exercises, and conferences such as DefSat translate into actionable understanding across stakeholders.

Structure and Scope

The Space Strategic Group is structured as a collaborative, multi-stakeholder platform bringing together representatives from the armed forces, strategic think tanks, industry, academia, and policy institutions. It functions through periodic strategic consultations, thematic working groups, and scenario-based engagements aligned with platforms such as DefSat and IndSpaceX. The scope of the Group is deliberately dynamic and evolving responsive to emerging technological shifts, geopolitical developments, doctrinal requirements, and operational realities in the space domain. Rather than operating as a fixed committee, the SSG is designed to adapt its focus areas over time, expanding or recalibrating its deliberations in line with national priorities, capability gaps, and the changing character of multi-domain competition. Its strength lies in flexibility, continuity of engagement, and the ability to integrate strategic thought with practical preparedness.



STRATEGIC CONTEXT: THE EMERGING DEFENCE SPACE ENVIRONMENT

Space in an Era of Strategic Competition

The global security environment is undergoing a structural transformation marked by intensifying geopolitical competition, rapid technological disruption, and the growing interdependence of civilian and military systems. Traditional distinctions between peace and conflict are increasingly blurred by persistent grey-zone competition conducted across multiple domains, including cyber, information, and outer space. In this evolving strategic landscape, space has emerged as a central arena shaping deterrence, escalation dynamics, and operational effectiveness, with actions in and through space capable of influencing strategic outcomes well before the onset of kinetic conflict.

The economic and strategic stakes associated with space have expanded rapidly over the past decade. The global space economy reached approximately USD 613 billion in 2024^[1] and is projected to exceed USD 1.8 trillion by 2035^[2], driven by the integration of satellite-enabled services across communications, navigation, logistics, finance, and digital infrastructure. Space infrastructure is now deeply embedded within national economic systems and security architectures, supporting military command-and-control networks, global supply chains, financial transactions, and governance functions. Consequently, disruption to space-enabled services can generate cascading operational, economic, and societal effects across both defence and civilian sectors.

Simultaneously, access to space is expanding at an unprecedented pace. The number of operational satellites has grown sharply, with more than 80 countries now operating space assets and commercial constellations proliferating across low Earth orbit. This rapid expansion has transformed outer space from a relatively benign environment into one that is increasingly congested, competitive, and contested. Major powers are investing heavily in resilience, counterspace capabilities, and distributed architectures designed to ensure continuity of operations under conditions of disruption or conflict. This evolution reflects a broader recognition that assured access to space is no longer guaranteed and that resilience in orbit will be as critical to national security.

[1] <https://www.spacefoundation.org/2025/07/22/the-space-report-2025-q2/>

[2] https://www3.weforum.org/docs/WEF_Space_2024.pdf

From Enabling Domain to Warfighting Domain

A decisive conceptual shift is underway in how leading military powers view outer space. Across NATO, the United States, and other advanced spacefaring nations, space is now formally recognised as an operational domain of warfare alongside land, sea, air, and cyberspace. NATO's evolving space policy underscores that assured access to space-based capabilities is fundamental to deterrence and collective defence, particularly for communications, navigation, intelligence, and operational coordination across theatres.

Military doctrines increasingly emphasise that modern operations are critically dependent on uninterrupted access to space-enabled capabilities. As reliance on space systems deepens, so too does vulnerability to disruption through cyber intrusion, electronic warfare, signal jamming or spoofing, and physical or proximity-based targeting. The emphasis of strategic competition in space has shifted toward non-kinetic and grey-zone methods, including cyber operations, spectrum interference, and denial of services that can impose operational effects without triggering overt escalation.

Recognising these vulnerabilities, major powers have begun to develop dedicated space commands, operational doctrines, and resilience-focused architectures to ensure continuity of services in contested environments. Investments in distributed satellite constellations, hardened ground infrastructure, and rapid reconstitution capabilities reflect a growing understanding that resilience and redundancy are central to maintaining strategic and operational advantage in space.

The integration of commercial space systems into military operations has further accelerated this transformation. Recent conflicts, particularly the ongoing war in Ukraine, have demonstrated the decisive role of commercial satellite imagery, broadband constellations, and private launch services in supporting real-time battlefield awareness and secure communications. The deployment of commercial satellite internet terminals and the widespread use of commercial geospatial intelligence have highlighted how non-state actors and private industry can shape operational outcomes. As civil, commercial, and military space assets become increasingly interconnected, traditional boundaries between these sectors are eroding, expanding both capability and vulnerability.

These developments signal a clear transition from viewing space as a support function to recognising it as a warfighting domain where strategic advantage, resilience, and deterrence are increasingly determined. In such an environment, preparedness for contested and degraded space conditions is becoming an essential component of national defence planning rather than a specialised or peripheral concern.

India's Expanding Reliance on Space Systems

India's strategic, economic, and governance architecture has become progressively dependent on space-enabled capabilities. Over the past two decades, the country has developed credible capacities across satellite communications, remote sensing, navigation,



and launch systems, which now underpin a wide spectrum of national functions including military communications, intelligence and surveillance, border and maritime monitoring, disaster management, financial networks, and digital governance.

Recent operational experience has underscored the growing centrality of space to military effectiveness. Operation Sindoor (2025) demonstrated the real-time integration of indigenous satellite capabilities for high-resolution targeting, surveillance, and post-operation assessment, highlighting the decisive role of space-based intelligence, surveillance, and reconnaissance (ISR) and secure communications in modern military operations. In parallel, the Government of India has approved a 52-satellite Space Based Surveillance (SBS) constellation^[1], including a significant proportion to be developed by private industry, aimed at strengthening persistent ISR, secure connectivity, and multi-domain operational awareness. This marks a gradual shift toward more distributed and resilient architectures designed to operate effectively in contested environments.

India's navigation system NavIC is being expanded to enhance regional positioning, navigation, and timing (PNT) resilience, while new-generation high-throughput communication satellites are being integrated to support secure and reliable connectivity. At the same time, the national space economy is projected to grow substantially, with estimates indicating potential expansion to USD 44 billion by the early 2033^[1], driven by private-sector participation and downstream applications. This growth is expected to further embed space-enabled services across economic and governance systems.

This expanding ecosystem reflects not only technological capability but also deepening national reliance. Space-enabled systems now support critical infrastructure, economic activity, and governance continuity, making them central to national resilience.

[1] https://www.inspace.gov.in/inspace?id=inspace_decadal_vision_strategy.

[1] <https://synergiafoundation.org/2025/01/25/enhancing-indias-strategic-edge/>

Any sustained disruption to these systems would have immediate implications for military effectiveness, economic stability, and public administration. India's dependence on space has therefore moved beyond strategic or scientific domains to become systemic, reinforcing the need for resilient, secure, and integrated defence space preparedness.

The Preparedness Gap: Capability Growth without Doctrinal Alignment

Despite notable progress in space capability development and increasing reliance on space-enabled systems, India's defence space preparedness continues to face structural, doctrinal, and institutional gaps. While the establishment of the Defence Space Agency (DSA) and Defence Space Research Organisation (DSRO), along with demonstrations such as Mission Shakti, reflect growing recognition of space as a strategic domain, the evolution of a fully integrated military space doctrine and unified defence-space architecture remains incomplete. Much of India's space governance and operational architecture continues to be rooted in civil-centric frameworks, resulting in a gradual and fragmented integration of space into national security planning.

The Indian Space Policy 2023 and subsequent regulatory reforms and clearer authorisation procedures, led by IN-SPACe, liberalisation of FDI norms have strengthened the commercial and industrial ecosystem. However, the defence dimension of space remains less clearly articulated. Institutional responsibility for military space capabilities is distributed across multiple stakeholders, with limited mechanisms for sustained civil–military–industry coordination, joint doctrine development, and integrated operational planning. The absence of a formally articulated military space doctrine, limited legal–operational integration on space security issues, and insufficient scenario-based planning for contested space environments continue to constrain preparedness. Persistent dependence on select foreign space-enabled services and components, coupled with evolving counterspace threats, further accentuates vulnerabilities in resilience and assured access.

The release of Defence Acquisition Procedure (DAP) 2026 introduces important opportunities to address some of these structural challenges. With its strengthened emphasis on indigenisation, private-sector participation, innovation pathways such as iDEX, and expanded 'Make' and strategic partnership models, DAP 2026 provides a more enabling framework for integrating emerging technology domains into defence capability planning. However, gaps remain in the systematic incorporation of defence space requirements into procurement pipelines. Industry stakeholders continue to face limited long-term demand visibility, complex clearances, and fragmented procurement pathways for defence space projects, which can constrain sustained investment and innovation.

Addressing these gaps requires a sustained institutional mechanism capable of aligning policy, operations, industry, and strategic planning; it is within this context that the establishment of the Space Strategic Group (SSG) assumes particular significance as a dedicated platform to bridge existing disconnects and guide India's long-term defence space preparedness.

STRATEGIC REALITIES OF THE EMERGING DEFENCE SPACE ENVIRONMENT

Building upon the preparedness gaps identified above, several strategic realities shape the contours of India's evolving defence space environment.

Space as Critical National Infrastructure

A central insight across discussions was the recognition that space systems must be viewed not as isolated technological assets but as critical national infrastructure underpinning military operations, economic stability, and governance continuity. Participants emphasised that space should be understood as a system-of-systems, encompassing not only satellites in orbit but also ground control stations, telemetry and tracking infrastructure, data-processing networks, spectrum resources, and industrial supply chains. Vulnerabilities in any component of this ecosystem can compromise mission effectiveness without requiring physical interference with orbital assets.

A key intervention, drawing on perspectives from the National Technical Research Organisation (NTRO), placed this discussion within the framework of the National Critical Information Infrastructure Protection (NCIIP) mandate. It was noted that NCIIP already recognises sectors whose disruption would have a debilitating impact on national security, economic stability, public health, or safety. However, space infrastructure currently features only indirectly within this framework, despite its deep reliance on operational technology, industrial control systems, and networked command environments. Satellite control centres, launch facilities, GNSS infrastructure, data relay systems, and ground-segment networks operate as cyber-physical systems comparable to power grids, oil and gas installations, and telecommunications networks, yet they lack equivalent protection architecture and institutional oversight under NCIIP. Participants stressed that applying standard IT cybersecurity models to space systems is inadequate; instead, space infrastructure requires tailored OT-security frameworks, continuous monitoring, red-teaming, and integration into national cyber defence mechanisms under the NCIIP umbrella.

Without this designation, efforts to enhance protection and resilience risk remaining fragmented, reactive, and misaligned with contemporary threat realities. Importantly, participants stressed that critical infrastructure designation is not merely a classificatory exercise, but a foundational step toward aligning governance, protection, and deterrence in a domain that has become central to national continuity.

Non-Kinetic Threats and Multi-Domain Operations

The Strategic Group observed that contemporary space competition is increasingly conducted below the threshold of armed conflict, with adversaries employing non-kinetic, reversible, and plausibly deniable methods to achieve strategic effects without triggering clear military or legal responses. These methods include cyber intrusion into space-enabled systems, electronic interference and spectrum denial, proximity and inspection operations, and the manipulation or disruption of commercial and dual-use space services. Such actions can degrade military effectiveness and decision-making timelines while remaining legally and politically ambiguous, complicating attribution and response.

Participants emphasised that grey-zone activities in space are inherently cross-domain in nature. Disruptions to space-enabled communications, navigation, and ISR can cascade rapidly into cyber, information, and terrestrial military effects, amplifying their strategic impact despite relatively low cost and limited visibility. In the absence of clearly articulated thresholds, attribution mechanisms, and response frameworks for such below-threshold actions, there is a risk of strategic hesitation during crises, allowing incremental coercion to shape the operational environment without crossing overt escalation thresholds. The Group therefore underscored the need for anticipatory planning, clearer escalation frameworks, and structured rehearsal of space-related contingencies to manage grey-zone competition more effectively.

The discussions also reflected emerging conceptual thinking on the evolving character of warfare across altitudinal and functional boundaries. Participants noted the increasing relevance of a “near-space” or intermediate operational layer between traditional airspace and outer space for scenario-building and wargaming. The growing use of high-altitude long-endurance platforms, stratospheric and pseudo-satellite systems, and space-enabled networks supporting persistent ISR, communications, and targeting is progressively blurring conventional domain boundaries. Advances in satellite–UAS integration, resilient data links, spectrum-dependent operations, and cyber-enabled command-and-control architectures further reinforce this convergence. While not framed as a distinct doctrinal domain, the Strategic Group viewed these developments as analytically significant for understanding cross-domain interactions, escalation dynamics, and emerging vulnerabilities that extend beyond traditional service or domain classifications.

The Ground–Space–Cyber Continuum

The Strategic Group underscored that space systems are intrinsically dependent on terrestrial operational technology (OT) environments. Launch facilities, propulsion and fuelling systems, telemetry and tracking stations, mission control centres, and associated energy and data infrastructure operate on industrial control architectures such as SCADA, DCS, and ICS. These systems are designed for deterministic performance, long operational lifecycles, and safety-critical reliability rather than for resilience against sophisticated cyber

intrusion. As a result, they represent high-value targets for adversaries seeking to degrade space capability without resorting to overt or attributable kinetic action.

Participants noted that compromise of ground-based OT systems can produce operationally decisive effects even in the absence of direct interference with satellites in orbit. Manipulation of control signals, disruption of telemetry and command pathways, or malware targeting industrial controllers can delay launches, interrupt mission operations, or erode trust in command systems. In such scenarios, satellites may remain physically intact but operationally ineffective, underscoring that mission denial does not require physical destruction of orbital assets.

The discussions highlighted that space security must therefore be approached as a cyber-physical continuum rather than as an isolated orbital challenge. The ground segment, often geographically dispersed, operated by multiple stakeholders, and governed under civilian frameworks, was identified as a critical vulnerability likely to be exploited in grey-zone scenarios. Strengthening resilience across this continuum was seen as central to credible defence space preparedness.

Within this context, the Group emphasised the importance of mission assurance under conditions of uncertainty. Zero-trust architectures, continuous verification of command chains, and segmentation of control pathways were identified as essential design principles for limiting the impact of compromise. Complementing these measures, digital twin-based simulations and structured red-teaming were highlighted as tools for pre-launch validation and stress-testing of systems under realistic adversarial conditions. Together, these approaches enable a shift from reactive incident response to anticipatory resilience planning.

Participants cautioned, however, that such measures will remain ineffective if treated as optional technical enhancements. Their value lies in institutional adoption and integration into procurement standards, certification processes, and exercise design. Embedding zero-trust principles, digital twin validation, and red-team analysis within defence space planning was therefore seen as essential to strengthening resilience across the ground-space-cyber continuum and ensuring mission continuity in contested environments.

Supply Chain Vulnerabilities and the Imperative of Provenance Assurance

Building on the discussion of ground-space operational vulnerabilities, the Strategic Group identified supply-chain security as one of the least visible yet most consequential risk vectors in the defence space ecosystem. Space systems are inherently assembled through complex, multi-tiered supply chains spanning hardware, firmware, software, and ground-based components. While this complexity has enabled rapid capability development, it has also expanded the potential attack surface in ways that remain insufficiently mapped and governed.

Participants noted that supply-chain compromise need not involve overt sabotage. Even minor manipulation of components, firmware, or embedded software can undermine system integrity, degrade performance, or erode operator confidence in command-and-control environments. Given the long operational lifecycles of space systems and the limited scope for in-orbit remediation, pre-launch assurance and component-level visibility were seen as critical to mission reliability.

The discussions highlighted the importance of establishing comprehensive provenance and traceability mechanisms across defence space systems. In this context, the institutionalisation of Software Bills of Materials (SBOM), Hardware Bills of Materials (HBOM), and Cyber Bills of Materials (CBOM) was proposed as a foundational step toward ensuring transparency and accountability across satellite payloads, avionics, propulsion systems, and ground software environments. Such frameworks would enable more effective risk assessment, strengthen trust in system integrity, and support compliance with evolving export-control and secure technology-sharing requirements.

Participants also cautioned against replicating strategic dependencies observed in other critical sectors where industrial control and cybersecurity components remain heavily reliant on external vendors. In the defence space context, unverified or opaque supply chains were viewed as incompatible with long-term strategic autonomy and mission assurance. Supply-chain security was therefore framed not merely as a technical concern but as a strategic imperative.

Importantly, the Group emphasised that provenance assurance must be integrated with broader cyber resilience, OT security, and system design practices from the earliest stages of development. Treating supply-chain security as a post-facto compliance exercise risks leaving critical vulnerabilities unaddressed. Embedding provenance assurance as a core design and procurement principle was seen as essential to strengthening resilience and ensuring the long-term credibility of India's defence space capabilities.

Institutional, Doctrinal, and Legal Preparedness Gaps

Institutional responsibility for space-enabled capabilities in India remains distributed across multiple agencies and stakeholders, complicating coordination, long-term planning, and operational integration. Mechanisms for sustained civil–military–industry engagement are still evolving, while structured scenario-based planning and regular wargaming for contested space environments remain limited. Procurement and capability development pathways for defence space systems continue to face alignment challenges with traditional acquisition frameworks, particularly in areas requiring rapid technological iteration and long-term demand visibility for industry. These structural constraints contribute to a widening gap between conceptual understanding of emerging threats and the ability to translate that understanding into timely operational capability.

Alongside institutional challenges, the Strategic Group identified important legal and doctrinal fault lines shaping India's approach to military space. Discussions emphasised that India's constraints do not arise from prohibitions under international space law, but from the manner in which key provisions of the Outer Space Treaty (OST) have been interpreted and operationalised domestically. Participants highlighted that the OST does not demilitarise outer space; rather, it establishes specific limitations, most notably the prohibition on placing nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies. The Treaty does not prohibit conventional military uses of space, including communications, ISR, navigation, early warning systems, or non-kinetic counterspace measures. Furthermore, Article III of the OST links space activities to the broader framework of international law and the UN Charter, including the inherent right of self-defence, thereby situating outer space within established principles of international security rather than outside them.

Despite this permissive legal framework, India's military space posture has evolved within a largely civil-centric interpretative tradition. The concept of "peaceful use" has often been conflated with purely civilian use, and space security considerations have at times been subsumed under broader space safety narratives. Participants observed that this interpretative narrowing has contributed to limited formal articulation of military space roles, escalation thresholds involving space assets, and counterspace doctrines consistent with international law. The resulting ambiguity is not legally mandated but institutionally inherited.

Particular attention was drawn to Article IX of the OST, which requires states to conduct activities with due regard to the interests of others and to undertake consultations in cases of potential harmful interference. Participants noted that Article IX establishes procedural obligations rather than substantive prohibitions and has historically been interpreted flexibly by major spacefaring nations. However, in the Indian context, it has often reinforced a culture of caution that is not necessarily mirrored by potential adversaries. This has contributed to a degree of doctrinal hesitation in integrating space more explicitly into military planning and strategic signalling.

The cumulative effect of these institutional and interpretative dynamics is a gap between operational reliance on space-enabled systems and the doctrinal frameworks governing their use. Space capabilities are increasingly central to multi-domain operations, yet remain insufficiently embedded in joint doctrine, escalation management frameworks, and long-term capability planning. The Strategic Group therefore underscored that India's principal challenge lies not in treaty constraints, but in the absence of structured mechanisms to confidently interpret and apply international space law within military contexts.

Addressing this fault line will require closer integration between legal, policy, and operational communities, clearer doctrinal articulation of space as a warfighting domain, and alignment between national policy language and evolving state practice under international law.

Greater clarity in legal interpretation was viewed not as escalatory, but as essential for credible deterrence, effective crisis response, and long-term strategic autonomy in an increasingly contested space environment.

The discussions across the precursor roundtables and the Space Strategic Group converge on a central conclusion: India's challenge in the space domain is no longer one of technological capability alone, but of institutional alignment, doctrinal clarity, and sustained preparedness for operating in an increasingly contested environment. As reliance on space-enabled systems deepens across military, economic, and governance sectors, episodic engagement and fragmented approaches will be insufficient to address emerging risks. What is required is a coherent, forward-looking framework that aligns policy, operations, industry, and legal interpretation with evolving strategic realities. The following strategic priorities and recommendations are therefore intended to guide this transition from assessment to implementation, ensuring that India's growing dependence on space is matched by credible resilience, coordinated capability development, and long-term defence space preparedness.



SIA-india Exchanging Memorandum of Understanding with MERI Group of Institution

KEY RECOMMENDATIONS

| Arena | Recommendation | Explanation |
|---|---|--|
| Strategic Clarity & National Direction | Formulate a National Space Doctrine and Military Space Vision | Develop an integrated National Space Doctrine aligning civil, commercial, and military objectives within a single strategic framework. A clearly articulated military space vision should guide capability development, procurement, and operational planning while remaining consistent with international legal obligations and India's sovereign interests. |
| | Initiate structured development of a Military Space Doctrine | Launch a consultative process informed by operational experience, simulations, and threat assessments to evolve India's military space doctrine. This should ensure alignment between policy, operational requirements, and emerging challenges in contested space environments |
| Recognition of Space as Critical National Infrastructure | Formally designate space systems as Critical National Infrastructure | Recognise satellites, ground infrastructure, spectrum, data networks, and supply chains as critical national infrastructure within India's security architecture to ensure prioritised protection, redundancy planning, and resilience investments. |
| | Integrate space into national infrastructure protection frameworks | Incorporate space systems within national cyber and infrastructure protection architectures and develop unified protection standards covering orbital, ground, and network layers as one strategic ecosystem. |
| Institutional & Governance Alignment | Establish a unified Defence Space Command structure | Create a tri-service Space Command with authority over planning, operations, and capability development, reducing fragmentation and enabling integrated decision-making across domains |
| | Align requirements, acquisition and operational authority | Streamline institutional processes by aligning requirement generation, procurement authority, and operational responsibility within an empowered defence space framework to improve execution and accountability. |

KEY RECOMMENDATIONS

| Arena | Recommendation | Explanation |
|--|---|--|
| | Institutionalise civil–military–industry coordination | Establish structured coordination mechanisms among ISRO, DRDO, armed forces, IN-SPACe, industry, and academia. Use the Strategic Space Group as a standing platform for continuous alignment on capability and policy. |
| Capability Development & Resilience | Strengthen SSA and defensive counter-space preparedness | Expand indigenous SSA capabilities through integrated radar and optical tracking networks, while investing in secure communications, electronic warfare resilience, and defensive counter-space measures for continuity of operations. |
| | Secure the ground segment and operational technology layer | Treat ground infrastructure as a primary vulnerability requiring dedicated protection through integration into national cyber and OT-security frameworks, supported by continuous monitoring and resilience testing. |
| | Strengthen supply-chain integrity and mission assurance | Institutionalise provenance tracking, SBOM/HBOM/CBOM standards, and zero-trust architectures across defence space systems. Integrate mission assurance and resilience into system design, procurement, and certification processes. |
| Multi-Domain Warfighting Integration | Institutionalise Multi-Domain Operations (MDO) | Integrate space capabilities into land, air, maritime, cyber, and electronic warfare doctrines through a unified C5I architecture enabling real-time decision-making and network-centric operations. |
| | Develop resilient multi-orbit architectures | Prioritise multi-orbit constellations across LEO, MEO, and GEO for communications, ISR, and navigation with built-in redundancy, rapid reconstitution capability, and survivability against hostile actions. |

KEY RECOMMENDATIONS

| Arena | Recommendation | Explanation |
|--|---|--|
| <p>Cyber, Spectrum & Electromagnetic Preparedness</p> | <p>Develop integrated cyber–electromagnetic defence frameworks</p> | <p>Create a Defence Space Attack Matrix mapping cyber, spectrum, and electronic warfare threats across the ground–space continuum. Adopt zero-trust architectures and continuous authentication across mission networks.</p> |
| | <p>Secure spectrum and orbital resources</p> | <p>Implement proactive strategies to secure long-term access to spectrum and orbital slots essential for military communications and navigation resilience, integrating resource planning into defence space strategy.</p> |
| <p>Commercial Integration & Industrial Base</p> | <p>Provide clear demand signals and PPP frameworks</p> | <p>Introduce long-term procurement commitments, viability gap funding, and structured PPP models to attract private investment and enable industry participation in defence space programmes.</p> |
| | <p>Promote dual-use platforms and innovation ecosystems</p> | <p>Encourage dual-use satellite platforms and establish innovation funding mechanisms to support startups and niche technology providers aligned with defence requirements.</p> |
| <p>Exercises, Wargaming & Preparedness</p> | <p>Institutionalise scenario-based wargaming and exercises</p> | <p>Position exercises such as IndSpaceX as recurring national platforms for testing escalation dynamics, system resilience, and cross-domain vulnerabilities beyond conventional conflict scenarios.</p> |
| | <p>Integrate exercise outcomes into policy and capability planning</p> | <p>Establish structured mechanisms to feed lessons from exercises into doctrine development, procurement planning, and capability prioritisation while expanding participation from industry and academia.</p> |

KEY RECOMMENDATIONS

| Arena | Recommendation | Explanation |
|--|---|---|
| International Engagement & Norm-Shaping | Strengthen international cooperation with strategic autonomy | Participate in global SSA, sustainability, and norm-setting initiatives while safeguarding sensitive information. Pursue selective bilateral and multilateral partnerships in SSA and resilience. |
| Capital & Strategic Culture | Develop specialised human capital and cross-domain expertise | Build expertise in space law, cyber, policy, and emerging technologies across defence and policy institutions while encouraging cross-domain collaboration and innovation |
| | Use DefSat as a continuing strategic platform | Position DefSat as a recurring national platform for sustained strategic dialogue, stakeholder alignment, and continuity between discussions, exercises, and procurement priorities. |

THREE-PHASE ROADMAP

Near Term (0–2 Years): Structuring Preparedness

The immediate focus shifts from dialogue to structured alignment and implementation. A clear military space outlook and priority capability areas should be articulated and linked with defence planning and acquisition cycles. Space-enabled systems must be formally integrated into broader national security thinking, with emphasis on resilience, redundancy, and continuity of operations.

Scenario-based simulations, cross-domain exercises, and structured wargaming including platforms such as IndSpaceX should serve as practical tools for stress-testing preparedness and refining response frameworks. Early and sustained alignment between operational users, planners, industry, and research institutions will be essential to ensure that emerging requirements translate into defined programmes rather than exploratory discussions.

Medium Term (3–5 Years): Building an Integrated Ecosystem

Efforts concentrate on building an integrated defence space ecosystem that combines operational capability with technological depth. Multi-orbit architectures, secure communications, persistent ISR, and mission assurance frameworks evolve as core capability pillars. Institutional coordination stabilises through predictable engagement between armed forces, government agencies, and industry, supported by structured planning cycles and shared technical standards. Exercises, simulations, and capability demonstrations function as continuous validation tools, ensuring that investments remain aligned with operational realities and evolving threat environments.

Long Term (5+ Years): Sustained Resilience and Strategic Maturity

Over the longer term, India's defence space posture should mature into a resilient, networked, and adaptive architecture capable of operating effectively in contested and degraded environments. Strategic planning should become anticipatory rather than reactive, supported by sustained capability development, indigenous depth in critical technologies, and calibrated international engagement aligned with national interests.

The enduring objective will be to maintain continuity between doctrine, capability development, procurement pathways, and operational readiness, ensuring that as the space domain becomes more competitive and interdependent with other theatres of operation, India's preparedness evolves in tandem.

DEFSAT AS A STRATEGIC CONVENING PLATFORM

DefSat serves as the principal annual strategic convening platform through which defence, industry, academia, policymakers, and international stakeholders engage on emerging space-security priorities. DefSat is India's flagship defence-space Conference & Expo brings together Armed Forces, policymakers, technologists and industry leaders together to shape the nation's defence-space doctrine. Over the years, DefSat has progressively expanded its scope from awareness-building and operational readiness to the strategic integration of space-based services into the tri-services, border forces, CAPF, homeland security, and internal security agencies. This evolution reinforces the central idea that safeguarding national interests requires multi-dimensional space integration, strengthened through international perspectives and collaborative engagement across allied partners. It provides a structured forum to surface strategic concerns, assess technological developments, and align perspectives across operational and industrial communities.

For the Space Strategic Group (SSG), DefSat functions as the primary venue for broad-based consultation and agenda-setting. It enables the articulation of emerging priorities, dissemination of analytical insights, and consolidation of multi-stakeholder feedback. In doing so, DefSat ensures that strategic discourse remains inclusive, forward-looking, and aligned with evolving national security imperatives.

INDSPACEX AS THE SIMULATION AND TESTING ARM

IndSpaceX operates as the practical extension of this strategic dialogue. It is an advanced tabletop exercise that moves beyond scenario-based play to focus on real-world operational dependencies and the critical role of space-based technologies in enhancing national defence readiness and mission assurance. This year, the wargame will examine the interplay between technological capability, operational decision-making, and mission resilience across contested domains with a strategic emphasis on the 4D framework: Deny, Disrupt, Degrade, and Destroy, underscoring the evolving nature of space-enabled warfare and deterrence dynamics.

While DefSat facilitates deliberation, IndSpaceX enables structured simulation and stress-testing of contested-space scenarios within a controlled, decision-driven environment.

For the SSG, IndSpaceX serves as a critical feedback loop connecting doctrine discussions, industrial capability, and real-world contingency planning.

Together, DefSat and IndSpaceX form a cyclical review structure that anchors continuity in defence space preparedness. Insights emerging from simulations, exercises, and panel deliberations inform subsequent strategic assessments, capability prioritisation discussions, and institutional alignment efforts. The Space Strategic Group acts as the connective platform within this cycle, synthesising inputs, tracking evolving risk patterns, and encouraging sustained follow-through across stakeholders.

WAY FORWARD ---

Annual SSG Report

The Space Strategic Group will publish an annual industry-led assessment of the defence space environment, highlighting emerging risks, technological opportunities, capability gaps, and investment priorities. This report will aim to provide long-term visibility to stakeholders and encourage alignment between operational needs and industrial readiness.

Regular Roundtables and Structured Dialogues

Building on the precursor engagements, SSG will convene periodic roundtables, thematic workshops, and focused dialogues throughout the year. These engagements will bring together the armed forces, policymakers, industry leaders, technology developers, and academia to ensure continuous exchange rather than event-based interaction. The objective is to create an evolving knowledge platform that informs planning cycles, procurement thinking, and innovation pathways.

Policy Inputs and Strategic Submissions

Where necessary, consolidated industry perspectives will be articulated through structured policy submissions and advisory notes. These inputs will focus on practical enablers, procurement clarity, long-term demand signalling, technology development frameworks, and resilience standards, that allow industry to invest confidently in defence space capabilities.

Structured Engagement with the Ministry of Defence and Services

SSG will encourage predictable and constructive engagement with the Ministry of Defence, the armed forces, DoS and IN-SPACE to ensure that emerging operational requirements are understood early and translated into aligned capability development programmes. For industry, clarity of direction and continuity of dialogue are essential to mobilise capital, build supply chains, and strengthen indigenous depth.

International Industry and Strategic Engagement

Recognising the globalised nature of space technology and supply chains, the SSG will also support calibrated international engagement through dialogue platforms, strategic exchanges, and participation in global industry forums. Such engagement will aim to strengthen India's position in shaping norms, standards, and resilient architectures, while reinforcing strategic autonomy.

ABOUT SIA-INDIA

As a dynamic, not-for-profit space sector association, SIA-India is dedicated to advancing sectoral interests, accelerating industry growth, and catalysing innovation through strategic engagements with key governmental and global stakeholders, policymakers, regulatory bodies, and standardization entities, aiming to create a vibrant and innovative ecosystem.

ABOUT CLAWS

The Centre for Land Warfare Studies (CLAWS), New Delhi, India, is an independent think tank on strategic studies and land warfare in the Indian context. CLAWS is registered under the Societies Registration Act, 1860 and is a membership-based organisation under the aegis of the Indian Army. It is governed by a Board of Governors and an Executive Council.

The Centre for Land Warfare Studies (CLAWS) pursues its mandate through diverse research verticals that comprehensively cover India's strategic and security landscape. Its focus areas span traditional and emerging dimensions of warfare, including national security strategy, conventional and sub-conventional conflicts, border management, and regional dynamics. CLAWS also emphasises technological innovations in defence, cyber and information warfare, space and artificial intelligence, while exploring the human domain through military leadership, training, and civil-military relations. By engaging with both traditional geopolitics and disruptive future challenges, these verticals enable CLAWS to provide holistic, policy-relevant research for India's national security. It also has a university cell which facilitates Ph.D. programmes for scholars.

The Centre for Land Warfare Studies (CLAWS) has steadily gained global recognition for its contributions to defence and strategic research. In the 2013 Global Go To Think Tank Report published by the University of Pennsylvania, USA, CLAWS was ranked 48th among the world's top defence and national strategic think tanks. Demonstrating consistent progress, the 2020 Global Go To Think Tank Index Report further acknowledged its influence by ranking CLAWS 17th out of 101 think tanks across China, India, Japan, and the Republic of Korea, highlighting its growing regional and international stature.

The vision of CLAWS is "To be a premier think tank, to shape strategic thought, foster innovation and offer actionable insights in the fields of land warfare and conflict resolution." CLAWS aspires to attract leading strategic thinkers, defence analysts, scholars, academics, and media persons to deliberate on all facets of land warfare up to the strategic level.

CLAWS, in its outreach programme, has signed MOUs with a number of national and international think tanks. It organises seminars and conferences, round-table discussions, workshops, and guest lectures, and undertakes joint research projects with foreign and domestic think tanks. CLAWS has the privilege of conducting the Indian Army's flagship international seminar, the "Chanakya Defence Dialogue," under the aegis of the Indian Army, in which more than 25 countries have participated so far.

ABOUT MERI GROUP OF INSTITUTIONS ———

The Management Education & Research Institute (MERI) Group of Institutions is a premier educational group based in New Delhi, dedicated to excellence in higher education, research, and professional development. Established with the vision of nurturing competent leaders, managers, and professionals, MERI offers a wide range of undergraduate and postgraduate programmes in management, information technology, journalism, engineering, law, and related disciplines, affiliated with leading universities and approved by statutory bodies.

MERI Group of Institutions is known for its strong industry interface, experiential learning approach, and emphasis on innovation, entrepreneurship, and leadership development. The institution actively collaborates with national and international organizations, professional bodies, and industry associations to provide students with practical exposure, research opportunities, and global perspectives. With a commitment to academic excellence, ethical values, and nation-building, MERI continues to contribute significantly to the development of skilled human capital for India's evolving knowledge economy.

ANNEXURE A

LIST OF PARTICIPANTS

- Chairman - Lt Gen (Dr) PJS Pannu (Retd), PVSM, AVSM, VSM, Former Deputy Chief of Integrated Defence Services
- Lt Gen Dushyant Singh (Retd), DG, CLAWS
- Mr Anil Prakash, Director General, SIA-India
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- Mr Ravi Ailawadi, Board Member, SIA-India
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- AVM Pawan kumar, Former DG, DSA
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