BODYGUARD SATELLITES AND THE FUTURE OF INDIA'S ORBITAL DEFENCE

Mehul Singh Gill
Student, M.A Defence and Strategic Studies
Amity Institute of Defence and Strategic Studies
Amity University Uttar Pradesh, Noida, India.

Abstract: The 21st century has witnessed space becoming a critical domain for both civilian and military operations. This paper examines the feasibility of developing and employing bodyguard satellites as a core component of India's space security architecture. Adopting a primarily policy-oriented framework, it analyses the growing threats from dual-use co-orbital systems, the limitations of the 1967 Outer Space Treaty, and the strategic playbooks adopted by major powers. The study argues that India should pursue an Atmanirbhar-led bodyguard satellite programme, centred on microwave-based reversible denial capabilities, framed publicly as civil on-orbit servicing and space situational awareness. Such a programme offers a practical, politically sustainable way to achieve persistent denial capability while aligning the interests of the Defence Space Agency, ISRO, diplomats, and private industry. The paper concludes that bodyguard satellites are not optional but essential if India is to protect its space assets and secure space superiority in an increasingly contested orbital domain.

Keywords: Bodyguard Satellites, Space Warfare, Military Affairs, Counterspace Capabilities, Atmanirbhar Bharat, Dual-Use Technology

INTRODUCTION

The 21st century has been characterised by the increasingly central role played by space in every aspect of national life. Satellites now underpin financial transactions that move billions of dollars in seconds, the uninterrupted flow of information that shapes public opinion and national security decisions, real-time geographic intelligence for agriculture and disaster management, and the full spectrum of modern military operations. In the military domain, space-based systems have become the foundation of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), giving commanders persistent coverage and access that ground-based or airborne sensors cannot match because of terrain limitations, weather interference or political denial of overflight rights.[1]

These profound advantages have made the protection of space assets not merely desirable but essential for any nation that seeks to maintain operational effectiveness in a future conflict. Threats to satellites can originate from ground-based kinetic or directed-energy systems or from co-orbital platforms already in space. The effects can range from irreversible physical destruction to reversible non-kinetic interference through cyber intrusions, electronic jamming or directed-energy means. In response to this evolving threat environment, the concept of bodyguard satellites has gained serious attention in policy and military circles. Bodyguard satellites are dedicated escort platforms that remain in close proximity to high-value national assets in space and provide layered

[1] Economic Times. (2025). India plans 'bodyguard' satellites after neighbour's risky orbit move. https://economictimes.indiatimes.com/news/science/india-plans-bodyguard-satellites-after-neighbours-risky-orbit-move/articleshow/124036809.cms

protection through continuous surveillance, reversible disruption and, where necessary, more assertive physical measures.[2]

Protection by itself, however, will not suffice. Achieving space superiority requires the ability not only to defend one's own assets but also to deny an adversary the free use of space when vital national interests are at stake. This in turn demands robust Space Situational Awareness (SSA), a capability that is inherently dual-use. SSA systems can be justified and funded on purely civil grounds such as orbital debris tracking, collision avoidance and space traffic management, while simultaneously delivering the military-grade intelligence required for protective and denial operations.[3]

The orbital domain has remained largely peaceful so far, largely because of an implicit gentleman's agreement among the major powers that space should be treated as a sanctuary for peaceful uses. Yet historical precedent demonstrates how fragile such understandings can be once military necessity or technological opportunity arises. At the beginning of the First World War, aircraft were employed almost exclusively for reconnaissance missions, and pilots from opposing sides often exchanged friendly gestures when their paths crossed. The introduction of offensive armament rapidly transformed the sky into a contested battlespace of dogfights and machine-gun fire. Space now stands at a similar inflection point. The moment one major power decides that the gentleman's agreement has become inconvenient, the rules will change abruptly and permanently. India cannot afford to remain in the position of those early pilots still waving while others are already arming their machines.[4]

Bodyguard satellites, developed and operated under a strict Atmanirbhar Bharat framework, offer a practical and self-reliant solution. By prioritising indigenous technologies such as microwave-based reversible denial systems as the primary tool, supported by laser and robotic-arm options, with kinetic measures retained only as an extreme contingency, India can create a persistent escort capability without creating immediate debris fields or triggering premature international backlash. Publicly, the entire programme can be framed as civil on-orbit servicing and enhanced SSA, thereby aligning with self-reliance priorities, attracting private-sector participation, and providing plausible deniability in diplomatic forums.[5]

The Defence Space Agency and the military see bodyguard satellites as the missing operational layer that would allow India to protect its critical communication, navigation and early-warning assets during the opening hours of a crisis. ISRO can lead the public face of the programme, harvesting domestic innovation and maintaining international optics. Diplomats gain the narrative of a responsible rising power contributing to space

[2] Deccan Herald. (2025). India plans bodyguard satellites to shield its space assets from debris and rivals. https://www.deccanherald.com/india/india-plans-bodyguard-satellites-to-shield-its-space-assets-from-debris-and-rivals-3739805

[3] Stockholm International Peace Research Institute. (2020). Diluted disarmament in space: Towards a culture for responsible behaviour. https://www.sipri.org/commentary/essay/2020/diluted-disarmament-space-towards-culture-responsible-behaviour

[4] United Nations Office for Outer Space Affairs. (1967). Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies. https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html

[5] Deccan Herald. (2025). India plans bodyguard satellites to shield its space assets from debris and rivals. https://www.deccanherald.com/india/india-plans-bodyguard-satellites-to-shield-its-space-assets-from-debris-and-rivals-3739805

sustainability. Private Indian firms gain high-technology contracts and prestige. This alignment of interests under the Atmanirbhar banner turns what could have been a bureaucratic battleground into a coherent national effort.[6]

This paper examines the feasibility of developing and employing such bodyguard satellites as a core element of India's space security architecture. It adopts a primarily policy-oriented framework, incorporating technical aspects only in so far as they shape strategic choices and decision-making processes. The section below assesses the strategic imperative for India. The section further maps the current threat landscape, dominated by dual-use co-orbital operations. A detailed examination follows of how leading powers are already playing the game and the lessons India can draw without compromising self-reliance. Legal and normative navigation strategies are discussed next. The paper concludes with the broader implications for India's position in an increasingly contested orbital domain.

The central argument is direct and unambiguous.In a domain where the gentleman's agreement is visibly cracking, India must not wait for international norms to catch up. It must seize the initiative now through an indigenous, policy-driven programme that turns dual-use technologies to national advantage while maintaining the outward appearance of responsible behaviour. Bodyguard satellites are not a luxury; they are the minimum requirement if India intends to enter the next major crisis with its eyes and ears intact.

THE STRATEGIC IMPERATIVE FOR BODYGUARD SATELLITES

India's dependence on space assets has grown rapidly and now touches almost every critical national function. The GSAT series provides secure military and civilian communications across vast distances. The Indian Regional Navigation Satellite System (IRNSS), also known as NavIC, delivers independent positioning, navigation and timing services that are essential for missile guidance, fleet operations and border surveillance. Early-warning satellites feed real-time data into missile defence networks and troop movements along the Line of Actual Control. Taken together these platforms form the backbone of India's Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architecture. Any disruption would immediately degrade situational awareness and operational coordination in a crisis.[7]

This dependence has exposed a clear vulnerability. In mid-2024 an unidentified satellite from a neighbouring country manoeuvred to within one kilometre of an Indian Space Research Organisation asset orbiting at 500-600 kilometres altitude. The Indian satellite was performing tasks with clear military implications, including mapping and ground-object tracking. Although no collision occurred, the unusually close approach was widely interpreted inside government circles as a deliberate demonstration of hostile capability. The incident served as a wake-up call that India's growing constellation lacks persistent protection against co-orbital threats.[8]

The existing Space-Based Surveillance Phase-III (SBS-III) programme offers an immediate programmatic and budgetary foundation that can be adapted for protective roles. Approved by the Cabinet Committee on Security

[6] The Hindu. (2025). Antariksha Abhyas: Defence Space Agency conducts maiden tabletop exercise. https://www.thehindu.com/news/national/defence-space-agency-conducts-maiden-tabletop-exercise-antariksha-abhyas/article68864582.ece
[7] Economic Times. (2025). India space defence shield: SBS-3 52 satellites vs China Great Wall. https://economictimes.indiatimes.com/news/defence/india-space-defence-shield-sbs-3-52-satellites-vs-china-great-wall/articleshow/122197053.cms
[8] Economic Times. (2025). India plans 'bodyguard' satellites after neighbour's risky orbit move. https://economictimes.indiatimes.com/news/science/india-plans-bodyguard-satellites-after-neighbours-risky-orbit-move/articleshow/124036809.cms

and budgeted at approximately ₹26,968 crore,[9] SBS-III plans to deploy 52 advanced surveillance and communication satellites in low Earth orbit and geostationary orbit. Of these, 21 will be developed by the Indian Space Research Organisation, while the remaining 31 will be built by private Indian industry, a clear push toward Atmanirbhar participation. First launches are targeted for 2026, with full constellation deployment aimed for the end of the decade[10]. Publicly presented as a measure to strengthen border and maritime surveillance against regional challenges, the programme already carries the political momentum and funding line needed to bolt on protective payloads without requiring fresh parliamentary approval.

Bodyguard satellites would operate in close proximity, typically 10 to 50 kilometres from high-value national assets. They would provide continuous passive monitoring, issue due-regard warnings, and stand ready to intervene with reversible effects if a threat closes in. This persistent escort capability would close the gap exposed in 2024 and ensure that India's communication, navigation and early-warning satellites remain functional even in the opening hours of a high-intensity contingency. Because the same platforms can be framed as civil on-orbit servicing vehicles or enhanced space situational awareness tools, the programme aligns perfectly with Atmanirbhar Bharat priorities and avoids the appearance of an arms race.[11]

The stakeholder alignment under this framework is particularly powerful. The Defence Space Agency and the military services see bodyguard satellites as the operational layer that finally gives India denial options against Chinese or Pakistani space-based intelligence, surveillance and reconnaissance assets during a limited conflict along the Line of Actual Control or in the Indian Ocean region. For the Indian Space Research Organisation, leadership of the public programme delivers budget continuity, technological prestige and a pathway to demonstrate civil on-orbit servicing capabilities that can later be marketed internationally. Diplomats in the Ministry of External Affairs gain a ready narrative: India is a responsible space power investing in self-reliant technologies for debris mitigation and traffic management. Private Indian firms, especially startups such as Digantara and those participating in the 31-satellite private tranche of SBS-III, receive high-technology contracts and the political cover of the Atmanirbhar flag.[12]

The Atmanirbhar mandate, often viewed as a constraint on speed and technology access, becomes in this case the perfect institutional shield. It insulates the programme from external scrutiny and parliamentary questions about foreign dependence. It forces rapid maturation of indigenous microwave systems, robotic arms and laser payloads, with any conceptual lessons from international demonstrations replaced by fully domestic solutions within 12 to 18 months. It also opens the door to private-sector innovation at a pace that state-owned entities alone could not match. In short, the self-reliance policy converts what might have been bureaucratic turf battles into a coherent national effort where every major player perceives direct gains.[13]

[9] The Diplomat. (2025). India's new space-based spy network. https://thediplomat.com/2025/01/indias-new-space-based-spy-network/
[10] Deccan Herald. (2025). Aero show 2025: First batch of satellites under new space surveillance programme. https://www.deccanherald.com/india/karnataka/bengaluru/aero-show-2025-first-batch-of-satellites-under-new-space-surveillance-programme-to-be-launched-by-2027-28-3402717
[11] Deccan Herald. (2025). India plans bodyguard satellites to shield its space assets from debris and rivals. https://www.deccanherald.com/india/india-plans-bodyguard-satellites-to-shield-its-space-assets-from-debris-and-rivals-3739805
[12] The Hindu. (2025). Antariksha Abhyas: Defence Space Agency conducts maiden tabletop exercise. https://www.thehindu.com/news/national/defence-space-agency-conducts-maiden-tabletop-exercise-antariksha-abhyas/article68864582.ece
[13] Press Information Bureau. (2025). Atmanirbharta in space. https://www.pib.gov.in/FactsheetDetails.aspx?Id=149236&reg=3&lang=1

This alignment is essential because space superiority cannot be achieved solely through technology. It requires sustained political and bureaucratic commitment across electoral cycles and budgetary squeezes. By embedding bodyguard satellites inside the already-approved SBS-III framework and the broader Atmanirbhar ecosystem, India could create a programme that is resilient to changes in government or shifts in fiscal priority. The military gains the denial capability it needs for real war-fighting. The civilian space establishment gains budget and prestige. Diplomats gain diplomatic cover. Private industry gains contracts and strategic relevance. The result is a rare convergence of interests that makes the programme not only feasible but politically sustainable.[14]

The strategic imperative is therefore clear. India's space assets are no longer optional enablers; they are central to national power projection and deterrence. Without dedicated protective escorts, these assets remain naked in an environment where dual-use co-orbital operations are already routine. Bodyguard satellites, developed indigenously and framed as civil servicing platforms, offer the fastest and most practical way to close this vulnerability while advancing the broader goal of space superiority. The 2024 near-miss and the momentum behind SBS-III have created a narrow window of opportunity. India must seize it now before the gentleman's agreement in orbit erodes further, and the cost of catching up rises sharply.

THE THREAT LANDSCAPE: DUAL-USE CO-ORBITAL OPERATIONS

The threats to India's space assets are no longer theoretical. They are operational, accelerating and deliberately masked behind civilian-sounding missions. The most advanced and most relevant example comes from the People's Republic of China. In October 2021, Beijing launched the Shijian-21 satellite. In January 2022, Shijian-21 successfully docked with a defunct BeiDou navigation satellite and towed it several hundred kilometres to a higher graveyard orbit. Chinese state media, including Xinhua and People's Daily, described the operation as a "space debris mitigation technology demonstration".[15] The reality, confirmed by independent tracking from the United States Space Force and commercial providers such as the Commercial Space Operations Centre (COMSPOC) and Slingshot Aerospace, was the first public demonstration of full robotic-arm docking, capture and controlled relocation capability in geostationary orbit.[16]

Three years later, the pattern became even clearer. On 7 January 2025, China launched Shijian-25 from Xichang on a Long March 3B rocket. The official mission objective, repeated in every Chinese-language press release and English-language summary from the China National Space Administration, was to test "on-orbit refuelling and mission-extension technologies.[17] By June 2025, Shijian-25 had performed multiple rendezvous and proximity operations with Shijian-21 in geostationary orbit. Tracking data showed repeated close approaches under two kilometres, large plane-change manoeuvres, periods when the two satellites appeared optically merged for several days, and actual refuelling demonstrations completed in July 2025[18]. In January 2026, both satellites executed controlled separation burns and began drifting apart at approximately 50 kilometres per day. The entire sequence

[14] Science India Magazine. (2026). India's space-based surveillance network: A strategic leap into the future. https://scienceindiamag.in/indias-space-based-surveillance-network-a-strategic-leap-into-the-future/
[15] SpaceNews. (2022). China's Shijian-21 spacecraft docked with and towed a dead satellite. https://spacenews.com/chinas-shijian-21-spacecraft-docked-with-and-towed-a-dead-satellite/
[16] Ibid.
[17] SpaceNews. (2025). China launches Shijian-25 satellite to test on-orbit refueling and mission extension technologies. https://spacenews.com/china-launches-shijian-25-satellite-to-test-on-orbit-refueling-and-mission-extension-technologies/
[18] SpaceNews. (2025). China's Shijian spacecraft separate after pioneering geosynchronous orbit refueling tests. https://spacenews.com/chinas-shijian-spacecraft-separate-after-pioneering-geosynchronous-orbit-refueling-tests/

was conducted without generating any detectable debris, exactly the reversible, low-signature profile that makes co-orbital operations so attractive for denial missions.[19]

These operations are not isolated experiments. They form part of a broader Chinese co-orbital architecture that now includes multiple Shijian and Tiansuan experimental satellites conducting rapid rendezvous in both low Earth orbit and geostationary orbit. Chinese sources consistently frame every activity as "peaceful on-orbit servicing", "debris removal" or "life-extension for national satellites". The same hardware that extends the life of a Chinese communications satellite can, within minutes, grapple, nudge, disable or tow an Indian GSAT or IRNSS asset out of useful orbit. Because the effects can be reversible and attribution is slow in geostationary orbit, the political cost of such an action remains low while the military payoff is enormous.[20]

Russia provides a less obscured, but still instructive counterpart. The Luch (Olymp) series of satellites has, for years, conducted prolonged proximity operations within five to ten kilometres of Western commercial and government communications satellites in geostationary orbit. Russian state media describe these as "communications relay experiments". Western tracking organisations interpret them as persistent signals intelligence collection and potential jamming rehearsals.[21] More recently the Cosmos/Nivelir family has shown even more aggressive behaviour. Cosmos 2588, launched on 23 May 2025, was placed in an orbit that brought it within 48 to 94 kilometres of multiple United States reconnaissance satellites. Sub-satellite releases were observed, and formation flying continued for weeks.[22] Again, Russian sources maintain their narrative of 'peaceful inspection and scientific research'. This pattern is similar to China's: dual-use technology that can transition from benign to hostile in the time it takes to fire a thruster.

The dual-use character of these systems is not a flaw in the design; it is the central feature. On-orbit servicing, robotic manipulation, refuelling, inspection and controlled relocation are all technologies that civil space agencies legitimately need for debris removal, satellite life-extension and constellation maintenance. The identical hardware, however, gives military space commands the ability to interfere with adversary satellites without creating the large debris clouds that would follow a ground-launched kinetic anti-satellite weapon. This reversibility is politically valuable because it allows the attacker to deny hostile intent while still achieving the desired effect of blinding or deafening the opponent in the opening phase of conflict.[23]

For India, the implications are direct. The 2024 near-miss[24] was not an isolated incident but a preview of routine operations that China and Russia already practise. India's high-value assets in geostationary orbit – the GSAT communications birds that carry military traffic and the early-warning satellites that feed the ballistic missile defence system – sit in the same orbital belt where Shijian-25 has already demonstrated repeated rendezvous and refuelling. Without persistent escorts, these assets are effectively undefended against a co-orbital approach that

[19] Slingshot Aerospace. (2024). State of satellite deployments & orbital operations – 2023 report. https://www.slingshot.space/news/state-of-satellite-deployments-and-orbital-operations-2023
[20] Jamestown Foundation. (2025). Dual-use Shijian satellite program ramps up in 2025. https://jamestown.org/dual-use-shijian-satellite-program-ramps-up-in-2025/
[21] Breaking Defense. (2023). Second Russian Luch/Olymp satellite now trailing Western systems in orbit. https://breakingdefense.com/2023/10/second-russian-luch-olymp-satellite-now-trailing-western-systems-in-orbit/
[22] Breaking Defense. (2025). Russia's new Cosmos satellite orbiting near US sat, piques ASAT fears. https://breakingdefense.com/2025/05/russias-new-cosmos-satellite-orbiting-near-us-sat-piques-asat-fears/
[23] United Nations Institute for Disarmament Research. (2024). Outer space & use of force. https://unidir.org/wp-content/uploads/2024/09/UNIDIR_Outer_Space_and_Use_of_Force.pdf
[24] Economic Times. (2025). India plans 'bodyguard' satellites after neighbour's risky orbit move. https://economictimes.indiatimes.com/news/science/india-plans-bodyguard-satellites-after-neighbours-risky-orbit-move/articleshow/124036809.cms

can be framed as "routine servicing". Even in low Earth orbit the expanding Chinese and Russian inspector fleets can target India's remote-sensing and navigation augmentation satellites with little warning.[25]

The Outer Space Treaty of 1967 offers almost no practical protection. Article IV bans only weapons of mass destruction in orbit and military bases on celestial bodies. Article IX speaks vaguely of "due regard" and "harmful interference" but contains no enforcement mechanism and no definition of what constitutes interference when the activity is labelled "maintenance".[26] Every major power exploits these gaps. China, Russia, the United States and France all maintain that their co-orbital activities are peaceful and compliant. India would be naïve to expect the Treaty to constrain adversaries while it remains unilaterally restrained.

The threat landscape therefore demands an asymmetric response that matches the adversary's dual-use playbook without mirroring its scale. India cannot afford a one-for-one satellite arms race with China. Instead it must develop a smaller, smarter constellation of bodyguard satellites that exploits the same legal and narrative ambiguities its rivals already use. By framing its own escorts as civil on-orbit servicing and enhanced space situational awareness platforms under the Atmanirbhar banner, India can achieve persistent denial capability while maintaining diplomatic flexibility and domestic political support. The window to do so is narrow. The technology and narrative tools already exist; what remains is the decision to deploy them before the next close approach becomes something far more consequential than a near-miss.

HOW LEADING POWERS ARE PLAYING THE GAME: PLAYBOOKS, NARRATIVES AND LESSONS FOR INDIA

Leading space powers have already developed and tested the exact dual-use playbook that India must now master under an Atmanirbhar framework.China remains the undisputed gold standard in this regard, with Beijing consistently framing every co-orbital activity as peaceful civilian or scientific work, while building the full suite of capabilities needed for reversible denial. The Shijian-21 mission of 2021–2022 demonstrated robotic-arm capture and controlled relocation of a defunct satellite. The Shijian-25 mission, launched on 7 January 2025, took the concept one step further. Chinese state media and the China National Space Administration repeatedly described the objective as "on-orbit refuelling and mission-extension technology verification". Between June and July 2025 the two Shijian satellites performed repeated rendezvous in geostationary orbit, including close approaches under two kilometres, plane-change manoeuvres, and documented refuelling operations.[27] Independent tracking by COMSPOC and the United States Space Force confirmed the satellites appeared optically merged for several days and executed controlled separation in January 2026 without generating debris.[28] This sequence gave China persistent co-orbital presence, life-extension for its own constellation, and a proven template for disabling or relocating an adversary's satellite while maintaining the narrative of responsible space behaviour.

Russia follows a more provocative but still dual-use pattern. The Luch series has loitered within five to ten kilometres of Western communications satellites for extended periods, officially described as "communications

[25] The Diplomat. (2025). China and India's national strategy and competition in cislunar space. https://thediplomat.com/2025/12/china-and-indias-national-strategy-and-competition-in-cislunar-space/
[26] United Nations Office for Outer Space Affairs. (1967). Treaty on principles governing the activities of states in the exploration and use of outer space. https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html
[27] SpaceNews. (2025). China's Shijian spacecraft separate after pioneering geosynchronous orbit refueling tests. https://spacenews.com/chinas-shijian-spacecraft-separate-after-pioneering-geosynchronous-orbit-refueling-tests/
[28] Slingshot Aerospace. (2024). State of satellite deployments & orbital operations – 2023 report. https://www.slingshot.space/news/state-of-satellite-deployments-and-orbital-operations-2023

relay tests". The Cosmos/Nivelir family, including Cosmos 2588 launched in May 2025, has conducted formation flying and sub-satellite releases within tens of kilometres of United States reconnaissance assets. Russian sources continue to label these activities as scientific inspection missions.[29] The bluntness of Russian operations makes them easier to observe but also easier to counter with reversible measures; the important lesson for India is that even a less sophisticated actor can create persistent pressure through proximity alone.

The United States has adopted a commercial-heavy approach that offers additional narrative lessons. The Geosynchronous Space Situational Awareness Program (GSSAP) inspector satellites have escorted high-value American assets for years.[30] Commercial firms such as Northrop Grumman's Mission Extension Vehicle and SpaceLogistics provide on-orbit servicing under private contracts while maintaining close coordination with the United States Space Force.[31] The X-37B spaceplane, in its 2025 mission, carried a microwave power-beaming experiment whose reversible effects have clear implications for temporary sensor or communications denial.[32] American doctrine openly discusses "defensive counterspace" and "bodyguard spacecraft" concepts while insisting all activity remains consistent with peaceful use.

France has taken the most explicit public stance among Western powers. The 2019 and 2025 French Space Defence Strategies openly declare the need for "active defence" in orbit. The YODA (Yeux en Orbite pour la Défense Active) patrol demonstrator and the EGIDE/Toutatis programmes are designed for inspection, jamming and physical intervention against hostile co-orbital threats.[33] In November 2025 the French government announced an additional €4.2 billion military space budget that explicitly funds laser and robotic payloads for bodyguard-type missions. French officials describe these systems as "self-defence tools" that will be used only after due-regard warnings, thereby staying within the letter of the Outer Space Treaty while creating facts on orbit.[34]

Japan has moved more quietly but with equal determination. In September 2025 the Japanese Ministry of Defence announced a dedicated bodyguard satellite prototype programme with a targeted launch window in fiscal year 2029. Contracts have already been awarded to Japanese firms for gripping and proximity technologies. Japanese defence white papers now list protection of national space assets as a core mission of the Self-Defence Forces Space Operations Squadron. Tokyo frames the entire effort as "space domain awareness and safety" while quietly developing the same rendezvous and manipulation hardware that China has already demonstrated.[25]

The common thread across all these programmes is the sophisticated use of narrative control. Every power insists its activities are peaceful, civil or scientific. Every power exploits the ambiguities in Article IX of the Outer Space Treaty. Every power accepts that co-orbital operations are now routine and that the first state to hesitate will lose the opening phase of any future conflict. China has shown that a rising power can field the full capability fastest

[29] Breaking Defense. (2025). Russia's new Cosmos satellite orbiting near US sat, piques ASAT fears. https://breakingdefense.com/2025/05/russias-new-cosmos-satellite-orbiting-near-us-sat-piques-asat-fears/
[30] United States Space Force. (n.d.). Geosynchronous Space Situational Awareness Program. https://www.spaceforce.mil/About-Us/Fact-Sheets/Article/2197772/geosynchronous-space-situational-awareness-program/
[31] Northrop Grumman. (n.d.). Mission Extension Vehicle (MEV) fact sheet. https://www.northropgrumman.com/wp-content/uploads/Mission-Extension-Vehicle-MEV-fact-sheet.pdf
[32] The War Zone. (2020). The X-37B space plane's microwave beam experiment is a way bigger deal than it seems. https://www.twz.com/33339/x-37b-space-planes-microwave-power-beam-experiment-is-a-way-bigger-deal-than-it-seems
[33] French Ministry of Armed Forces. (2025). Space defence strategy 2025. https://www.defense.gouv.fr/en/cde/space-capabilities
[34] Defense Mirror. (2025). France awards €50M contract for military space surveillance satellite. https://defensemirror.com/news/40039/France_Awards____50M_Contract_for_Military_Space_Surveillance_Satellite

by integrating civil and military programmes under a single national strategy. France has shown that explicit "active defence" language can be paired with legal framing to reduce diplomatic blowback. The United States has shown that commercial cover accelerates development while preserving deniability. Japan has shown that even a technologically advanced but politically cautious state can move forward by labelling the effort as purely defensive.

For India the lessons are operational and political rather than technological. India does not need to purchase foreign hardware. The operational concept is clear: persistent close-proximity escorts that monitor, warn, jam with microwaves, dazzle with lasers, nudge with robotic arms, or ram only as a last resort. The narrative is equally clear: every test and every deployment must be presented first and foremost as civil on-orbit servicing, enhanced space situational awareness and debris mitigation. SpaDeX docking successes in early 2025 already provide the indigenous rendezvous heritage. Defence Research and Development Organisation targets for legged robotics and full on-orbit servicing by 2027 mean that any conceptual lessons can be replaced by fully domestic solutions within 12 to 18 months. Private Indian firms can be brought in under the SBS-III private tranche to accelerate development while the Defence Space Agency retains control of classified modes and rules of engagement.

This approach allows India to move faster than its rivals in one critical respect. Because the programme is framed as self-reliant civil technology, it faces less international scrutiny and fewer parliamentary questions than an openly military programme would. Diplomats can point to it as evidence of India's responsible contribution to space sustainability. The military gains the denial capability it needs without appearing to start an arms race. The civilian space establishment gains budget and prestige. The result is a programme that is politically sustainable across electoral cycles and bureaucratically resilient. India does not need to match China satellite for satellite. It needs only a smaller, smarter constellation that exploits the same legal and narrative gaps its adversaries already use, but does so under the Atmanirbhar flag and with tighter stakeholder alignment. The leading powers have shown the way. India's task is to follow the same logic, adapt it to its own constraints, and execute faster and quieter.

LEGAL AND NORMATIVE NAVIGATION: CREATIVE COMPLIANCE WITH THE OUTER SPACE TREATY REGIME

The 1967 Outer Space Treaty remains the only binding multilateral instrument governing military activities in orbit, yet its practical utility for protecting national interests is limited. Article IV prohibits the placement of nuclear weapons or other weapons of mass destruction in space and forbids military bases on celestial bodies. Article IX requires states to conduct activities with "due regard" to the corresponding interests of other states and to undertake international consultations before proceeding with an activity that might cause "potentially harmful interference".[35] These provisions contain no definitions of harmful interference, no enforcement mechanism, and no prohibition on conventional, reversible or dual-use systems.

Major powers have exploited these gaps for decades. China describes its Shijian co-orbital operations as debris mitigation and life-extension experiments.[36] Russia labels prolonged proximity flights by the Luch series as communications relay tests.[37] The United States frames GSSAP inspector satellites and commercial servicing

[35] United Nations Office for Outer Space Affairs. (1967). Treaty on principles governing the activities of states in the exploration and use of outer space. https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html
[36] SpaceNews. (2022). China's Shijian-21 spacecraft docked with and towed a dead satellite. https://spacenews.com/chinas-shijian-21-spacecraft-docked-with-and-towed-a-dead-satellite/
[37] Breaking Defense. (2023). Second Russian Luch/Olymp satellite now trailing Western systems in orbit. https://breakingdefense.com/2023/10/second-russian-luch-olymp-satellite-now-trailing-western-systems-in-orbit/

vehicles as peaceful space situational awareness tools.[38] France's 2025 space strategy explicitly includes "active defence" measures while insisting full compliance with the Treaty.[39] Each state maintains the outward appearance of legality while advancing capabilities that would have been unthinkable in 1967. India would be unwise to treat the Treaty as a binding constraint when no other serious player does so.

One concept that has appeared in academic and policy literature is the establishment of unilateral "safety zones" or "keep-out zones" around critical national assets. Proponents argue that a 50- to 100-kilometre exclusion area in geostationary orbit, framed as responsible traffic management and self-defence under United Nations Charter Article 51, could be justified by the "due regard" obligation in Article IX of the Outer Space Treaty. The idea draws on historical analogies such as safety zones around naval vessels or aircraft. However, several practical difficulties make this approach less attractive as a primary tool. Enforcement would require the very persistent presence that bodyguard satellites are meant to provide. A declared zone could trigger immediate mirroring by China or Russia, escalating tensions rather than deterring them. Legal scholars note that any attempt to appropriate orbital volume risks violating the Treaty's prohibition on national appropriation[40]. For these reasons, safety zones should be viewed as one supplementary signalling option rather than a cornerstone of India's strategy.

The more durable route is creative compliance through dual-use framing and narrative control. Every test flight, rendezvous operation and proximity manoeuvre can be publicly presented as part of a civil on-orbit servicing and enhanced Space Situational Awareness (SSA) programme. The same language that China uses for Shijian missions and that the United States uses for commercial servicing vehicles becomes available to India. When questioned in the United Nations Committee on the Peaceful Uses of Outer Space or the Conference on Disarmament, Indian diplomats can point to the activities of others and state that New Delhi is simply matching responsible practices already demonstrated by established space powers. The Atmanirbhar label adds an additional layer of protection: because the programme is framed as indigenous self-reliant technology for debris mitigation and traffic management, it becomes far harder for foreign governments or domestic critics to portray it as provocative.

This approach does not require new treaties or formal declarations. It requires only consistent messaging and careful sequencing. The first rendezvous and proximity operations can be conducted under existing GSLV launch manifests and labelled as "civil maintenance demonstrations". Microwave and laser tests can be described as communication experiments or sensor calibration. Robotic-arm operations can be presented as inspection and servicing trials. Only the Defence Space Agency and higher military authorities need to know the classified modes and escalation thresholds. This division of labour gives ISRO the public lead and plausible deniability while ensuring the military retains operational control when required.

In multilateral forums India can continue to champion "responsible norms" and "rules-based behaviour in space". Such statements cost nothing and buy valuable time. They position India as a constructive player in the eyes of Quad partners and smaller space-faring nations while the hardware and operational concepts move forward under the Atmanirbhar shield. If and when a new norm against co-orbital weapons emerges, India can sign it after its own constellation is already on orbit and operational. This is precisely how other rising powers have navigated

[38] United States Space Force. (n.d.). Geosynchronous Space Situational Awareness Program. https://www.spaceforce.mil/About-Us/Fact-Sheets/Article/2197772/geosynchronous-space-situational-awareness-program/

[39] French Ministry of Armed Forces. (2025). Space defence strategy 2025. https://www.defense.gouv.fr/en/cde/space-capabilities

[40] Journal of Space Law. (2024). Space traffic management and safety zones: Legal challenges. Journal of Space Law, 45(2). https://www.jstor.org/stable/26956153

arms-control regimes in the past.[41] The Outer Space Treaty, like many international agreements, binds the weak more than the strong. India's task is to ensure it is not among the weak.

Creative compliance therefore serves three simultaneous purposes. It provides legal and diplomatic cover that reduces the risk of premature escalation or sanctions. It aligns the programme with domestic political rhetoric of self-reliance and responsible behaviour. And it creates the operational flexibility needed to respond to real threats without waiting for international permission. In an environment where the gentleman's agreement is already eroding, this pragmatic navigation is a strategic necessity.

CONCLUSION: POLICY OPTIONS, ROADMAP AND STRATEGIC IMPLICATIONS

A bodyguard constellation built around indigenous capabilities would centre on microwave systems as the primary response mechanism. Microwave-based interference offers reversible, low-signature effects that are difficult to attribute definitively as hostile and fit comfortably within narratives of civil communication experiments or sensor calibration.[42] Complementary laser options would enable precision dazzle or controlled thermal effects on solar panels and antennae.[43] Robotic-arm technologies, building directly on domestic development targets already under way, would permit non-destructive physical interaction that can be presented as routine inspection or safety manoeuvres.[44] Kinetic measures would remain available only in extreme contingencies when higher command authorises full escalation.

Taken together these systems would provide a wide range of response options, with multiple permutations and combinations that allow for a flexible and adaptable set of responses to ensure controlled escalation management. This layered approach preserves diplomatic off-ramps at every stage while retaining the capacity for decisive denial when required. The emphasis on reversible effects first aligns with India's preference for maintaining escalation control and avoiding the large debris fields that would follow any kinetic engagement.

Policy implementation should follow a hybrid civil-military model that maximises the strengths of each institution while minimising bureaucratic friction. The Indian Space Research Organisation would maintain public leadership for all civil applications, international optics and private-sector integration. This gives ISRO the budget continuity, technological prestige and plausible deniability needed to sustain foreign partnerships and domestic political support. The Defence Space Agency would exercise oversight of classified modes, rules of engagement and military-specific payloads. This division of labour ensures that the programme remains outwardly civilian while the military retains operational control when national security demands it. Private Indian firms, already earmarked for 31 of the 52 satellites in the Space-Based Surveillance Phase-III programme, would be brought in early under Atmanirbhar guidelines to accelerate development and reduce costs.

The Atmanirbhar mandate supplies the perfect institutional and political shield. Any conceptual lessons drawn from international demonstrations can be treated as temporary stop-gaps only, to be replaced by fully indigenous solutions within 12 to 18 months through accelerated Defence Research and Development Organisation targets for legged robotics and full on-orbit servicing. Because the entire effort is framed as self-reliant civil technology

[41] Observer Research Foundation. (2025). Outer space in the 21st century: Legal imperatives for a crowded orbit. https://www.orfonline.org/expert-speak/outer-space-in-the-21st-century-legal-imperatives-for-a-crowded-orbit
[42] The War Zone. (2020). The X-37B space plane's microwave beam experiment is a way bigger deal than it seems. https://www.twz.com/33339/x-37b-space-planes-microwave-power-beam-experiment-is-a-way-bigger-deal-than-it-seems
[43] Ibid.
[44] Indian Space Research Organisation. (2025). SpaDeX undocking successful. https://www.isro.gov.in/spadex_undocking_successful.html

for debris mitigation, traffic management and satellite life-extension, it becomes far harder for critics inside or outside Parliament to portray it as provocative or dependent on foreign suppliers. The same framing allows diplomats to present India as a responsible contributor to space sustainability while the hardware quietly acquires the necessary denial capabilities.

The programme can be advanced in a phased manner that respects bureaucratic realities and aligns with existing budgetary and launch cycles. It would begin with policy directives that integrate protective functions into the already-approved Space-Based Surveillance Phase-III initiative. Technology maturation would draw heavily on private-sector innovation under strict Atmanirbhar guidelines, leveraging the SpaDeX docking heritage and ongoing Defence Research and Development Organisation work.[45] Operational deployment would follow over the medium term as high-value assets receive their dedicated escorts. This sequencing ensures that every major stakeholder sees tangible benefits at each stage: the military gains progressive denial capability, ISRO gains budget and prestige, diplomats gain narrative cover, and private industry gains contracts and strategic relevance.

Risks remain, but they are manageable. Election cycles or shifts in fiscal priority could slow funding, yet embedding the programme inside the existing ₹27,000-crore Space-Based Surveillance Phase-III line makes it far more resilient than a new stand-alone project. Bureaucratic turf battles between the Indian Space Research Organisation and the Defence Space Agency are minimised by the clear hybrid model. International scrutiny is blunted by consistent civil framing and the Atmanirbhar label. If new multilateral norms against co-orbital operations emerge, India can engage constructively while ensuring its own constellation is already on orbit and operational. The result is a programme that is not only feasible but politically sustainable across governments and budgetary squeezes.

This structured, self-reliant approach not only closes the immediate vulnerabilities exposed by the 2024 near-miss but also positions India to seize and maintain space superiority in an orbital domain where the gentleman's agreement is visibly cracking. The choice before policymakers is therefore binary. Without dedicated bodyguard satellites India's growing space assets remain naked in an environment where dual-use co-orbital operations are already routine practice for others. With them India gains persistent denial capability that forces adversaries to think twice before crowding its orbits or interfering with its C4ISR backbone. The technology, the narrative tools and the stakeholder alignment already exist under the Atmanirbhar banner.

The stakes could scarcely be higher. In any future contingency involving a peer or near-peer adversary, loss of space superiority would translate directly into operational paralysis on the ground and at sea. A well-designed bodyguard programme, embedded within the broader Atmanirbhar ecosystem, represents not only a feasible defensive hedge but a strategic multiplier that enhances deterrence and preserves freedom of action. The tools are within reach; what remains is the political and bureaucratic will to align them under a coherent national vision before the next close approach becomes something far more serious than a near-miss. India must not be the one still waving when others have already armed their machines.

REFERENCES

Breaking Defense. (2023). *Second Russian Luch/Olymp satellite now trailing Western systems in orbit*. https://breakingdefense.com/2023/10/second-russian-luch-olymp-satellite-now-trailing-western-systems-in-orbit/

[45] Ibid.

Breaking Defense. (2025). *Russia's new Cosmos satellite orbiting near US sat, piques ASAT fears*. https://breakingdefense.com/2025/05/russias-new-cosmos-satellite-orbiting-near-us-sat-piques-asat-fears/

Deccan Herald. (2025). *Aero show 2025: First batch of satellites under new space surveillance programme*. https://www.deccanherald.com/india/karnataka/bengaluru/aero-show-2025-first-batch-of-satellites-under-new-space-surveillance-programme-to-be-launched-by-2027-28-3402717

Deccan Herald. (2025). *India plans bodyguard satellites to shield its space assets from debris and rivals*. https://www.deccanherald.com/india/india-plans-bodyguard-satellites-to-shield-its-space-assets-from-debris-and-rivals-3739805

Defense Mirror. (2025). *France awards €50M contract for military space surveillance satellite*. https://defensemirror.com/news/40039/France_Awards___50M_Contract_for_Military_Space_Surveillance_Satellite

Economic Times. (2025). *India plans 'bodyguard' satellites after neighbour's risky orbit move*. https://economictimes.indiatimes.com/news/science/india-plans-bodyguard-satellites-after-neighbours-risky-orbit-move/articleshow/124036809.cms

Economic Times. (2025). *India space defence shield: SBS-3 52 satellites vs China Great Wall*. https://economictimes.indiatimes.com/news/defence/india-space-defence-shield-sbs-3-52-satellites-vs-china-great-wall/articleshow/122197053.cms

French Ministry of Armed Forces. (2025). *Space defence strategy 2025*. https://www.defense.gouv.fr/en/cde/space-capabilities

Indian Space Research Organisation. (2025). *SpaDeX undocking successful*. https://www.isro.gov.in/spadex_undocking_successful.html

Jamestown Foundation. (2025). *Dual-use Shijian satellite program ramps up in 2025*. China Brief. https://jamestown.org/dual-use-shijian-satellite-program-ramps-up-in-2025/

Journal of Space Law. (2024). Space traffic management and safety zones: Legal challenges. *Journal of Space Law, 45*(2). https://www.jstor.org/stable/26956153

Northrop Grumman. (n.d.). *Mission Extension Vehicle (MEV) fact sheet*. https://www.northropgrumman.com/wp-content/uploads/Mission-Extension-Vehicle-MEV-fact-sheet.pdf

Observer Research Foundation. (2025). *Outer space in the 21st century: Legal imperatives for a crowded orbit*. https://www.orfonline.org/expert-speak/outer-space-in-the-21st-century-legal-imperatives-for-a-crowded-orbit

Press Information Bureau. (2025). *Atmanirbharta in space*. https://www.pib.gov.in/FactsheetDetails.aspx?Id=149236&reg=3&lang=1

Science India Magazine. (2026). *India's space-based surveillance network: A strategic leap into the future*. https://scienceindiamag.in/indias-space-based-surveillance-network-a-strategic-leap-into-the-future/

Slingshot Aerospace. (2024). *State of satellite deployments & orbital operations – 2023 report*. https://www.slingshot.space/news/state-of-satellite-deployments-and-orbital-operations-2023

SpaceNews. (2022). *China's Shijian-21 spacecraft docked with and towed a dead satellite*. https://spacenews.com/chinas-shijian-21-spacecraft-docked-with-and-towed-a-dead-satellite/

SpaceNews. (2022). *Shijian-21: China's on-orbit servicing demonstration*. https://spacenews.com/shijian-21-chinas-on-orbit-servicing-demonstration/

SpaceNews. (2025). *China launches Shijian-25 satellite to test on-orbit refueling and mission extension technologies*. https://spacenews.com/china-launches-shijian-25-satellite-to-test-on-orbit-refueling-and-mission-extension-technologies/

SpaceNews. (2025). *China's Shijian spacecraft separate after pioneering geosynchronous orbit refueling tests*. https://spacenews.com/chinas-shijian-spacecraft-separate-after-pioneering-geosynchronous-orbit-refueling-tests/

Stockholm International Peace Research Institute. (2020). *Diluted disarmament in space: Towards a culture for responsible behaviour*. https://www.sipri.org/commentary/essay/2020/diluted-disarmament-space-towards-culture-responsible-behaviour

The Diplomat. (2025). *India's new space-based spy network*. https://thediplomat.com/2025/01/indias-new-space-based-spy-network/

The Diplomat. (2025). *China and India's national strategy and competition in cislunar space*. https://thediplomat.com/2025/12/china-and-indias-national-strategy-and-competition-in-cislunar-space/

The Hindu. (2025). *Antariksha Abhyas: Defence Space Agency conducts maiden tabletop exercise*. https://www.thehindu.com/news/national/defence-space-agency-conducts-maiden-tabletop-exercise-antariksha-abhyas/article68864582.ece

The War Zone. (2020). *The X-37B space plane's microwave beam experiment is a way bigger deal than it seems*. https://www.twz.com/33339/x-37b-space-planes-microwave-power-beam-experiment-is-a-way-bigger-deal-than-it-seems

United Nations Institute for Disarmament Research. (2024). *Outer space & use of force*. https://unidir.org/wp-content/uploads/2024/09/UNIDIR_Outer_Space_and_Use_of_Force.pdf

United Nations Office for Outer Space Affairs. (1967). *Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies*. https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html

United States Space Force. *Geosynchronous Space Situational Awareness Program*. https://www.spaceforce.mil/About-Us/Fact-Sheets/Article/2197772/geosynchronous-space-situational-awareness-program/