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Securing the Final Frontier: Collaborative Pathways for India and Europe in Space Governance and Security

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Introduction

The Indian Space Research Organization (ISRO - established 1969) and the European Space Agency (ESA - established 1975) identified each other as partners very early, with both signing their first cooperation agreement in 1978. ISRO-ESA cooperation is predated by the India-France space partnership, which facilitated research and development and knowledge-sharing about space-payloads and launch vehicle systems and components, since the early 1960s. Although India-Europe space cooperation later expanded—into a wider lattice of accords and missions with individual European countries, ESA, the European Commission, and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)—its strategic potential remains partially tapped.

Key Takeaways

With big shifts caused by greater geopolitical multipolarity, the European Union (EU) and India share numerous interests. This alignment must be reflected in a future India-EU Space Agenda, which can unlock the untapped potential for cooperation.

India and Europe should explore the numerous opportunities in space cooperation by identifying and acting on a concrete set of economic, political, and industrial enablers. These include integrating space-support components into the India-Middle East-Europe Economic Corridor (IMEC), collaborating on human spaceflight, and enhancing security-focused space activities.

Space infrastructure is critical to both India's and Europe's security, commercial, and societal goals. Yet both remain second-tier powers in a domain where institutional and commercial frameworks are limited and dominated/set by space superpowers. Elevating to tier-one space powers will require a mutually beneficial and comprehensive space partnership.

New Delhi's heft across the Global South and Brussels' weight in Western regulatory circles can be combined to shape the rules for international space governance and overcome space safety and security challenges.

Policy Implications

India-Europe space cooperation has been a non-starter for a long time and has rested on bilateral space relations. This deadlock can be eliminated if New Delhi and Brussels move from ad-hoc project cooperation to a structured agenda that couples market incentives with diplomatic alignment. By making the India-EU Space Dialogue a crucial commercial, political, and scientific plinth of the India-EU Strategic Agenda, both Europe and India can transform a storied legacy into a forward-looking partnership in the interest of global space governance and security.

Historically, Europe and India pursued their space programme with a similar 'socio-economic development' perspective. Both are now rewriting their space doctrine, adopting a market-driven, and security-aware stance. The parallel shifts are creating a rare synchrony of interests:

- **Political:** Both now advocate a whole-of-government approach to space and seek like-minded partners to hedge great-power volatility.
- **Economic:** An imminent EU-India Free Trade Agreement could dismantle long-standing market barriers and invite co-production of small-sat constellations, launch infrastructure, and downstream services.
- **Security:** Both have aligned norms of responsible behaviour over space debris, cislunar competition, and maritime security point to joint needs for interoperable space situational awareness and tracking networks, and resilient satellite communications.

This policy brief explores where political will, economic reform, and security imperatives intersect—and where bottlenecks such as India's multi-alignment with Russia or EU export-control frictions and over-regulation still restrain ambition. The brief further maps three-to-five-year pathways in integrated applications for the IMEC, human and robotic exploration, security from and for space, and space governance. The overarching argument is simple: by moving from ad-hoc project cooperation to a structured EU-India space cooperation agenda that couples market incentives with diplomatic alignment, Europe and India can transform a storied legacy into a forward-leaning pillar of global space governance and security.

Identifying Convergences and Bottlenecks in India-EU Space Cooperation

India and Europe have both expanded their space ambitions. With consistent lunar missions, its first commercial visit to the International Space Station (ISS), and the Mission Shakti anti-satellite test, India's space programme now has three arms: commercial, defence (led by the Defence Space Agency) and civilian (led by ISRO).

Europe, besides its continued successes in civilian space missions, has now more strongly embraced the security and defence dimensions of space as inter alia evidenced by the recently released European Competitiveness Fund[1] and the draft EU Space Act, which folds cybersecurity, sustainability, and critical-infrastructure protection into a single market rule-book. This is proof that Brussels now treats orbit as a strategic domain, not merely a utility.

India and Europe could tap into the multitude of space cooperation opportunities through these approaches by identifying and working upon a concrete set of political, economic, and industrial enablers.

Political enablers and bottlenecks

The evolving multipolar global order is nudging Europe and India even closer. Both are concerned about a more assertive great power game, the broader geopolitical and geoeconomic ramifications of Russia's war in Ukraine, China's dominance over global supply chains, and the unpredictability of a transactional Washington. In response, the incoming European Commission has listed a "New Strategic EU-India Agenda" among its top foreign-policy objectives.

1 European Commission, "European Competitiveness Fund", 17 July 2025, https://commission.europa.eu/publications/european-competitiveness-fund_en

Trust is a sticking point. India has become Russia's second-largest source of restricted dual-use technology since 2024[2], a red flag for many European capitals. Divergences also exist in space governance. While all 27 EU states have pledged never to conduct destructive direct-ascent anti-satellite tests, India—after its 2019 Mission Shakti test—abstained from the UN vote on the same moratorium and expressed some scepticism on the development of norms and rules for responsible space behavior. However, these divergences are based on India's innate military and economic security perceptions, which are not inherently anti-Europe.

Economic and industrial enablers and bottlenecks

The advancing comprehensive Trade and Economic Partnership Agreement (TEPA) is reshaping the strategic-industrial landscape within which the future India-Europe space agenda will unfold. In May 2025, negotiators concluded chapters on Intellectual Property, Customs & Trade Facilitation and Digital Trade, with leaders aiming to sign the full package by December 2025. For space hardware, that implies faster customs clearance, mutual recognition of test and conformity-assessment bodies, and a cleaner pathway for dual-use items and components that have often been stuck in warehouses awaiting licence paperwork.

New Delhi's liberalised foreign direct investment (FDI) in the space sector, strengthened by the 2023 Indian Space Policy, now eliminates the main entry barrier for Europe's prime space contractors and for its start-ups that want minority or majority stakes without month-long clearance cycles. The policy has also provided the long-term certainty needed by European export-credit agencies and the European Investment Bank before they underwrite joint satellite development, ground-segment roll-outs, or technological demonstrators. However, the Norms, Guidelines and Procedures for the Implementation of the Space Policy, 2023[3] extends relatively more favourable treatment to Indian-owned and controlled companies compared to those under foreign ownership, even when both are incorporated in India. In light of India's recalibration of several bilateral investment treaties and the backdrop of high-profile legal proceedings such as the Antrix-Devas legal case,[4] there is a clear opportunity to deepen trust and improve predictability for foreign investors.

Nonetheless, TEPA has faced delays due to various bottlenecks. On one side are EU carbon and deforestation regulations; on the other, India's localisation demands. These obstacles hinder the movement of sensitive parts, data, and engineers vital to unlock common space projects, joint space missions, and sharing of supply-chains. Meanwhile, the Trade and Technology Council, set up in 2022 to turn goodwill into joint work on trade, green tech, and security, is also widely seen as stalled. These regulatory hurdles must be addressed proactively if TEPA is to serve both sides effectively.

Enhancing transparency and reaffirming the principle of reciprocity will help reinforce India-EU space relations. The EU, by taking the first step and encouraging opportunities for Indian and European businesses to collaborate on space-sector tenders within Europe—including government contracts—can go a long way in strengthening bilateral commercial space cooperation. Such collaboration, anchored in joint ventures, co-development initiatives, and

2 Dendrinou, V., and Nardelli, A., "India Is Now Russia's No. 2 Supplier of Restricted Technology, Bloomberg, 11 October 2024, https://www.bloomberg.com/news/articles/2024-10-11/india-is-now-russia-s-no-2-supplier-of-restricted-technology

3 Indian National Space Promotion and Authorization Centre, Government of India, "Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in respect of Authorization of Space Activities (NGP), May 2024, https://www.inspace.gov.in/sys_attachment.do

4 Ranjan, P., "Devas v. Antrix: Lessons for India in Navigating Bilateral Investment Treaty Disputes", Observer Research Foundation, 14 August 2023, https://www.orfonline.org/research/devas-v-antrix-lessons-for-india-in-navigating-bilateral-investment-treaty-disputes

shared research infrastructure, would signal to Indian and European policymakers the long-term benefits of a more open and balanced framework for foreign participation.

Exploring Strategic Opportunities for the Next Five Years

Whether looked at from a programmatic, industrial, or political perspective, there proves to be a wealth of rationales underpinning the deepening of Europe's space cooperation with India. There are several fields ripe for a rapid expansion of ties, as outlined below.

Space applications for and from IMEC

The IMEC was announced during India's G20 Presidency in 2023 by leaders from India, the EU, France, Germany, Italy, Saudi Arabia, the United Arab Emirates (UAE), and the United States (US). The blueprint is simple yet compelling: to build a reliable, alternative, multi-modal trade route and serve as a large-scale test-bed for green-energy logistics, particularly solar and hydrogen, and data connectivity between India and Europe, integrating the Middle East and South Asia into a unified geo-economic architecture.

From a space perspective, the IMEC corridor will require contiguous and persistent space-support in the form of satellite broadband, precision navigation, and regular Earth observation passes to manage automated ports, road and rail telemetry, and pipeline safety. That demand gives Copernicus and ISRO's EO fleets, along with Galileo and NavIC, an immediate commercial anchor. IMEC's long, linear footprint is also ideal for co-located telemetry, tracking and control (TT&C) antennas, laser relay terminals, and debris tracking radars that could be networked into the EU's existing space surveillance and tracking and India's NETRA architecture. In short, IMEC is more than a supply chain project: it can become the physical spine of a joint Indo-European space services ecosystem. Naturally, this ecosystem should extend beyond institutional government-to-government cooperation frameworks and integrate the blossoming NewSpace landscape in both India and Europe with business-to-business and business-to-government cooperation formats.

Human and robotic exploration

While the European space exploration programme has primarily pursued cooperation as a junior partner with the National Aeronautics and Space Administration (NASA), the political uncertainty brought by the Trump administration has urged Europe to look at India as a valid alternative. And while ESA, like ISRO, is now looking ahead to implement programmes supporting autonomous capabilities, the complexities and costs of human and robotic exploration combined with the degree of political and financial volatility in the US showcase the need for closer India-EU cooperation.

In May 2025, ESA and ISRO signed a joint Statement of Intent on cooperation on human spaceflight, focusing on low-earth-orbit (LEO) activities and future lunar cooperation. The declaration highlights "their intent to work together on the interoperability of rendezvous and docking systems to allow their respective spacecraft to work together in low Earth orbit. They will also examine further activities related to astronaut training, analogue space missions – where teams test aspects of space missions in ground-based simulations – and parabolic flight activities."[5]

5 European Space Agency, "N° 23–2025: European Space Agency announces new cooperation with Indian Space Research Organisation" ESA, 7 May 2025, https://www.esa.int/Newsroom/Press_Releases/European_Space_Agency_announces_new_cooperation_with_Indian_Space_Research_Organisation#:~:text=The%20European%20Space%20Agency%20(ESA)%20and%20the%20Indian%20Space%20Research,secondary%20stage%20on%20the%20Moon

India's Gaganyaan orbital flight test, now expected in 2026, together with the planned 2028 launch of the first module of the Bharatiya Antariksh Station,[6] opens multiple avenues for following up the joint statement with concrete activities. ESA could contribute commercially in areas like environmental control and life-support systems[7] for the Bharatiya Antariksh Station and future Gaganyaan capsules. Joint astronaut-physiology and space-medicine campaigns could alternate between ESA's Concordia and India's Bharati bases in Antarctica and ISRO-INMAS facilities in India, enabling a sustained arc of scientific collaboration.

ESA and ISRO must also explore flight opportunities for European astronauts to the Bharatiya Antariksh Station, and the possibility to dock European modules, which could lead to future joint activities beyond LEO.

On the lunar exploration front, cooperative development within the framework of ESA's Moonlight communications network should also be considered, together with the joint development of small expendable lunar cargo landers that could, over time, be ideally extended to human-rated systems. Such joint activities could provide cross-fertilisation benefits in other areas (e.g., space transportation, human spaceflight, in-orbit services), not only in terms of technologies, but also in scale and volumes. As a highly visible domain, human spaceflight could serve as the most powerful symbol of the strategic India-Europe partnership.

Security from (and for) space

The new EU Defence and Space Commissioner, Andrius Kubilius, has made it clear that "We need Space for Defence and Defence of Space."[8] Behind the maxim sits a concrete to-do list: a very-high-revisit Earth observation system, a sovereign sat-com constellation (IRIS²/GOVSATCOM), a hardened LEO-based Positioning-Navigation-Timing (PNT) backup, and an upgraded EU Space Surveillance & Tracking (SST) network.

India is moving in the same direction, fielding its own secure comsats (GSAT-7/GSAT-7R), military radar imagers, and critically, Project NETRA, a nationwide space situational awareness grid now adding a debris-tracking radar in Assam and a one-metre optical telescope in Ladakh. In light of this convergence, there is a lot of scope to identify synergies in both the area of security from space and security of space.

Security from space:

- **Geospatial intelligence & early warning:** Europe's planned "Earth-Observation Governmental Service" aims for high-frequency imaging scans of the Earth every 30 minutes; India's Space-based Surveillance Program, a constellation of 52 satellites, can plug gaps in the imaging coverage of the Earth. Shared tasking and cloud-based fusion would tighten maritime-domain awareness worldwide.

- **Disaster-responsive geospatial intelligence:** Geospatial synergies between Indian and European satellites, especially data-sharing and data-fusion, would serve remote areas affected by meteorological and geophysical disasters, particularly in the Indo-Pacific. This can support HADR missions and be integrated with the India-based Coalition for Disaster Resilient Infrastructure to gauge losses

6 Prime Minister India, "Bharatiya Antariksh Station (BAS): Our own Space Station for Scientific research to be established with the launch of its first module in 2028", 18 September 2024, https://www.pmindia.gov.in/en/news_updates/bharatiya-antariksh-station-bas-our-own-space-station-for-scientific-research-to-be-established-with-the-launch-of-its-first-module-in-2028/

7 Environmental Control and Life Support System is a critical space system designed to offer a habitable environment for humans in space or other closed environments. It focuses on maintaining breathable air, drinkable water, and a comfortable temperature, while also removing human waste and other harmful substances from the closed environments.

8 European Commission "Keynote Address by Commissioner Kubilius to the European Space Agency Council", 11 June 2025, https://ec.europa.eu/commission/presscorner/detail/en/speech_25_1477

to public infrastructure and in reconstruction of afflicted geographies.

- **Resilient Positioning-Navigation-Timing:** Europe's low-earth-orbit PNT precursor and India's NAVIC upgrade both seek anti-jam, anti-spoof signals. Interoperability demos—leveraging ISRO's equatorial launch slots for European LEO-sat batches—could hedge against Global Navigation Satellite System (GNSS) outages.

Security of space:

- **Space-weather (SWE) and Near-Earth-Object (NEO):** These scientifically driven and politically non-sensitive areas offer a low-friction entry point. A solar-radio array in southern India synced with ESA's SWE service, and co-financed NEO survey telescopes at Hanle (Ladakh) and Tenerife could build trust and technical interfaces that can later migrate to full SST data-sharing.

- **Secure Service Access (SSA) Gateway:** A secure "fusion node" linking the EU SST sensor network with NETRA's radars and telescopes could support reciprocal tasking for collision warnings, re-entry predictions, space-weather alerts, and planetary defence. A pilot focused on low- and medium-Earth-orbit traffic—where both Galileo and NAVIC operate—would deliver quick mutual benefit with minimal classification hurdles.

- **Commercial integration:** EU start-ups supplying optical sensors and India's Digantara constellation of SSA "scout sats" could be procured to feed data into the same portal, creating a mixed public private feed for operators.

Phased, technically scoped cooperation—beginning with space-weather and NEO science, scaling to shared collision-avoidance, and eventually to joint defensive measures such as radio-frequency-interference mapping—would enable both sides to strengthen resilience of their assets without prematurely entering highly sensitive military domains.

Challenges remain: differing security classifications, export restrictions (e.g., International Traffic in Arms Regulations), and India's data-localisation laws hinder cloud-based SSA. However, beginning with scientific collaboration offers a pragmatic path forward.

Diplomacy of space

India and Europe rely heavily on space infrastructure for societal, commercial, and defence needs, yet remain second-tier actors in a space domain where rules are scarce and set by a few powerful actors. Both share concerns about orbital debris, weak traffic management protocols, unclear on-orbit behaviour norms, and rising threats below the threshold of armed conflict. These concerns make it logical to hard-wire space governance into every round of foreign- and defence-policy talks, at both national and EU level.

An India-EU Space Policy Dialogue would not only demonstrate heightened awareness accorded to these matters but also provide a channel for sharing views on respective strategic interests, concerns and priorities. Hence, inserting a standing agenda item on pressing safety and security issues would help normalise exchanges on collision risks, spectrum interference, export-control headaches, and the red lines each side sees around unannounced proximity operations, while regular workshops with operators, insurers, and researchers would feed real-world inputs straight into policy-making.

Such a dialogue would also help revive broader efforts on outer space governance. The failed EU-originated Code of Conduct offers lessons: trust-building through sustained diplomatic engagement is essential before reaching agreements on norms and rules.
Once that bilateral understanding is established, Delhi's credibility across the Global South and Brussels' weight in Western regulatory circles can be used to build larger coalitions.

An EU-India joint stance on issues like Space Traffic Coordination and Debris Mitigation could align other like-minded powers such as Japan, Australia, or the UAE and help pull developing space actors into capacity-building programmes for sensors, licensing, and debris-mitigation training.

They could also leverage ESA's and EU's SST network and ISRO's NETRA to run a cloud-based space traffic management "sandbox" where operators test automated collision-avoidance protocols that, once mature, could be tabled as a technical standard at the international Standards Organization or the International Telecommunications Union.

A jointly agreed debris-removal policy that harmonises liability, insurance and inspection clauses would give private firms a ready template for cleaning up respective hardware when post mission disposal fails. The same governance clauses could be hard-wired into Horizon Europe research calls, Digital Partnership working groups, and the services chapter of the forthcoming EU-India FTA.

Such an approach would give both actors far more diplomatic leverage in multilateral talks and prove that responsible rulemaking can match words with deeds. By institutionalising a governance dialogue that moves steadily from sharing concerns to drafting solutions, India and Europe can show that Tier-2 space powers still have the influence—and the obligation—to secure Earth orbits.

Recommendations

As the new Strategic EU-India Agenda to 2030 is being crafted, EU and India must modernise their political approach to space cooperation by adapting to the transversal nature of global space activities. The EU-India Space Dialogue's paradigm, as intertwined within the Strategic Agenda, could span connectivity, climate actions and clean energy, smart and sustainable urbanization, transport, disaster management, and security and defence issues such as global maritime domain awareness. The 2030 Agenda could blend different programmatic, policy and diplomatic measures as summarised below:

Programmatic measures

- Build commercial collaborative applications for IMEC as part of the broader EU-India Connectivity partnership.
- Explore flight opportunities for European astronauts and the docking of European modules on the upcoming Bharatiya Antariksh Station. Likewise, Indian commercial human spaceflight technologies and infrastructure could be identified to service ESA's Explore 2040 Strategy.
- Mutually agreed tasking of commercial geospatial imagery for security applications channelled via India's Integrated Defence Staff and EU's Permanent Structured Cooperation (PESCO).
- Link Europe's space surveillance and tracking network with India's NETRA through a common data-fusion gateway, enabling reciprocal tasking for collision avoidance, planetary defence, and space-weather alerts.

Policy and regulatory measures

- Establish an "India-EU Space Investment Platform" under the EU–India Trade and Technology Council to curate deal-flow, match European and Indian investors, and fast-track regulatory clearances in the 74-49% FDI bands.
- Negotiate an ESA-ISRO "Reciprocal Procurement Arrangement" modelled on the ESA-NASA framework, enabling Indian commercial entities to bid into IRIS²/GOVSATCOM and European firms into Gaganyaan and Bharatiya Antariksh Station supply chains.

- Integrate space-data standards in the FTA's Digital Trade chapter to ensure full interoperability between Copernicus, Galileo Open Service Navigation Message Authentication, and India's NavIC commercial signals, thereby reinforcing downstream market security and resilience.

Diplomatic measures

- Sustain regular senior-level policy exchange by embedding agenda items on the most pressing space safety and security challenges in India's foreign policy and security consultations with the EU and its Member States.

- Leverage joint policy developments on space traffic management and debris mitigation/removal to confer the two actors with diplomatic leverage in multilateral fora.

- Ensure diplomatic alignment in multilateral bodies like the UN Committee on the Peaceful Uses of Outer Space (COPUOS) and the International Telecommunication Union (ITU) on space safety issues, space sustainability matters like debris mitigation and remediation, and security issues associated with proximity operations.

The blending of new programmatic, policy, regulatory, and diplomatic measures calls for a comprehensive scoping of India-EU space cooperation, which has never happened before. Such scoping could unlock opportunities for government-to-government, business-to-business, and business-to-government projects, and more importantly, provide faster remedies to the hindrances and divergences that have long affected India-EU cooperation.

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