ESPI

WINNING ESSAYS

ESSAY COMPETITION TO THE 19TH ESPI AUTUMN CONFERENCE, OCT. 2025

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ABOUT THE ESPI ESSAY COMPETITION

As part of its annual Autumn Conference, the European Space Policy Institute (ESPI) organises an Essay Competition to give the opportunity to the young generation to participate in the Space Policy debate. In 2025, for the 3rd time, students and young professionals have been invited to submit essays in the format of policy briefs related to the conference subject “**Europe as a Space Power.**”. The participants could choose one of the six following topics:

- Human exploration capabilities;
- Supply chain autonomy;
- Space for diplomacy and security, the most chosen topic gathering over 40% of the contributions;
- Competitive advantage of the European way;
- Cultural representation;
- And for the first time a Free Topic, which was the second favourite of the participants who got to bring new ideas in the debate.

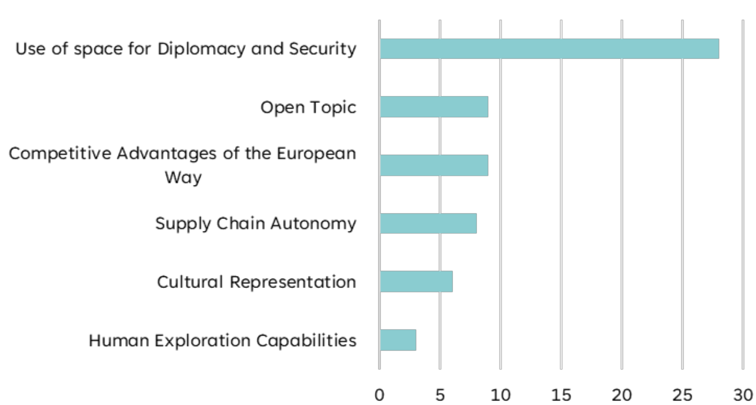

Figure 1: Popularity of the topics

Part of the growing **ESPI's education portfolio**, the Essay Competition grows as well, with **61 contributions** in 2025, more than double of 2024, from all over the world with 35 different citizenships represented.

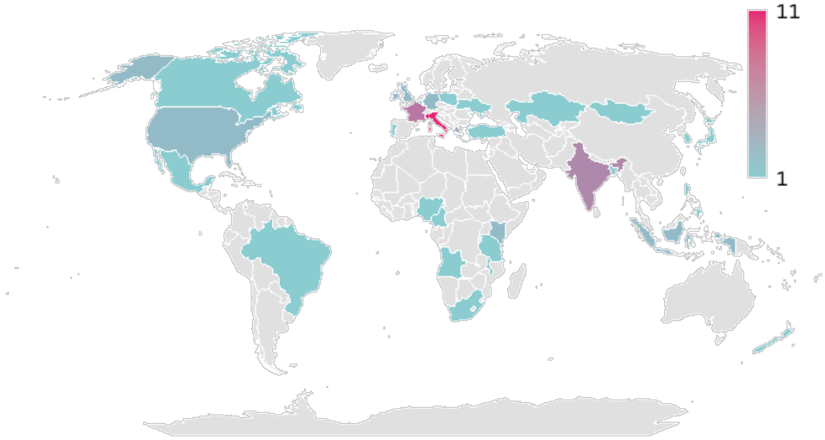

Figure 2: Number of applications per participants' citizenship

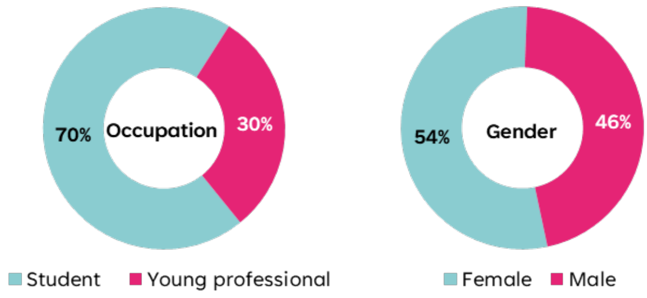

Figure 3: Occupation and gender statistics of the participants

The two winners of the ESPI Essay Competition 2025 are:

- **Alexandra Ba-Tin**, PhD candidate in Political Studies, University of Edinburgh, Scotland, with her essay "*Leveraging EU-Ukraine Space Cooperation to Counter Hybrid Threats in Space*"
- And **Raphaël Diot**, a master's student in Housing and Ecological Transition Policies at the University Toulouse – Jean Jaurès, in France, and vice-president of the Toulouse Student Team of UNIVERSEH, the European Space University for Earth and Humanity, with his essay "*Orbital Sovereignty: for Industrial and Strategic Autonomy for European Space Supply Chains*".

They have been invited to the 19th ESPI Autumn Conference “Europe as a Space Power”, which convened on the 28-29 October 2025 in the Vienna Rathaus, where they have presented their recommendations and key results and received a certificate from ESPI Director H. Ludwig Moeller.

1 WINNING ESSAY "LEVERAGING EU-UKRAINE SPACE COOPERATION TO COUNTER HYBRID THREATS IN SPACE"

Author: Alexandra Ba-Tin

1.1 Executive Summary

This essay argues for increased EU-Ukraine space cooperation, offering a critical opportunity to strengthen deterrence and resilience against hybrid threats in space. It recommends establishing a joint Space-Cyber Early Warning Hub by the end of 2026, accelerating regulatory harmonisation through an EU-Ukraine certification pathway under the European Defence Fund, and integrating Ukraine's operational expertise into EU space security frameworks. These measures align with ESPI's emphasis on enhancing the operational uptake of space solutions for resilience and defence.

1.2 Introduction

Following the Russian invasion of Ukraine in 2022, EU-Ukraine relations have become more critical both regarding space security and broader regional security. On the first day of Russia's invasion, the Viasat KA-SAT satellite network was disabled by a cyberattack, affecting Ukraine and multiple EU Member States. The disabling of the satellite's modems saw outages in internet and telecommunications systems, impacting services including broadband providers and energy providers across Member States, as well as Ukraine's military and police systems[1]. This attack was a demonstration of the challenges hybrid attacks pose to dual-use space-based systems, and the vulnerabilities it exposes both the EU and Ukraine to.

On 9th April 2025 the EU and Ukraine signed an agreement on Ukraine's participation in key components of the EU Space Programme[2], with a view to increase integration of knowledge, technologies, and diplomatic relations, and in light of increased adversarial activities in space, offers operational, diplomatic, and security advantages, particularly in the face of growing hybrid challenges to Europe's space assets, critical infrastructure, and strategic autonomy.

[1] Cyberpeace Institute, "Case Study: Viasat Attack," cyberconflicts.cyberpeaceinstitute.org, June 2022, https://cyberconflicts.cyberpeaceinstitute.org/law-and-policy/cases/viasat; Mika Kerttunen, Kim Schuck, and Jonas Hemmelskamp, "Major Cyber Incident: KA-SAT 9A," EuRepoC: European Repository of Cyber Incidents, October 4, 2023, https://eurepoc.eu/publication/major-cyber-incident-ka-sat-9a/.

[2] European Commission, "EU and Ukraine Sign Agreement on Ukraine's Participation in Components of the EU Space Programme," European Commission Defence Industry and Space, April 9, 2025, https://defence-industry-space.ec.europa.eu/eu-and-ukraine-sign-agreement-ukraines-participation-components-eu-space-programme-2025-04-09_en.

1.3 Hybrid Threats in Space

Space is now a critical domain for national security, military operations, and socio-economic connectivity, making it an attractive domain for hybrid warfare. The number of commercial and military systems in space are at their greatest numbers ever[3], and the geopolitical consequences and clashes as a result are rising just as rapidly. The convergence of cyber and space capabilities in dual-use space systems are also creating unprecedented vulnerabilities to critical infrastructures, command systems, and economic networks[4]. Defined by the Hybrid Centre of Excellence as "an action conducted by state or non-state actors, whose goal is to undermine or harm a target combining overt and covert military and non-military means," hybrid threats are multi-domain threats, non-kinetic threats that can pose a challenge to many facets of a state's security[5]. Hybrid threats in space then, leverage the interconnected nature of space systems to achieve strategic effects mostly through non-kinetic means, including GPS-spoofing, satellite signal jamming, and supply chain compromises in space hardware[6].

This essay recommends maximising EU-Ukraine partnerships to enhance Europe's deterrence, resilience, and space power posture through prioritising knowledge transfer and operational integration, improved joint situational awareness, and accelerated integration of technologies and partnerships.

1.4 Current Insights

The EU has robust frameworks for addressing hybrid warfare, from disinformation awareness campaigns, support and resources from the European Council's Integrated Political Crisis Response (IPCR) to the Hybrid Fusion Cell under the EEAS[7]. Space was declared a strategic domain in the Strategic Compass 2022 and has widened engagement with third-country partnerships with NATO, European Space Agency, and European Defence

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[3] Clayton Swope et al., "Space Threat Assessment 2024," CSIS (Washington DC, United States: Center for Strategic & International Studies, April 2024), https://aerospace.csis.org/wp-content/uploads/2024/04/240417_Swope_SpaceThreatAssessment_2024.pdf.

[4] Joseph L. Billingsley, ed., "Integrated Deterrence and Cyberspace: Selected Essays Exploring the Role of Cyber Operations in the Pursuit of National Interest" (Washington DC, United States: National Defense University Press, May 15, 2023), https://ndupress.ndu.edu/Media/News/Article/3395543/integrated-deterrence-and-cyberspace/; Mariarosaria Taddeo, "Hybrid CoE Strategic Analysis 9: How to Deter in Cyberspace" (Hybrid CoE, June 2018), https://www.hybridcoe.fi/wp-content/uploads/2020/07/Strategic-Analysis-9-Taddeo.pdf.

[5] Hybrid CoE, "Hybrid Threats," Hybrid CoE, n.d., https://www.hybridcoe.fi/hybrid-threats/.

[6] Tim Sweijs et al., "A Framework for Cross-Domain Strategies against Hybrid Threats" (The Hague Centre for Strategic Studies, January 12, 2021), https://euhybnet.eu/wp-content/uploads/2021/06/Framework-for-Cross-Domain-Strategies-against-Hybrid-Threats.pdf.

[7] European Council, "Hybrid Threats," Council of the European Union, 2019, https://www.consilium.europa.eu/en/policies/hybrid-threats/.

Agency to develop resilience, improved understanding, and better regulate and respond to threats in space[8].

EU-NATO cooperation on countering hybrid threats and on space include joint committees, common tools, and intelligence sharing[9]. NATO prioritises hybrid threat migration in space though integrated space situational awareness and cyber defence mechanisms, working closely with the EU on specific topics such as cybersecurity, space traffic management, critical infrastructure protection[10]. As the hybrid landscape evolves, adversaries exploit the interconnectedness of space and cyber domains, requiring a comprehensive, cross-sectoral approach to deterrence and resilience. ESPI has previously emphasised the EU's strategic need for the development and execution of joint space exercises to test and strengthen European responses to space threats[11], an approach directly relevant to EU-Ukraine cooperation too.

Ukraine brings unparalleled operational experience from countering hybrid and cyber threats during its ongoing conflict with Russia. From rapid fusion and exploitation of commercial and government proliferation of drone technologies, to the downstream analytics and data fusion capabilities including integrating satellite and aerial data for tactical advantages, to the resilience demonstrated against persistent jamming, spoofing, and cyber-attacks, Ukraine has unparalleled skills and expertise relevant to space security and to countering hybrid and cyber-enabled hybrid threats[12]. The United Kingdom has recognised this expertise in the recent "100 Year Partnership Declaration" in January 2025, which included a comprehensive space partnership focusing on collaborative research, infrastructure reconstruction, and defence cooperation[13].

In its existing relations with the EU, Ukraine signed an agreement in April 2025 which will enable Ukraine's participation in key components of the EU Space Programme, a timely opportunity to strengthen the EU's deterrence posture by leveraging Ukraine's established space capabilities and operational experience. This agreement enables Ukraine's participation in Copernicus, Space Weather Events (SWE), and Near-Earth Objects (NEO) components of the EU Space Programme[14]. It builds upon the existing cooperation

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[8] European Commission, "EU Space Strategy for Security and Defence," European Commission, n.d., https://defence-industry-space.ec.europa.eu/eu-space/eu-space-strategy-security-and-defence_en.

[9] Mari Kert-Saint Aubyn, "EU Policy on Fighting Hybrid Threats," The NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE, n.d.), https://ccdcoe.org/incyder-articles/eu-policy-on-fighting-hybrid-threats/.

[10] Sebastian Clapp, "Briefing: EU-NATO Cooperation (PE 772.922)" (European Parliamentary Research Service, n.d.), https://www.europarl.europa.eu/RegData/etudes/BRIE/2025/772922/EPRS_BRI(2025)772922_EN.pdf.

[11] European Space Policy Institute, "ESPI Yearbook 2023 - Space Policies, Issues and Trends" (Vienna, Austria: European Space Policy Institute, July 2024), https://www.espi.or.at/wp-content/uploads/2024/08/ESPI-Yearbook-2023.pdf.

[12] Andrew Radin et al., "Lessons from the War in Ukraine for Space" (RAND Corporation, May 21, 2025).

[13] Prime Minister's Office, "UK-Ukraine 100 Year Partnership Declaration," GOV.UK, January 17, 2025, https://www.gov.uk/government/publications/uk-ukraine-100-year-partnership-declaration/uk-ukraine-100-year-partnership-declaration.

[14] European Commission Defence Industry and Space, 2025.

framework established under Chapter 8 of the EU-Ukraine Association Agreement (2014) and the 2018 Copernicus Cooperation Arrangement[15]. This existing partnership supports the EU's priorities of shared situational awareness, capacity building, and post-war reconstruction.

Significant challenges remain however: fragmented approaches to space and cybersecurity across EU member states and Ukraine, the need for accelerated integration of Ukrainian space expertise into EU space security frameworks and the balancing of commercial opportunities with security imperatives in a complex threat environment.

1.5 Strategic & Policy Considerations

1. *Deepen joint space-cyber domain awareness*

By end of 2026, establish a joint EU-Ukraine Space-Cyber Early Warning Hub, co-led by EEAS and Ukraine's State Space Agency, integrating Ukrainian expertise in rapid data fusion and exploitation into EU Space Domain Awareness. This should include a joint threat intelligence centre focusing on hybrid and cyber threats to space assets could enhance integrated space-cyber situational awareness capabilities to better detect, attribute, and respond to hybrid threats in space.

2. *Institutionalise EU-Ukraine Space Security Cooperation*

Through the bilateral Working Group on Space Cooperation, formalise information sharing mechanisms and create dedicated hybrid threat subgroups. Joint training programmes and personnel exchanges should be implemented by 2027 to enhance operational interoperability and supporting the early detection, attribution and response mechanisms, as well as offer new perspectives on a shared threat.

3. *Accelerate Regulatory Harmonisation and Technology Transfer*:

Fast-track Ukraine's alignment with EU space security standards and protocols, with a joint pathway under the European Defence Fund by 2027. This would facilitate secure technology transfer and development of resilient dual-use technologies.

4. *Strengthen Resilience through Joint Exercises*

Conduct regular EU level and multinational exercises with Ukraine to simulate hybrid attacks on space infrastructures, testing rapid response and mutual assistance protocols.

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[15] Ibid.

Include commercial space actors to strengthen public-private cooperation, as advocated in ESPI's security and defence priorities[16].

5. *Leverage Ukraine's Experience for Industrial Innovation*:

Integrate Ukraine's expertise into European Defence Fund and PESCO space projects to advance counter-hybrid capabilities. Support joint research and development initiatives that enhance resilience through both commercial and military innovation.

6. *Expand Ukraine's Participation in EU Space Programmes*:

Explore Ukraine's integration into secure space-based connectivity initiatives and the EU's space security architecture, reinforcing EU leadership in space diplomacy, norm-setting, and regional stability.

1.6 Recommendations & Conclusion

This essay recommends to best leverage EU-Ukraine space cooperation to counter hybrid threats in space, several policy and strategy areas could be utilised:

- Prioritise the knowledge transfer from Ukraine's operational experience into EU space security frameworks,
- Establish a dedicated EU-Ukraine Space-Cyber Early Warning Hub by end of 2026,
- Accelerate Ukraine's integration into EU hybrid threat-space exercises and create a joint certification process by 2027,
- Develop joint industrial cooperation research and development through the EU-Ukraine Business Partnership,
- Create a specialised funding instrument within the Ukraine Investment Framework to support joint space security initiatives.

Enhanced cooperation will strengthen Europe's deterrence posture against hybrid threats in space, accelerate Ukraine's European integration, and provide the EU with invaluable operational expertise and innovative approaches to space security.

[16] European Space Policy Institute, "ESPI Annual Report 2024 - a Year of Growth: Advancing the European Space Agenda" (Vienna, Austria: European Space Policy Institute, March 25, 2025), https://www.espi.or.at/wp-content/uploads/2025/03/ESPI-Annual-Report-2024-FINAL_March-2025.pdf.

1.7 Bibliography

Beames, Charles. “What the War in Ukraine Reveals about the Future of Space Warfare.” *Forbes*, July 11, 2025. https://www.forbes.com/sites/charlesbeames/2025/07/11/what-the-war-in-ukraine-reveals-about-the-future-of-space-warfare/.

Billingsley, Joseph L., ed. “Integrated Deterrence and Cyberspace: Selected Essays Exploring the Role of Cyber Operations in the Pursuit of National Interest.” Washington DC, United States: National Defense University Press, May 15, 2023. https://ndupress.ndu.edu/Media/News/Article/3395543/integrated-deterrence-and-cyberspace/.

Clapp, Sebastian. “Briefing: EU-NATO Cooperation (PE 772.922).” European Parliamentary Research Service, n.d. https://www.europarl.europa.eu/RegData/etudes/BRIE/2025/772922/EPRS_BRI(2025)772922_EN.pdf.

Cyberpeace Institute. “Case Study: Viasat Attack.” cyberconflicts.cyberpeaceinstitute.org, June 2022. https://cyberconflicts.cyberpeaceinstitute.org/law-and-policy/cases/viasat.

European Commission. “EU and Ukraine Sign Agreement on Ukraine’s Participation in Components of the EU Space Programme.” European Commission Defence Industry and Space, April 9, 2025. https://defence-industry-space.ec.europa.eu/eu-and-ukraine-sign-agreement-ukraines-participation-components-eu-space-programme-2025-04-09_en.

“EU Space Strategy for Security and Defence.” European Commission, n.d. https://defence-industry-space.ec.europa.eu/eu-space/eu-space-strategy-security-and-defence_en.

European Council. “Hybrid Threats.” Council of the European Union, 2019. https://www.consilium.europa.eu/en/policies/hybrid-threats/.

European Space Policy Institute. “ESPI Annual Report 2024 - a Year of Growth: Advancing the European Space Agenda.” Vienna, Austria: European Space Policy Institute, March 25, 2025. https://www.espi.or.at/wp-content/uploads/2025/03/ESPI-Annual-Report-2024-FINAL_March-2025.pdf.

“ESPI Yearbook 2023 - Space Policies, Issues and Trends.” Vienna, Austria: European Space Policy Institute, July 2024. https://www.espi.or.at/wp-content/uploads/2024/08/ESPI-Yearbook-2023.pdf.

Hybrid CoE. “Hybrid Threats.” Hybrid CoE, n.d. https://www.hybridcoe.fi/hybrid-threats/.

Kert-Saint Aubyn, Mari. “EU Policy on Fighting Hybrid Threats.” The NATO Cooperative Cyber Defence Centre of Excellence. CCDCOE, n.d. https://ccdcoe.org/incyder-articles/eu-policy-on-fighting-hybrid-threats/.

Kerttunen, Mika, Kim Schuck, and Jonas Hemmelskamp. “Major Cyber Incident: KA-SAT 9A.” EuRepoC: European Repository of Cyber Incidents, October 4, 2023. https://eurepoc.eu/publication/major-cyber-incident-ka-sat-9a/.

Permanent Mission of Ukraine. “Statement by the Delegation of Ukraine at the 62nd Session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space,” February 2025. https://www.unoosa.org/documents/pdf/copuos/stsc/2025/Statements/3_Ukraine_3_Feb_PM_for_upload.pdf.

Prime Minister's Office. “UK-Ukraine 100 Year Partnership Declaration.” GOV.UK, January 17, 2025. https://www.gov.uk/government/publications/uk-ukraine-100-year-partnership-declaration/uk-ukraine-100-year-partnership-declaration.

Radin, Andrew, Khrystyna Holynska, Cheyenne Tretter, and Thomas Van Bibber. "Lessons from the War in Ukraine for Space." RAND Corporation, May 21, 2025.

Sweijs, Tim, Samuel Zilincik, Frank Bekkers, and Rick Meessen. "A Framework for Cross-Domain Strategies against Hybrid Threats." The Hague Centre for Strategic Studies, January 12, 2021. https://euhybnet.eu/wp-content/uploads/2021/06/Framework-for-Cross-Domain-Strategies-against-Hybrid-Threats.pdf.

Swope, Clayton, Kari Bingen, Makena Young, Madeleine Chang, Stephanie Songer, and Jeremy Foreword. "Space Threat Assessment 2024." *CSIS*. Washington DC, United States: Center for Strategic & International Studies, April 2024. https://aerospace.csis.org/wp-content/uploads/2024/04/240417_Swope_SpaceThreatAssessment_2024.pdf.

Taddeo, Mariarosaria. "Hybrid CoE Strategic Analysis 9: How to Deter in Cyberspace." Hybrid CoE, June 2018. https://www.hybridcoe.fi/wp-content/uploads/2020/07/Strategic-Analysis-9-Taddeo.pdf.

2 WINNING ESSAY "ORBITAL SOVEREIGNTY: FOR INDUSTRIAL AND STRATEGIC AUTONOMY FOR EUROPEAN SPACE SUPPLY CHAINS"

Author: Raphaël Diot

2.1 Introduction

The European Union claims to have space ambitions. Yet, despite its areas of expertise, specialized agencies, and cutting-edge companies, it remains dependent on external actors for critical elements of its value chain[17]. Europe, as it stands, is not a space power: it is a sophisticated, but vulnerable, technological ecosystem.

In a time profiling accelerated geopolitical restructuring and uncommon tensions between lifelong allies, the question of autonomy of European space supply chains is becoming of central necessity. This is no longer about catching up in innovation, but about determining whether the continent can control the levers of its orbital presence, and thus assert true sovereignty.

Reindustrialisation, strategic reconfiguration, and deliberate projection. A space power cannot be decreed; it must be built. That construction begins with the ability to produce, own, fully operate, and deploy one's own tools.

2.2 A critical dependence that undermines Power

Europe has powerful industrial players and major space programs (i.e. ArianeGroup, OHB, Thales Alenia Space, ESA's science missions). However, this control is incomplete and unbalanced. Capacities are fragmented between states and manufacturers, without an integrated strategic vision. In addition, the production of satellites, propulsion systems, and orbital structures is still carried out in a fragmented framework, where interdependencies remain largely outside of the EU. So **here lies the heart of the problem: strategic dependence.** Recent examples highlight the risk:

- The Vega-C launch in 2022 after a Ukrainian-supplied engine component became unavailable due to war [3].
- ITAR restrictions force constraint on satellite conception and operation because US-origin components cannot be used freely [4][5].

[17] It is estimated that north of 80% of most critical raw materials are imported from outside the EU [1], alongside – for example – an estimated 60% for on-board electronics for satellites [2].

- Delays in Ariane 6's deployment, leaving Europe reliant on SpaceX for critical launches [6].

To address this issue, and to move from observation to action; I propose that – by 2026 – an EU-led ten-year roadmap for industrial space autonomy should be adopted, supported by annual reviews and transparent public indicators. A comprehensive audit of the European space supply chain – pinpointing the 20 (indicative number) most critical components and their origins – will be the first step toward reducing external dependencies and securing strategic resilience.

Strategic dependence takes two main forms:

- **China**, which acquires European technologies via joint ventures and partnerships, eroding control (basically stealing if not cunningly negociating) over key intellectual property [7].
- **The United States**, which imposes extraterritorial controls like ITAR, constraining even purely European civilian projects [8].

Both powers **integrate their value chains into instruments of sovereignty**, locking in dependencies. Europe, by contrast, multiplies programmes and financing plans but, without an independent productive base, cannot turn these into real power. Sovereignty begins with the ability to control what one claims to possess.

To reclaim strategic sovereignty, Europe must decisively break free from its avoidable external constraints. By 2030, the goal should be to reduce reliance on ITAR-controlled components by 80%, achieved through the development and certification of fully European alternatives ; thereby restoring control over key technologies and strengthening Europe's autonomous industrial base.

I. Rebuilding the industrial base: control and freedom

A. Partial strategic nationalisations

A first avenue would consist of **regaining public control of certain sectors considered strategic**: launcher production, sensitive electronic components, engines, and special materials. This would not entail blanket nationalisation, but rather a strong state anchoring and support in key sectors respective to each State, via continental technology holding companies, sovereign wealth funds, or integrated technical agencies (on the model of the CEA in nuclear or Airbus in aviation). Coordination among Europe's industrial powers would allow pooling of expertise while keeping national sovereignty over core capacities.

To restore control and ensure industrial freedom, Europe must strengthen public stakes in strategic sectors. By 2035, securing at least half of launcher and engine production capacity within the EU will tend to anchor these critical industries domestically. This effort, which odd to be led by the EU Council in partnership with key industrial member states, will balance national sovereignty with continental coordination and expertise sharing.

B. Targeted deregulation and incentives

In space manufacturing, Europe suffers from a chronic systemic issue: **excessive regulatory burdens at home drive companies abroad, creating strategic gaps at home** that remain unfilled. A sovereign strategy would therefore require:

- targeted tax relief;
- regulatory simplification (particularly for startups and infrastructure R&D);
- the creation of special-status industrial zones (modeled on “freeports” for exports, EPZs, or Chinese SEZs for production and investment).

The goal is not ideological deregulation, but a regulatory environment that strengthens Europe’s own industrial base rather than strangling then outsourcing.

To reverse this issue, Europe must create a regulatory environment that truly supports its space industry. By 2029, establishing at least 3 pilot Space Industrial Zones (SIZ) in key hubs like Turin, Toulouse, and Seville – with streamlined authorization processes under 90 days – will massively attract/reinforce investment and incentivise homegrown manufacturing.

II. Centralisation and strategic integration

A. A federal space authority

Fragmentation is a structural weakness of ours. A second avenue would be establishing a supranational European authority that should integrate all space-related responsibilities with an autonomous Euro-sovereign/regalian multiyear budget – voted by the Parliament – and an exclusive legal and technical mandate. Designed as the sole legitimate decision-making center for space matters, this authority would replace existing national and European structures, eliminating institutional redundancies and chronic coordination problems. Rather than adding bureaucracy, it would act as a federal space authority capable of steering and implementing a unified strategy.

This model would:

- unite and centralise resources,
- simplify decision-making,
- eliminate said fragmentation and rivalries,
- and restore space as a concrete strategic priority.

To preserve fundamental military sovereignty, an exception clause would have to allow each Member State an autonomous right of recourse in the event of a targeted attack on its territory or space infrastructure, on the ground or in orbit. Any multi-State or offensive military action requiring space capabilities would, however, need a simple collegiate vote of the heads of the armed forces of each Member State. This mechanism would reconcile strategic centralisation, operational responsiveness, and respect for national security interests and due representation.

B. Europe as a space supplier: selling to exist, planning to last

But strategic autonomy is not limited to closing our technological boundaries. It also involves the ability to disseminate, sell, and create aligned external ecosystems.

Europe must become a complete provider of space technologies and services: satellites, launch services, ground stations, sovereign cloud, staff training, and even maintenance. The objective is not solely economic: it is about **creating beneficial technological interdependence**, particularly with states in the Global South, which are seeking reliable alternatives to asymmetrical and self-interested powers like China or the United States.

This positioning would have a dual effect:

- strengthening European budgetary autonomy through exports ;
- establishing a positive (inter)dependence, in which client countries voluntarily adopt our standards, tools, and systems, not out of coercion but out of mutual benefit.

In order to achieve that, Europe should – Within five years of establishing the coordinating authority – develop a comprehensive portfolio of "Made in Europe" space solutions covering launch services, satellites, maintenance, and training ; designed to foster mutually beneficial partnerships, especially with – serious and willing – emerging space nations seeking reliable alternatives.

In this context, virtue is not the priority. While environmental and ethical considerations matter, they must serve, not undermine, the priority of sovereignty. Space strategy is not based on morality, but on the ability to produce, sell, and sustain itself. It is this technical efficiency that supports strategic reputations, not abstract ethical formulas.

This in no way prevents the EU from remaining sovereign in its commercial choices. It retains the right to refuse any cooperation or sale to a state whose practices it deems contrary to its fundamental interests.

2.3 Conclusion

Europe will not become a space power by multiplying programmes or invoking principles. It will become one through concrete control over its tools, a deliberate break with dependencies, and the organised projection of its industrial resources.

Independent value chains, productive liberation and rearmament, technological diplomacy: these pillars must structure a clear and assertive space doctrine. Orbital sovereignty is neither a luxury nor a dream: it is a condition for European geopolitical subsistence in the centuries to come.

2.4 Bibliography

[1] *Supply Chain in the space Industry Statistics Statistics: Market Data Report 2025*. (n.d.). https://gitnux.org/supply-chain-in-the-space-industry-statistics/

[2] European Commission: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs and PWC, *Roadmap for the research and development activities on space critical EEE components for European non-dependence in the framework of the Horizon 2020 - Space – Final report*, Publications Office, 2016, **https://data.europa.eu/doi/10.2873/76686**

[3] Gallois, D. (2023, March 3). Part manufactured in Ukraine caused Vega-C rocket's first commercial flight to fail. *Le Monde.fr*. https://www.lemonde.fr/en/economy/article/2023/03/03/part-manufactured-in-ukraine-caused-vega-c-rocket-s-first-commercial-flight-to-fail_6018057_19.html

[4] https://spacenews.com/39414us-satellite-export-regs-remain-a-frustration-for-european-industry/

[5] https://spacenews.com/european-satellite-still-heavily-dependent-on-u-s-parts/

[6] Afp, L. M. W. (2025, March 4). Ariane 6: Europe's rocket launch postponed due to "anomaly." *Le Monde.fr*. https://www.lemonde.fr/en/europe/article/2025/03/04/ariane-6-europe-s-rocket-launch-postponed-due-to-anomaly_6738777_143.html

[7] Lewis, J. A. (2024). *Rethinking Technology Transfer Policy toward China*. https://www.csis.org/analysis/rethinking-technology-transfer-policy-toward-china

[8] *Export controls and sanctions in the aviation and space industries*. (2024b, June 5). https://www.rsm.global/netherlands/en/insights/export-controls-and-sanctions-aviation-and-space-industries

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