

**FEBRUARY 2025**



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## Introduction

In an era where geopolitical tensions extend beyond terrestrial borders into the cosmos, the race for space dominance has never been more critical. This intensifying astropolitical competition underlines the strengthening of the hard power mechanisms in space, which as a domain has gradually become a crucial component for national defence. The re-emergence of superpower rivalry in space has also pushed the EU to intensify its efforts to achieve an autonomous and independent access to space.

In light of this, this paper analyses EU's quest towards achieving space strategic autonomy. To accomplish this, the paper proposes the following roadmap: the first section regards the geopolitisation of space; the second section concerns the EU space odyssey towards strategic autonomy; the third section will discuss the future ambitions of the EU in space and the institutional and material challenges that hamper EU's ability to act coherently in space.

By providing a comprehensive analysis of the EU's strategic autonomy in space, this paper contributes to a critical understanding of the geopolitical dimensions of space and the strategic journey of the EU towards European space autonomy.

### 1. Space as a geopolitical realm

Although space has been heralded as the "province of all mankind" in the Outer Space Treaty (United Nations Office for Outer Space Affairs, p.4, 1967), recent geopolitical events have challenged this idealistic vision, gradually transforming space into a chessboard dominated by great power logic. Over the years, space has increasingly become a pivotal arena in geopolitical competition, influenced by a variety of factors including the broader access and influence of private enterprises, the expansion of military and civilian space capabilities, and the strategic importance of space in global security (Suess, 2023). In this space race, a new constellation of actors is emerging from the days of the Cold War and each of them is seeking to extend its power beyond the territorial boundaries of Earth: "Space as a domain presents opportunities for power projection" (Suess, p.9, 2023). In this regard, space power's integration with geopolitics unfolds in three ways.

Firstly, it functions as a soft power tool, where nations leverage space technology to indirectly influence global events. This includes monitoring environmental changes and the surveillance of military deployments via satellites, which in turn offer a strategic advantage without confrontation. By gathering and sharing crucial information through a non-coercive use of space technology, nations can engage in 'space diplomacy', where such data supports non-aggressive diplomatic negotiations and conflict prevention strategies (Elefteriu, 2024).

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This approach illustrates how space technology enables countries to exert influence through persuasion and cooperation rather than force. Secondly, it supports broader national goals, where the use of space technology to enhance communication networks and infrastructure promotes economic and technological advancements (Elefteriu, 2024). Thirdly, space capabilities play a hard power role by directly affecting global military balance through the deployment of surveillance and communication satellites critical for defence (Elefteriu, 2024). Thus, it can be noted that space policies are characterized by a dualistic nature, distinctly encompassing both soft and hard power elements. Over the years, the hard power dimension has gradually strengthened as space has become increasingly linked to national security. Indeed, the rise of military “space commands” - specialised units dedicated to managing space operations, assets, and defence strategies - alongside increased government investment, underscores the strategic integration of space into national defence frameworks (Elefteriu, 2024).

Space symbolises a geopolitical area not only for its potential as a battleground for future operations but also because it’s a “strategic enabler of several security and defence activities on earth. For example, crisis management (whether civil or military), depend to a large extent on space-based services...whose disruption would cause considerable harm to our capacity to react to security threats” (Cellerino, p.491, 2023). Therefore, it is in the interest of states to protect their space infrastructure and resources since much of their power, in terms of energy, economy and information comes from space itself. In this context, space can be considered “the extension ‘of Terran politics by other means’ and the goings-on in orbits will naturally reflect the political dynamics on Earth. This means that great power competition, as it is currently playing out on Earth, can be observed in space too” (Suess, p.14, 2023). As a consequence, the progressive militarisation or weaponisation of the space domain underscores a shift towards “astropolitics”, marking space as a critical domain in national defence strategies (Havercroft & Duvall, 2009). This space realpolitik suggests that mastery of space has evolved into a crucial asset for nations which vie to enhance their military, surveillance, and communication capabilities through space. This strategic shift underlines the space race not just as scientific exploration but as a critical element of international power dynamics (Ramanathan & Pareek, 2021).

## **2. The EU space odyssey towards strategic autonomy**

This extension of the geopolitical race into the cosmos has also affected the EU. Indeed, the geopolitisation of space has pushed the EU to invest more in its space policy, which is trying to gradually become a strategically autonomous space actor. In essence, space strategic autonomy entails a nation's proprietary control and management of critical space infrastructure (Küstters et al., 2024). This concept underscores the imperative for sovereign

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capabilities in deploying essential space-based assets and the need for operational independence for the protection of national security interests. Over the past few years, major nations like India, Russia, China and the United States have been intensively enhancing their space technologies for defensive and offensive purposes (Muñoz & Portela, 2023). In this astropolitical competition, the EU has built its own European Space Programme to expand its operational capacity and strategic independence in space. Established by the regulation 2021/696, this EU's 2021-2027 space programme, with a current budget of 14.88 billion euros, aims to foster European space strategic autonomy through the development and deployment of critical technologies like the Galileo, European Geostationary Navigation Overlay Service (EGNOS), SATCOM, Space Situational Awareness (SSA) and Copernicus (Clapp & Evroux, 2023). The centrality of strategic autonomy to the programme's objectives is highlighted in Article 60 of the regulation, which states: "An important objective of the Programme is to ensure its security and to strengthen strategic autonomy across key technologies and value chains while preserving an open economy including free and fair trade, and taking advantage of the possibilities that space offers for the security of the Union and its Member States" (European Parliament and Council of the European Union, p.10, 2021).

These current programmes provide a solid degree of autonomy, as they enable the monitoring of Earth, safeguard transportation networks, support digital infrastructures and enhance security and defence capabilities (Fiott, 2020). Considering the latter, some of these programmes have relevant implications for the military dimensions of the Common Security and Defence Policy (CSDP) operations of the EU (López, 2022). For example, the Galileo Security Monitoring Centre (GSMC) oversees the security of the Galileo system's components, by detecting and responding to security incidents. Moreover, it controls access to the Public Regulated Service (PRS), ensuring the protection and management of sensitive information. In this way, the PRS represent a crucial component with a lot of potential for the EU's space defence capabilities, as it supports critical operations like missile detection and air-to-air refuelling (Fiott, 2020).

Furthermore, the European Union Governmental Satellite Communications (GOVSATCOM) programme aims to provide reliable and secure satellite communication for governmental actors, including armed forces and security agents. This satellite programme is crucial for the success of military operations and crisis management about joint civil and military security and defence missions. In addition, the Space Surveillance Tracking (SST) system, a subcomponent of the broader SSA, is crucial for defending Europe's space assets and ensuring operational readiness. By detecting and tracking debris or hostile manoeuvres, it safeguards satellites critical to both civil and military missions, supporting the EU's capacity to respond to threats—such as anti-satellite tests—and reinforcing Europe's strategic

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autonomy and resilience in orbit. In light of this, space represents an important enabler for EU strategic autonomy “because space applications are a fundamental technology contributing to the security and defence of the Union” (Küstters et al., p.6, 2024). By incorporating space more into its defence and security policy, the EU is actively and gradually laying the foundations for a comprehensive common European defence (Topcuoglu & Bora, 2022).

Within this geopoliticised framework, Russian military actions in Ukraine have accentuated the critical importance of space-based systems safeguarding national interests and enhancing defence capabilities. Indeed, Russia’s attempts to hack and jam satellite communications utilized by the Ukrainian military forces began at the onset of the conflict (Ogden et al., 2024). For instance, one hour before the start of the invasion, Russia launched a cyberattack focusing on the private satellite service provider Viasat’s KA-SAT network, which offers extensive high-speed satellite internet coverage throughout Europe, thus provoking a widespread disruption to the Ukrainian military, security services and government (Clapp & Evroux, 2023). Therefore, “the KA-SAT cyber-attack demonstrates that commercial space systems are essential tools to support military operations on Earth, but also prime targets to (cyber-)attack” (European Space Policy Institute, p.11, 2022). Moreover, space-based assets, particularly Starlink, play a crucial role in Ukraine’s military and civilian strategies against the Russian invasion. By utilizing Starlink’s mobile network, Ukrainian forces can rapidly share images of potential targets to a secure, commanders-only encrypted chat, enhancing the effectiveness of their artillery operations (Clapp & Evroux, 2023).

The intensification of astropolitical competition has thus reinforced the military relevance of these systems, highlighting the necessity for enhanced satellite surveillance and communication capabilities to support defence and security operations. Consequently, the EU has been prompted to accelerate its investments in satellite technologies that can offer real-time intelligence and situational awareness. This development aims not only to bolster the EU’s defence posture but also to ensure a rapid and coordinated response in crises, emphasising the strategic importance of maintaining autonomous and independent access to space. The return of geopolitical power dynamics has thus reignited the importance for the EU to have secure and autonomous space capabilities, pushing the EU to deepen integration in this field. In this regard, the EU acknowledged the contested importance of space in the Strategic Compass, stressing the need to reinforce the EU space-based defence and security capabilities (Fiott, 2022). Consequently, this awareness intensified and brought to the formulation, for the first time in the history of European integration, of the EU Space Strategy for Security and Defence (EUSSSD) (European Commission, 2023). This space strategy urges the strengthening of the EU’s capacity to act in the space realm and the

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protection of vital space infrastructures useful for defence and security purposes from external threats (Clapp & Evroux, 2023). In this regard, the strategy promotes European space strategic autonomy in two ways: “First, it aims to facilitate a transition from a civilian-oriented space policy to one with certain military applications—thereby explicitly acknowledging the ‘dual-use character’ of space assets. Second, by establishing a baseline of action on protecting the EU’s space assets, as well as coordination with national space defence strategies, it aims to foster progressive convergence towards a unified Space Strategy for all member states” (Muñoz & Portela, p.2, 2023). By focusing for the first time on countering deliberate hostile operations through the use of counter-space technologies, the EUSSSD marks a significant shift toward acquiring hard power capabilities in space, moving beyond traditional civilian applications and embracing more consciously the gradual securitisation of space. Moreover, the strategy seeks to promote a shared understanding of space threats through the Single Intelligence Analysis Capability (SIAC) (European Commission, 2023). The goal of common space threat assessment is a pivotal step towards amplifying the EU’s political autonomy, thereby moving closer to achieving strategic autonomy. In this regard, scholarly research has consistently demonstrated that public perceptions of European security and defence are shaped by the perceived benefits of collective military security (Wang & Moise, 2023). Therefore, by fostering a shared understanding of space threats and risks, these assessments contribute to the perception of space as a common good, reinforcing EU unity and collective political will.

Practical initiatives that respond to the call of the EUSSSD are for example the Infrastructure for Resilience, Interconnectivity and Security by Satellite (IRIS<sup>2</sup>) and the EU Space Information Sharing Centre (ISAC). Both initiatives aim to protect EU assets from space threats by deploying an autonomous constellation of 290 satellites to enhance secure connectivity capabilities with a strong security and resilience component (Sorbino, 2025) or by establishing an autonomous collaborative online platform that enhances information exchange to safeguard space systems.

In light of this, these efforts constitute crucial steps towards achieving European strategic space autonomy, ensuring that the EU can operate independently without reliance on external actors. By developing its capabilities and infrastructure, the EU is seeking to create autonomous independent access to space to defend its interests from the growing astropoliticisation of space. This autonomy is pivotal for constructing a distinctly European presence in the cosmos, shaping a future where the EU holds a significant and self-reliant role in this space race.

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### 3. The way ahead: between and challenges

During the recent 17th European Space Conference, the goal of achieving EU strategic autonomy in the space domain was identified as a key priority by the Commissioner for Defence and Space, Andrius Kubilius, who encouraged the adoption of a “big bang” approach to space. Kubilius claimed that this would involve the strengthening of competition, major investments in the space industry, the expansion of diversification and the advancement of European priorities in space (European Commission, 2025). During the Conference, the Commission acted as a genuine “political entrepreneur” by introducing a series of ambitious proposals aimed at securing Europe’s strategic autonomy and independent access to space. In this regard, the Commissioner proposed the creation of the first EU Space Industrial Strategy designed to foster research and innovation, strengthen supply chains, and enhance production to make the EU a leading space-tech exporter (Kölsch, 2025). In promoting so, this strategy aims to consolidate Europe’s leadership in the global space economy and ensure greater resilience for its space infrastructure. Moving forward, the Commissioner expressed his intention to initiate a dialogue with the Member States and space commands regarding the opportunity to work on an autonomous European Space Domain Awareness to monitor threats, including military ones. This approach would not only represent a development in terms of military and defence cooperation but also a strong signal of political and strategic integration at the European level, useful for achieving strategic autonomy. Following this autonomous narrative, the Commissioner launched the ambitious project of the Space Single Market seeking to improve production capacity and to guarantee that supply chains are more reliable and less reliant on external actors (Kölsch, 2025). This idea highlights the Commission's determination to try to insert supranational market logic into the dynamics of space politics. Furthermore, an important point deeply underscored by the Commissioner was the need to boost the EU’s autonomous access to space with proper European launchers (European Commission, 2025). The Commissioner argued that space represents a crucial domain for safeguarding European autonomy in this highly geopolitical era. They stressed the importance of not relying on third-country rockets and instead emphasised the need to reestablish full oversight of EU space infrastructure, both by bolstering launch capabilities and by diversifying supply chains. In this regard, he advocated closer coordination among the EU, Member States, the European Space Agency (ESA), and industry stakeholders to ensure that these two strategic pillars are pursued cohesively and effectively. Therefore, “it is imperative for the EU and its Member States to establish a coherent and unified launcher strategy that reinforces existing platforms and fosters technological advancements in launcher capabilities, including reusability, to ensure Europe has independent access to space and remains competitive in the future” (Küsters et al., p.1, 2024).

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According to the Commissioner, these ambitious initiatives will not only reinforce Europe's leadership in the cosmos but also constitute important building blocks for a future European Space Shield to unite EU defence efforts in space and to make the EU space infrastructure more resilient in the face of external's threats (Barigazzi, 2025). What can be deduced from these projects is, therefore, a strong desire for cooperation and integration in the space field. Only in this way can the EU also aim to become a strategically autonomous space actor. Strategic autonomy requires deep integration (Biscop, 2022). Greater integration would allow member states and the EU to coordinate their resources and strategies more effectively, thus reducing internal dissonances that hinder unified responses. The 17th European Space Conference contributed to awakening awareness of the EU's role in space and the need for investment and buying European. This heightened awareness translated into the need to develop robust space infrastructures and promote technological self-sufficiency by reducing dependence on external resources. Thus, the Conference outlined a roadmap for a more comprehensive space autonomy of the EU, aiming to ensure that Europe can maintain and expand its operational capability in space independently.

Despite this high level of ambition, the EU is encumbered by several limitations, institutional and material, which restrict the European space race for strategic autonomy. Institutional complexities arise mainly from the governance structure of the EU and the interaction with other international organisations, such as ESA, and the Member States (Cellerino, 2023). Although the ESA is a key technological pillar for Europe, its membership does not fully coincide with that of the EU, thus creating challenges in the synchronisation of space policies. Moreover, the duality of some countries' membership in both entities further complicates the harmonisation of EU space objectives with national policies, which may diverge according to the specific interests of each member state (Küstters et al., 2024). A further level of institutional complexity manifests itself in the clear distinction that the EU Treaties make between the civil and security/defence aspects of space. This legal separation hinders the EU's ability to respond in a unified and timely manner to threats, limiting its operational autonomy on an international scale (Cellerino, 2023). In parallel, the material limitations related to the management of dual-use technologies and the high fragmentation of the European space market pose significant challenges to the development of full EU operational autonomy (Cellerino, 2023). Dual-use technologies require careful regulation to balance civil and military uses, while market fragmentation limits the integration of space capabilities on a continental level, reducing the efficiency and competitiveness of the sector. In addition, European public spending on space is reported by the Commissioner to be too low and fragmented, further complicating the situation (European Commission, 2025). Therefore, these institutional and material factors can hamper the EU's ability to act coherently and autonomously, especially in critical scenarios where security is at stake.



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## Conclusion

This paper has examined the EU's quest towards the achievement of strategic autonomy in the space domain. The increasing geopolitisation of space has, over time, intensified the hard power dimension of space instruments, making space a crucial component for national defence. Influenced by this astropolitical competition, the EU established a robust European space program, fostering operational capacities and technological advancements that underpin its strategic autonomy, especially in the areas of defence and security. By developing its space capabilities, the EU strives to achieve autonomous and independent access to space, trying to protect its interests vital for EU security. This strategic resilience is critical for forging a distinctive European identity in the cosmos. In this regard, the EU has recently put forward an ambitious roadmap for the achievement of the European space strategic autonomy where the Commission acted as a political entrepreneur. Despite this high level of ambition, several factors undermine the institutional and material autonomy of the EU, creating significant barriers to achieving its strategic goals in space. Addressing these challenges is crucial for the EU to strengthen its autonomy and effectively navigate the competitive landscape of space geopolitics since the future is intertwined with space, and whoever controls space ultimately controls the future.

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