3 Main Points

Why is Europe still vulnerable in space despite its relevance? Europe's defence remains nationally fragmented, with divergent doctrines, weak shared situational awareness (SSA),

slow attribution, and uncoordinated capabilities. Strengthening coordinated SSA, shared response standards, and joint capability development would allow Europe to build a resilient space security posture without creating a supranational military command.

About the Authors

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Strengthening Europe's Orbit

1. Introduction

Space has become an indispensable infrastructure for modern societies, global commerce, and national defence. Satellites provide communications, navigation, intelligence, and timing services that support both civilian life and military operations. Yet the orbital environment is increasingly threatened by debris, accidental collisions, and possible deliberate actions such as jamming, cyber intrusions, or kinetic anti-satellite attacks. These risks are rising just as European powers accelerate their strategic efforts in space security. For instance, France has recently announced a planned €4.2 billion military space investment between 2026 and 2030, while Germany has unveiled its first national space security strategy, committing €35 billion in defence funding to space by 2030. These developments reflect how seriously

European states now view space not just as vital infrastructure but as a contested defence domain.

Yet, despite these national efforts, Europe's broader governance system still faces broader structural constraints. Although the European Union recognises outer space as a contested yet essential domain, this awareness has not translated into a cohesive collective defence posture. With Europe's civilian-oriented institutional architecture and divergent national military strategies, the ability to deter, attribute, or respond to orbital threats is limited. Without a shared doctrine, joint space situational awareness efforts, and coordinated capability development, Europe will remain vulnerable, even as states like France and Germany double down on space defence.

2. Structural Causes: Civilian Governance and Fragmented National Approaches

At the beginning of the 2020s, as global reliance on space infrastructure intensified and the strategic environment deteriorated, the European Union began taking steps to strengthen its role in space security. Yet these efforts quickly encountered a fundamental structural constraint: defence, like health and education, remains a domain reserved for the member states. This division allowed the EU's institutional architecture for civilian space programmes - Earth observation, navigation, communications - to flourish, while joint defence-related structures remained thin, fragmented, and underdeveloped. Civilian space programs are initiatives to create and operate non-military space systems and services such as Earth observation, navigation or communications, designed for social, economic and scientific uses. They can be used to support defence when required, but they are not conceived, governed, or equipped as military capabilities.

This context helps explain Europe's space-security posture. Observers often look to established institutions such as the European Space Agency (ESA) and assume they could evolve into a European military space strategy. But this is a misinterpretation of ESA's mandate. Article II of the ESA Convention explicitly defines ESA's purpose as the peaceful, scientific, and technological development of space. Moreover, ESA is not an EU agency but

rather an independent organisation whose membership also includes non-EU states, such as the United Kingdom, Switzerland, and Canada.

In recent years, however, ESA has introduced a significant opening towards dual-use applications for European security: the European Resilience from Space initiative, approved at CM25, provides services such as high-resolution satellite imagery, new low-orbit navigation capabilities and secure connectivity, designed to strengthen resilience and non-aggressive defence support.

This evolution represents a historic change, but does not alter the nature of the Agency: ESA can design and build advanced space systems, but it remains without operational or command capabilities in the military field. Its mission, governance structure and multinational composition continue to place it within the realm of peaceful cooperation, while allowing it to contribute more to security today through dual-use capabilities.

Within the EU architecture itself, the institution one might expect to play a leading role is the EU Agency for the Space Programme (EUSPA). EUSPA is well-positioned on the regulatory and programmatic side, overseeing Galileo, EGNOS, and Copernicus services. Yet EUSPA, too, is bound by the Treaties' distribution of competences: its programmes can support dual-use and security applications, but it cannot develop or command military space capabilities.

This leaves NATO as the third major institution commonly associated with European space security. NATO recognises space as an operational domain and coordinates among allies, but it cannot direct national assets, nor does it possess independent European space capabilities. Its posture continues to depend heavily on the United States—an arrangement that sits uneasily with European aspirations for strategic autonomy.

Taken together, these institutional realities reveal that Europe's principal structural barrier is the national fragmentation of military space. Because defence is a matter of national sovereignty, each develops its own military space policies, capabilities, and strategic priorities. Only a few countries, such as France and Germany, maintain significant military space assets, and even these differ in doctrine and ambition. France tends to view space as a

future warfighting domain, whereas Germany's space strategy tends to prioritise responsible behaviour and information-sharing. Germany's first space security strategy, released in November 2025, continues this approach while signalling a willingness to push toward greater European coordination.

This fragmentation is reflected indirectly in the maturity gap between civilian and military space capabilities. Europe has highly developed civilian programmes—Galileo, Copernicus, GOVSATCOM—and a strong industrial and scientific basis through ESA. But the lack of integrated defence structures means that military-oriented systems, ranging from space situational awareness (SSA) to autonomous launch capabilities for rapid reconstitution, remain nationally siloed and insufficiently coordinated.

In short, Europe's weakness in space defence does not stem from civilian institutions crowding out military ones. It stems from defence integration itself, which is structurally limited. The result is an advanced civilian space ecosystem alongside fragmented military programmes, supranational institutions that cannot assume defence roles, and alliances that cannot substitute for European-owned capabilities.

3. Consequences: EU's Vulnerability in a Contested Space Environment

The fragmented military authority has created a profound lack of preparedness. Europe has not developed an integrated operational doctrine for space security. Member states differ on fundamental questions, including whether space should serve only as a support domain or be treated as a battlefield, or whether Europe should develop active defence capabilities or rely mainly on diplomacy and resilience. Without agreement on these issues, shared rules of engagement or escalation thresholds remain out of reach.

This doctrinal ambiguity impacts on deterrence, by influencing the rapid detection of hostile actions, swift attribution, and a unified response. Europe faces challenges in each of these areas. First, SSA capabilities are distributed across national networks with uneven sensor coverage and limited integration. Civilian frameworks such as EU SST do not provide the level of detail needed to differentiate accidental interference from hostile activity.

Second, slow attribution severely undermines Europe's ability to respond collectively. If a satellite is jammed, dazzled, or manipulated, Europe lacks the fused military intelligence architecture required to identify the source quickly and confidently. Opponents could exploit this uncertainty by carrying out deniable or reversible attacks before the EU can take informed decisions, leveraging on the lack of pre-approved collective response mechanisms to be implemented without delays. Political debates on escalation, proportionality and legality could slow down decision-making.

Finally, Europe's strategic autonomy is further limited by dependence on external partners for critical functions such as high-fidelity SSA, secure communications, and early warning. Reliance on commercial satellites for government missions adds to this vulnerability, because many commercial systems lack robust protection against deliberate interference. The recent partnership between Saab and US-based Maxar Intelligence to develop geospatial and informational systems for defence purposes illustrates how European defence actors still rely on non-European providers for essential space-based data and services.

Despite these challenges, Europe's limitations are serious but not irreversible. Although defence remains a national competence under the Treaties, the EU and its member states have demonstrated in other security-relevant fields—such as maritime surveillance, border management, and cyber coordination—that they can build sophisticated, sovereignty-respecting cooperation frameworks. These mechanisms deliver shared situational awareness, common standards, and integrated infrastructures that directly support national security without transferring control of armed forces. Europe's space domain could follow a similar logic, developing a collective space-security architecture without establishing a European military command.

4. Pathways Toward a More Resilient European Space Defence Posture

4.1. Building Integrated, Defence-Grade Situational Awareness and Attribution

The most urgent requirement is an SSA and space-intelligence architecture designed for defence-related purposes. This does not necessitate a supranational command authority. Instead, the EU needs a secure data-sharing environment that combines each country's observations into a common operational picture. This would allow faster detection and understanding of hostile actions while letting each state preserve control of its own data. Joint attribution cells staffed by analysts from national space commands, intelligence agencies, and relevant EU bodies could operate continuously in crises. Europe already employs similar mechanisms in cyber, maritime, and border-surveillance domains, demonstrating that deep intelligence cooperation is feasible without institutional integration in defence.

4.2. Creating Rapid-Response Procedures and a Shared Doctrine

Since hostile actions in space can take many forms, such as a kinetic attack on a satellite using a direct-ascent weapon, a non-kinetic attack like a high-powered microwave that damages a satellite's electrical circuits and processors, or a cyberattack through hacking, jamming or spoofing, it is important for Europe to have a clear framework that defines what constitutes a hostile act in space and how the EU or coalitions of willing states should respond. This includes agreed attribution standards, escalation thresholds, and legal principles governing defensive action. Although Europe does not require a militarised structure comparable to NATO's Integrated Air and Missile Defence, it does need equivalent clarity in roles, procedures, and interoperability rules.

Resilience should be foundational. Redundancy, disaggregation, rapid reconstitution, diversified ground architecture, and secure communications reduce incentives for hostile acts and help maintain continuity through crises. Shared doctrine would additionally enable pre-approved reaction options—including diplomatic measures, technical mitigations, and non-kinetic countermeasures—to be activated without lengthy political negotiation.

4.3. Coordinating Capability Development and Procurement

Europe's military space capabilities remain fragmented, resulting in duplication, inefficiencies, and critical gaps. Member states should therefore coordinate the development and procurement of defence-relevant space assets through mechanisms that already exist, such as PESCO. Priority areas include cyber-resilient ground systems, military-grade SSA sensors, secure communications satellites, and rapid-launch microsystems for space reconstitution.

Collaborative procurement would reinforce Europe's industrial base, reduce reliance on external providers, and enhance interoperability. These mechanisms are proven and functional; applying them to the space domain is largely a matter of political will rather than institutional innovation.

5. Conclusion

Europe's vulnerability in space arises primarily from structural fragmentation rather than technological gaps. Defence remains a national responsibility, leaving the EU with advanced civilian space programmes but no integrated military posture in a contested domain. Divergent national doctrines, dispersed SSA capabilities, and uncoordinated procurement weaken deterrence and increase dependence on external partners.

Yet this fragmentation is not insurmountable. The EU and its member states have already built effective, sovereignty-respecting cooperation frameworks in other security-relevant domains—such as maritime surveillance, border management, and cyber coordination—that provide shared awareness and operational interoperability without requiring supranational control of armed forces. Applying similar principles to space would enable the EU to develop a collective space-security architecture, integrating situational awareness, joint attribution mechanisms, shared response standards, and coordinating capability development through mechanisms like PESCO.

The task is not to federalise space defence but to coordinate it. Strengthening these connective structures is essential if Europe is to maintain strategic autonomy and remain resilient in an era of intensifying competition in orbit.