



ROMANIA'S SPACE ASPIRATIONS AND THE EU SPACE STRATEGY FOR SECURITY AND DEFENCE

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The article explores the interplay between European Union's Space Strategy for Security and Defence and Romania's space aspirations, analysing its key facets and their potential effects. As space gains significance for security and defence of the EU as a whole, understanding its opportunities and challenges is crucial. Investigating elements such as shared threat awareness, space system resilience, response strategies, and responsible behaviour in outer space, the article provides insights for stakeholders to harness EU space capabilities. The article concludes by assessing implications for the domestic realm. EU Space Strategy for Security and Defence addresses space intricacies with political, operational and other fields of action. By focusing on vital components such as threat understanding, system protection, responsive measures, and cooperative behaviour, the article sheds light on EU Space Strategy's strategic importance in the defence and security realms.

Keywords: *Space Domain Awareness; EU Space Strategy for Security and Defence; Space Assets; Space Surveillance and Tracking; Space Situational Awareness; Space Security; Resilience; responsible behaviour.*

Introduction

In an era marked by unprecedented technological advancements and a rapidly evolving geopolitical landscape, securing the access to outer space (civilian or military) has become a paramount concern for nations around the globe. As strategic competitors increasingly target the space domain, the European Union (EU) has taken

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steps to strengthen its presence and resilience in space through the development of a comprehensive Space Strategy for Security and Defence (European Union, EU Space Strategy for Security and Defence: for a stronger and more resilient European Union 2023). This strategy, conceived under the broader framework of EU Strategic Compass (European External Action Service n.d.) seeks to not only safeguard critical space infrastructure but also to harness the opportunities presented by the space domain to bolster security efforts on Earth (Georgescu, et al. 2016, Bucovetchi, Botezatu and Stanciu 2020).

As the EU propels forward with its visionary space strategy, an alignment emerges with the aspirations of Romania, a nation marked by its nascent space ambitions and a legacy of innovation. Romania's earnest dedication to space research and technology casts it as a significant collaborator in the realization of EU objectives. With an emerging space sector encompassing, inter alia, Space Surveillance and Tracking capabilities, Earth observation expertise, and exploration at the vanguard of space science, Romania has subtly showcased its commitment to pushing the frontiers of scientific discovery and technological progression (Botezatu and Piso, Vital Outer Space Infrastructures: Romania's Pursuits and Achievements 2020). This alignment harmonizes flawlessly with EU strategy, which envisions a collective strengthening of space situational awareness and safeguarding of space-based assets, fact that constitute the subject of this article.

Romania's strategic position at the crossroads of Eastern and Western Europe further enhances its potential to contribute to EU space endeavours (Botezatu and Piso, Vital Outer Space Infrastructures: Romania's Pursuits and Achievements 2020). The nation's commitment to fostering international collaboration in space research and innovation resonates with the EU's emphasis on partnership and cooperation in the space domain, particularly within EU Space Regulation mechanisms, EUSST Partnership as well as in other intergovernmental organizations such as the International Standardization Organization and European Space Agency. By aligning its space ambitions with EU strategy, Romania has the opportunity to not only fortify its own space security but also to serve as a beacon of collaboration for other like-minded nations aspiring to navigate the complexities of the space frontier. As the EU invests in space situational awareness, the security of space infrastructure, and the development of joint operational mechanisms, Romania's contribution could prove instrumental in achieving a safer and more prosperous space environment for all (Botezatu and Piso, Vital Outer Space Infrastructures: Romania's Pursuits and Achievements 2020, EUSST 2023).

Bearing these factors in mind, this article explores the intersecting pathways of the European Union's Space Strategy for Security and Defence and Romania's emerging presence in the space domain, particularly in the strategic and policy strata. Romania's active participation in organizations such as the European Space Agency



(ESA), EUSST Partnership, in addition to United Nations (UN), and European Union (EU) reflects its commitment to shaping the regulatory landscape of outer space activities. By examining the key pillars of the EU strategy and aligning them with Romania's space endeavours, I explore how these intersecting narratives pave the way for enhanced space security, technological advancement, and collaborative achievements. Through the fusion of EU ambition and Romania's dedication, a novel chapter in the quest for space security and exploration is poised to unfold, with promising benefits for the society at large.

1. EU Space Strategy for Security and Defence

EU Space Strategy for Security and Defence has been released in March 2023, following a series of consultative meeting with EU Member States. Nevertheless, this endeavour ought to be contextualized within an array of regional initiatives, encapsulated in multiple documents. These will be succinctly outlined in the following sections to provide a unified comprehension of the foundational elements of this Space Strategy. It should be noted that the consultative and collaborative process with EU Member States at operational level is still in progress. As such, this article is not intended to be comprehensive, but rather aims to shed light on the ongoing progression for the sake of transparency.

The EU's stance on security and defence has seen substantial transformation through various strategy documents over the years. Initially, the 2003 European Security Strategy (G. Council of the European Union 2009), helmed by Javier Solana, served as the foundational roadmap for addressing numerous security issues. This was paralleled by EU anti-proliferation strategy, which highlighted the Union's resolve to address weapons of mass destruction (Council of the European Union 2003), especially in light of the discord over the American invasion of Iraq in 2003 (van Ham 2011).

More than ten years later, a holistic approach emerged with the creation of the Global Strategy under the High Representative of the Union for Foreign Affairs and Security Policy, Federica Mogherini (European Union External Action Service, A Global Strategy for the European Union's Foreign and Security Policy 2016). This plan broadened the scope to include more than just security concerns, incorporating wider diplomatic objectives. It also distinguished itself by calling for civil society's opinion, although it lacked the formal endorsement from EU member nations. Following this, the 'Strategic Compass' (European Union External Action Service, A Strategic Compass for Security and Defence 2022) was issued in 2022, accentuating the need to prepare for challenges in space, thereby paving the way for EU Space Strategy for Security and Defence.

Spearheaded by Josep Borrell, the latest space-focused strategy is a departure from a broader approach to a more specialized one. Though detailed operational

plans are less explicit in this new strategy, much like its forerunners, it nonetheless reflects a collective agreement on the evolving security landscape and a willingness to employ a coordinated toolkit to tackle these challenges.

The new EU Space Strategy represents an extension of EU ongoing efforts to solidify its strategic autonomy in various sectors, ranging from security and trade to technology and now, the domain of outer space. Nevertheless, this approach is to be identified in various formats also in the previous programmatic EU documents. One recurring theme in the progressive evolution of these strategies is the ambition for European self-reliance in strategic matters, first officially noted in a 2013 document. This concept has increasingly found its way into subsequent policies, receiving explicit support from the European Commission under Ursula von der Leyen’s leadership (Burni, et al. 2023). The Strategic Compass, informed by the EU’s inaugural collective threat assessment, further entrenches this aim and notably incorporates outer space policy—a topic previously neglected.

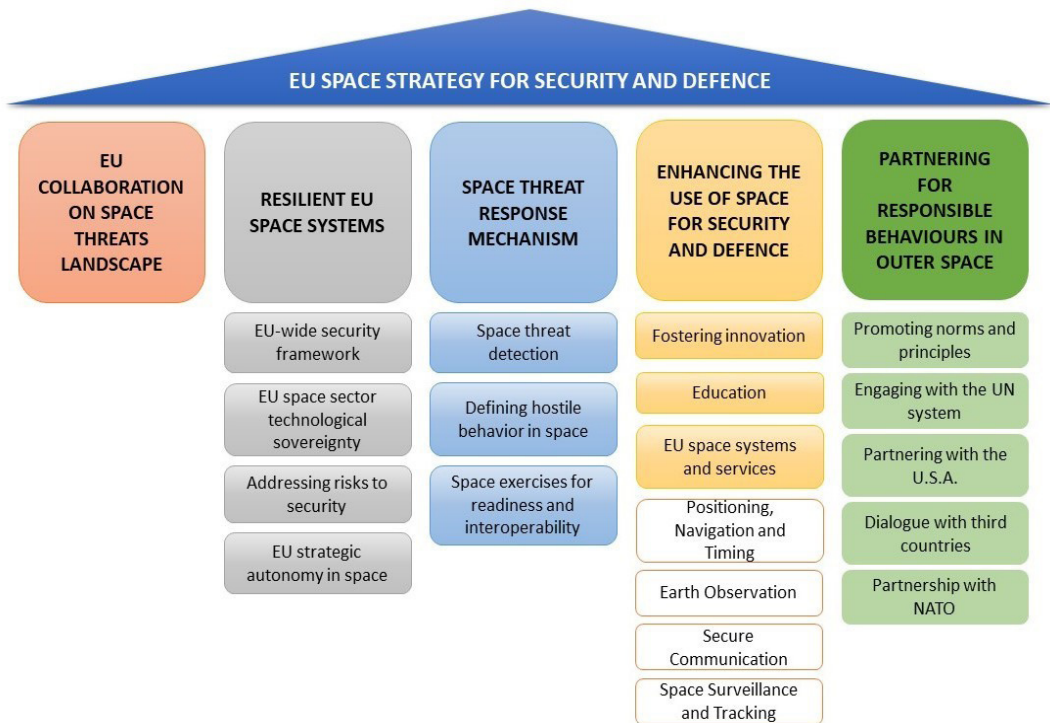


Figure no. 1: Key dimensions of the EU Space Strategy for Security and Defence (visualization made by author after the text of the Space Strategy for Security and Defence)



EU Space Strategy for Security and Defence stands as a resolute response to the evolving challenges posed by the intensifying competition in outer space (European Union, EU Space Strategy for Security and Defence: for a stronger and more resilient European Union 2023). At its heart lies a three-fold mission: to secure access to space domains, enhance resilience to emerging threats, and ensure the peaceful and responsible use of outer space. In its comprehensive approach, the strategy underscores the interconnectedness of space security with broader geopolitical stability, recognizing that the activities and capabilities of strategic competitors can profoundly impact global security dynamics. Central to the strategy's core elements is the need to fortify situational awareness and safeguard space-based assets (see Figure no. 1). This is particularly crucial given the rising congestion of orbital debris and the heightened risk of collisions that could severely disrupt crucial services such as communication, navigation, and Earth observation. The EU intends to enhance its space situational awareness through investments in surveillance and tracking technologies, enabling timely and accurate threat assessment (EUSST 2023). Such awareness not only protects valuable space infrastructure but also bolsters international efforts to maintain a safe and sustainable space environment – a goal consonant with the EU commitment to responsible and cooperative space conduct.

The achievement of security and self-defence in outer space domain is key. The EU recognizes that the space frontier is no longer insulated from terrestrial security challenges; it has become a contested arena for strategic competition, necessitating the safeguarding of critical space assets against threats such as cyberattacks, malicious interference, and the weaponization of outer space. In this context, the EU approach is to synergize civil and military capacities, fostering collaboration between civilian and military intelligence and security services. The use of the EU Single Intelligence Analysis Capacity (SIAC), initially intimately linked to the establishment of the European Security and Defence Policy (ESDP) and the creation of the post of High Representative in 1999, serves as a central hub for processing strategic intelligence, ensuring a unified response to emerging threats and enabling rapid decision-making across EU institutions and Member States.

To achieve its goals, the EU has laid out a comprehensive set of strategies and action plans. The EU Space Strategy envisions strengthening EU cyber defence posture to guard against state-sponsored cyberattacks on critical space infrastructure. Through the European Cyber Resilience Act, the EU aims to enhance its cyber infrastructure, establish Security Operations Centres, and foster cross-border cooperation to mitigate cyber threats. Furthermore, the strategy places strong emphasis on countering hybrid threats, including foreign information manipulation and interference. By developing a Foreign Information Manipulation and Interference Toolbox, the EU seeks to detect, analyse, and respond effectively to disinformation campaigns and hybrid tactics.



In conclusion, the EU Space Strategy for Security and Defence stands as a testament to the union's commitment to fostering a secure, resilient, and cooperative space environment. By addressing the multifaceted challenges presented by the growing militarization and congestion of outer space, the strategy endeavours to protect the benefits of space activities for all. As EU ambitions converge with Romania's space endeavours, a collaborative and secure space future emerges, promising not only enhanced security but also pioneering achievements in the exploration and utilization of the outer space frontier.

2. Towards an European Strategic Autonomy?

How does EU Space Strategy contribute to its stated goal of achieving strategic autonomy? Firstly, the strategy aims to transition from a space policy primarily focused on civilian applications to one that also includes certain military aspects, thus openly recognizing the 'dual-purpose nature of space resources. Secondly, it seeks to set a foundational framework for safeguarding EU's assets in space while coordinating with individual nations' space defence plans. This aims to gradually bring about a harmonized Space Strategy across all EU member countries.

For now, actions to align member state policies at the EU level can be carried out through Article 189 of the 2007 Treaty on the Functioning of the European Union (TFEU) (European Union, Treaty on the Functioning of the European Union 2017), which encourages the development of a cohesive European space policy focused on scientific advancement, industrial competitiveness, and policy implementation. Nonetheless, the actual framing and execution of such a policy face considerable challenges due to the existing distribution of powers between the EU and its member states. The end goals implicitly suggest a shift of certain powers to the EU that are currently held by individual countries. While Article 189 TFEU does not allow for the standardization of member state laws, Article 4.3 TFEU clarifies that EU powers should not inhibit member states from exercising their own. Although the space strategy cannot alter this legal framework, it does spotlight the possibilities for strategic independence in the domain of space for the EU.

Additionally, regarding partnerships and treaties in the realm of space security, the EU formulates its stance on space defence within the context of its commitment to global norms, as laid out in Article 2 of the 1992 Treaty on European Union (TEU). The EU, as a strong proponent of international legality, advocates for the non-violent use of space, compliance with global space laws, and the prevention of a space arms race. Yet, the EU also needs to safeguard its space resources. The document is organized into multiple sections, each addressing different aspects: Section II dives into the importance of space defence in today's international relations; Section III provides an overview of space resources either currently in



place or under development by EU countries; Section IV elaborates on the goals of the EU Space Strategy; Section V offers policy suggestions to tackle the strategy's limitations; and Section VI concludes with some final thoughts.

Pol Morillas argues that for the EU to effectively establish its own strategic autonomy strategy in foreign matters, it necessitates a well-structured institutional and policy landscape (Morillas 2021). He points out three major obstacles: the hindrance of progress due to veto power at the Union level, ambiguity surrounding the rules of Qualified Majority Voting, and an overly restrictive concentration on issues of security and defence. To navigate past these impediments, firstly Morillas advocates for expanding the scope of strategic autonomy to encompass all facets of foreign affairs, thus promoting a more unified approach. In a second point, he underscores the critical role that EU member nations must play in working towards this independent strategy. Thirdly, he recommends zeroing in on specific thematic and geographical areas where the need for autonomy is most pressing and where strengths are most evident. In his fourth point, Morillas encourages stronger cohesion and leadership within the EU, including the cultivation of political agreement. As a final point, he proposes employing adaptable collaboration strategies, such as inviting non-member nations to participate in specialized projects.

Furthermore, Sven Biscop contends that the success of EU ambition for strategic autonomy is intimately linked to its level of integration, particularly in extending its military capabilities globally (Biscop 2022). Biscop warns that as America refocuses its attention towards Asia and as surrounding regions become more unstable, the urgency for the EU to act is escalating. He lists five critical perspectives that need to be universally adopted by EU bodies and its member nations for the idea of strategic autonomy to materialize. These perspectives entail seeing the EU as a major actor on the world stage, taking the lead in establishing stability in adjacent regions, committing to the 1999 Headline Goals, striving for autonomy by consolidating European resources, and facilitating the amalgamation of national military forces into enduring, unified structures. Biscop clarifies that such military integration does not necessarily lead to a single European military force but can be achieved through effective pooling of national resources.

Moreover, Ana E. Juncos contends that the current discourse on Europe's strategic autonomy is overly concentrated on military and defence initiatives (Juncos 2022). Juncos emphasizes that EU core competencies actually lie in the spheres of conflict avoidance, mediation, post-conflict reconstruction, and fortifying resilience. She insists that while beefing up its armed capabilities, the EU must not neglect its civilian roles in ensuring global security. Juncos also advocates for improved synergies in various foreign policy sectors, like the intersection of climate change and security, as well as between the EU and global institutions like the United Nations. She also calls on member nations to honour their pledges in these fields, aligning them with EU broader strategic objectives.



In their policy analysis, Claudia Major and Alessandro Marrone explore the idea of European self-autonomy in strategic affairs, focusing on the critical role of robust alliances (Major and Marrone 2022). They contend that the goal is not to be isolated from external entities, but to have the capacity to accomplish objectives through effective collaborations. The authors point out that the EU's existing partnerships, although numerous, lack a coherent focus. As a way forward, they advise giving special attention to affiliations with NATO, the US, and the UK, given their pivotal roles in maintaining European stability. They believe that these alliances can work in harmony, generating a positive cycle that is mutually beneficial. To form productive alliances, Major and Marrone emphasize the importance of gauging what these principal partners seek to gain from a collaboration with the EU, as well as what the EU itself can bring to the table. They assert that any alliance efforts should commence with a well-articulated set of European objectives.

To secure autonomous strategic capabilities, advancing integration in the areas of defence and security is of essential importance (Burni, et al. 2023). There is a need for synchronized goals among EU institutions and member states, along with the requirement for more versatile and streamlined organizational systems. EU's aims in its interactions with strategic partners are also of paramount importance. Although the progress to date falls short of expectations, it is both practical and advantageous to build upon existing arrangements and systems to further strategic autonomy, such as the collective pooling and sharing capabilities of EU Member States in the field of SSA and SST. Considering the unstable and high-risk global security environment, the EU not only faces an urgent need to actualize its strategic autonomy, but the current political climate also provides a favourable window for such action.

Although there are multiple perspectives on the EU's efforts to achieve strategic autonomy, particularly in the realms of security and defence, well-structured institutional framework, along with EU member nations being actively involved in shaping this strategic regional autonomy are emphasized. In addition, the scope of strategic autonomy should be broadened to include all aspects of foreign affairs. Moreover, the Strategy highlights the urgency of EU's actions, especially as the US shifts its focus towards Asia, and the neighbouring regions become more unstable. The importance of integrating military capabilities is stressed, not necessarily leading to a unified European military, but through effective pooling of national resources. Moreover, the EU's core competencies in conflict avoidance, mediation, and post-conflict reconstruction should not be neglected. Strategic partnerships, particularly with NATO, the US, and the UK, are seen as crucial for achieving European goals.

In the outer space realm, the call for more integrated defence capabilities could extend to space-based assets. EU strategic partnerships could be particularly important for advancing its space strategy, given the global nature of space



exploration and security. Finally, the stress on broadening the scope of strategic autonomy to include all foreign affairs could easily incorporate space, given its growing role in global communications, security, and surveillance. The unstable global environment adds urgency to advancing these space-related aspects of the EU's strategic autonomy.

2.1. An European space defence policy?

In our interconnected global society, the outer space is no longer just a frontier for scientific inquiry but a vital arena for military capabilities. The marriage between advanced satellite technology and armed forces is more than evident; it's now a cornerstone for executing coordinated operations and making informed decisions on the battlefield. This increasing dependency on cosmic assets amplifies the need for comprehensive policies that focus on cosmic defence and security.

Satellites are no longer just a luxury; they are a necessity for modern military undertakings. From instantaneous data exchanges that enhance collaborative efforts to Global Navigation Satellite Systems crucial for mission-critical navigation and precise offensive actions, these space-borne technologies serve both military and civilian ends. They have a dual role, not only fuelling military applications but also contributing significantly to civil life and global economies.

Yet, the dependencies come at a time of heightened global conflict and geopolitical shifts. Far from being a neutral zone, space has seen a concerning trend towards militarization and outright weaponization. Nations like the US, China, and Russia, alongside emerging space powers such as India, are not just developing technologies for defence but are also pushing the envelope towards offensive capabilities. These include anti-satellite systems that could impair or even obliterate orbital assets, adding a new layer of hazardous debris in orbit and introducing additional variables into an already complex equation.

Against this backdrop, the European context cannot be overlooked. Countries including France, Germany, and Italy have robust space programs and are contributors to the EU's space endeavours. Recognizing the vulnerabilities posed by this new frontier, the EU has rolled out its own roadmap for securing its orbital assets, highlighted in its Space Strategy of 2023. The agenda is not just a space security initiative but is woven into EU broader geopolitical and defence schemes. One example is the collective effort of currently 15 EU Member States to share civil-military observational data among each other and to provide services of Collision Avoidance, Fragmentation and Re-Entry into atmosphere to satellite operators across the world (EUSST 2023).

Space is not merely a regional concern but a global one, demanding worldwide collaboration for maintaining its peaceful usage. In this vein, EU Space Strategy dovetails with overarching global efforts, notably the policies



espoused by the NATO. The mutual objective is to capitalize on the benefits of orbital space while minimizing associated vulnerabilities. This involves creating globally accepted norms that make space a cooperative domain rather than a battleground.

In sum, the strategic importance of orbital assets for contemporary military actions, combined with the progressively contested nature of space, compels national and multinational bodies like the EU to establish vigorous and well-coordinated space defence strategies. These plans not only protect specific national and regional interests but also serve the broader goal of maintaining global peace and stability, both on Earth and beyond.

2.2. Novelties of the EU Space Strategy for Security and Defence

The EU Space Strategy for Security and Defence heralds a new era of strategic relevance in the realm of space activities. This visionary blueprint not only outlines the ambitions of the EU in space but also resonates with its overarching goals of security, defence, and innovation. As the strategy takes shape, its implications reverberate across member states, including Romania, offering profound strategic opportunities and presenting challenges that warrant careful consideration.

At its core, the EU Space Strategy seeks to enhance the security and defence capabilities of the EU by leveraging space assets. With a growing dependence on space-based services such as communication, navigation, and Earth observation, securing these critical infrastructures becomes imperative (Botezatu, Attempted Cyber Security of Systems and Operations in Outer Space: an Overview of Space-based Vulnerabilities 2023). The strategy acknowledges that space is not only an avenue for exploration and knowledge but also an arena where security and defence considerations converge.

Among the initiatives outlined in EU Space Strategy, several ground-breaking elements are noticeable. Most prominently, the strategy introduces a paradigm shift, moving from primarily scientific and civilian space activities to a greater emphasis on defence-related applications. This involves the advancement of new versions of existing projects like Copernicus and the forthcoming IRIS², in addition to expanding the defence-oriented aspects of the existing Galileo project's Public Regulated Service. The plan also seeks to unify space legislation across EU member nations.

There's a marked resolve to invest significantly and set specific timelines to realize these objectives, indicating a strong commitment to the strategy's aims. The strategy also includes the participation of EU Single Intelligence and Analysis Capacity (SIAC) to provide annual assessments of space-related threats, alongside utilizing Space Domain Awareness (SDA) capabilities from those member states that have them.



The strategy also proposes integration among the European Defence Fund (EDF), the Horizon Europe research program, and the EU Space Programme to fortify space-related defence capacities. Furthermore, it lays out plans to conduct military exercises in space, although the exact nature of these is yet to be detailed. Notably, the strategy also signifies a new depth in defence collaboration with the US and NATO in the realm of space.

This strategic shift underscores the importance of developing space situational awareness (SSA) capabilities. The strategy advocates for improved space traffic management, collision avoidance, and enhanced surveillance of activities in orbit. For member states like Romania, which actively participates in a consortium of space surveillance and tracking technologies, the strategy aligns seamlessly with ongoing efforts to ensure the security and sustainability of space operations.

Moreover, the strategy amplifies the role of space in defence operations. It advocates for the integration of space-based assets in military activities, including communication, navigation, and reconnaissance. This integration not only enhances the effectiveness of defence operations but also underscores the need for robust space capabilities to deter and respond to potential threats. Romania's commitment to strengthening its space capabilities, through participating in operational global exercises such as Global Sentinel, or in sharing SST data at EU level through its membership in EUSST Partnership, positions the nation to leverage these strategic advancements.

However, the implementation of the EU Space Strategy is not without challenges. One notable concern is the potential militarization of space and the associated risks of an arms race. As member states bolster their space capabilities for security and defence purposes, the fine line between peaceful exploration and militarization must be carefully navigated. The strategy's emphasis on responsible conduct in space aims to mitigate this risk, advocating for the prevention of conflicts in orbit.

Furthermore, the strategy necessitates significant investment in research, technology development, and infrastructure. Ensuring a harmonized approach among member states is crucial to achieving the strategy's goals. The allocation of resources, technology sharing, and collaborative research endeavours demand consistent commitment and coordination.

In conclusion, the EU Space Strategy for Security and Defence unveils a transformative path for Europe's engagement in the space domain. Its strategic implications encompass the realms of security, defence, and innovation, echoing the broader aspirations of the EU. Romania's alignment with this strategy positions the nation as a significant player in the space landscape. While opportunities for enhanced security and defence capabilities abound, challenges such as the responsible use of space and resource allocation beckon careful consideration. As the strategy's contours continue to unfold, its successful realization will rely on the collective determination



of member states, including Romania, to harness the strategic potential of space for the betterment of the European continent and beyond.

2.3. Remaining gaps

The EU's space strategy offers a more integrated perspective, but lacks the precision in articulation one might desire, especially concerning defence-related issues. In contrast to the explicit space policies of individual nations like France or the UK, EU approach is notably more ambiguous. Given the absence of prior, EU-centric directives pertaining to space, assessing its strategy necessitates drawing comparisons with existing frameworks from other significant actors in the realm of space technology.

Furthermore, it's noteworthy that the language of the strategy sidesteps two significant dimensions: disarmament and non-proliferation on the one side, and the peaceful utilization of outer space, on the other, i.e. 4th and 1st UN Committee issues. Instead of deftly intertwining these essential vocabularies to forge a comprehensive approach, the strategy manifests ambiguity. This omission not only leaves gaps in policy but also creates room for divergent interpretations, weakening the strategy's impact and clarity. By failing to explicitly address both the disarmament aspects and the peaceful uses of outer space, the strategy misses an opportunity to present a nuanced and robust roadmap that could balance security concerns with ethical imperatives.

The EU document tends to prioritize crafting a unified narrative over emphasizing military aspects. It conspicuously omits language commonly found in national space strategies concerned with defence, such as terms that allude to acquiring a "tactical advantage" or realizing "commercial gains". This deliberate lexicon choice is unsurprising, considering EU circumscribed role in defence matters, yet it circumscribes the document's efficacy in addressing issues of defence. Moreover, from a technological perspective, the EU's capabilities in space fall short of the rigorous demands inherent to defence applications. Constraints such as sporadic updates to satellite imagery and limited resolution undermine the efficacy of the strategy for defence-related objectives. This discrepancy accentuates the need for deeper involvement from the defence ministries of member nations.

The endeavour to establish a cohesive space law framework within the EU encounters a variety of challenges. While there have been isolated initiatives and legislative suggestions, these efforts fall short of achieving comprehensive legal alignment among member nations – a process further muddled by the constraints of extant EU agreements.

Moreover, EU aspiration to fortify its space security relationship with the US invites scrutiny. Although international partnerships often yield advantages,



an excessive dependence on the US could imperil EU own quest for strategic autonomy. This poses a complex dilemma that necessitates judicious evaluation to ensure congruence with broader objectives, notably those articulated by High Representative Josep Borrell (Muñoz and Portela 2023).

3. Romania's Space Ambitions

Romania, a quiet yet pioneering nation in the space domain, has quietly etched its name onto space exploration. Historically part of the Eastern Bloc, Romania played an understated but significant role in space missions during the 1970s and 1980s. Collaborating within the Soviet-led framework, the country contributed to joint missions that saw cosmonauts of diverse nationalities journeying into the extra-atmospheric realm.

One of Romania's distinguished cosmonauts, Dumitru-Dorin Prunariu, participated in the Soyuz 40 mission as part of the Interkosmos program in 1981. A decade later, Prunariu's pivotal role continued as he co-founded the Romanian Space Agency (ROSA), a notable milestone that led to Romania's integration into the European Space Agency (ESA) in 2011. This historical progression reflects Romania's commitment to space exploration and collaboration within international space agencies.

Romanian was about to raise its flag alongside those of 12 other European nations on the primary stage of VEGA C, an orbital rocket, launched in July 2022 (AGERPRESS 2022). As a member of the ESA, Romania's growing significance in space activities is acknowledged and celebrated on the global stage.

A crucial facet of Romania's growing space ambitions is its keen involvement in space surveillance and tracking (SST) technologies. By contributing to a SST Partnership encompassing 15 European countries, Romania underscores its dedication to monitoring and tracking space objects, including the burgeoning population of satellites orbiting Earth in low-Earth orbit (EUSST 2023). This commitment aligns seamlessly with the principles of the EU Space Strategy, emphasizing the importance of secure and sustainable space activities.

This year, Romania further solidified its presence in the international space community by signing the Artemis Accords proposed by NASA (NASA n.d.). The accords establish shared principles and best practices for lunar exploration. Romania's engagement in this initiative echoes the strategy's emphasis on global collaboration and responsible space conduct.

As Romania sets its sights higher, its collaboration with emerging space entities also comes to the fore. Such endeavours resonate with the EU Space Strategy's core elements, emphasizing innovation, resilience, and global collaboration. Romania's journey to the stars is a testament to its commitment to pushing the boundaries



of exploration while aligning harmoniously with EU strategic vision for the space domain.

As Romania continues to deepen its integration within the EU, it's crucial to recognize the growing significance of EU Space Strategy for Security and Defence. Below are several key recommendations on how Romania can benefit and contribute to this strategy.

Firstly, Romania should actively engage in the initial stages of the updated Copernicus program. Since Copernicus has been valuable for both civilian and defence sectors, it offers Romania an opportunity to bolster its military capabilities in areas like surveillance and intelligence gathering. By having an active role in shaping this program, Romania can ensure that its defence requirements are met, while potentially influencing broader EU policies.

Secondly, given that space capabilities vary among EU member states, Romania should advocate for and participate in a structured coordination system for defence-related space issues. While Romania may not have extensive space assets, contributing to this framework could lead to shared knowledge and resources. This inter-state collaboration would not only elevate Romania's own capabilities but also reinforce the collective defence mechanisms of the EU.

Thirdly, Romania could benefit from closely observing advancements in the US space launcher sector, especially the strides made by companies like SpaceX. Drawing insights from these developments could inform Romanian contributions to EU strategies for independent space access, enhancing both EU and Romania's competitive edge in this sector.

Furthermore, Romania has a stake in the harmonization of space-related laws within the EU. By participating in the creation of a unified legal framework for space activities, Romania can help ensure that regulations align with its own national interests, while also contributing to the collective objectives of the EU. This could cover areas such as space debris management, traffic regulations, and the protection of space assets.

Moreover, Romania should leverage the expertise of existing EU agencies specialized in space activities, such as the European Union Satellite Centre (SatCen). By actively participating in these specialized entities, Romania can capitalize on existing knowledge and resources, thereby enhancing its role and standing within EU overall space strategy.

Finally, as Romania takes strides in asserting its presence in the outer space domain it becomes imperative to articulate a comprehensive national space policy framework. Such a blueprint should be underpinned by strong political will and be crafted by individuals with specialized expertise in space policy. Moreover, to fully harness the potential of space for national development, security, and international collaboration, Romania must institute a well-coordinated institutional framework.



This structure should seamlessly integrate civilian and military space agencies, thereby enabling a harmonized approach to space exploration, commercial ventures, and defence applications. In doing so, Romania will not only fortify its role in the ESA, EUSST Partnership and in other intergovernmental organizations,

In conclusion, Romania stands to gain considerably from an integrated and robust EU Space Strategy for Security and Defence. By proactively engaging in these key areas, Romania can significantly enhance its defence capabilities, contribute to collective EU security, and strengthen its position within the Union.

Conclusions

In the wake of an ever-evolving global landscape, the convergence of space exploration, security, and defence has ushered in a new paradigm. This article has explored the confluence of the European Union's Space Strategy for Security and Defence with Romania's space ambitions, unearthing a narrative of strategic foresight, collaboration, and potential.

The main findings of this article underscore the resonance between the EU Space Strategy and Romania's aspirations. Romania, with its quiet space exploration history, has embraced a trajectory that aligns with the broader objectives of the strategy. The country's active participation in space surveillance and tracking technologies, its microsatellite launch initiatives, and contributions to planetary exploration all reflect a harmonious integration with the strategy's emphasis on bolstering space capabilities for security and defence.

The EU's concerted efforts to unite member states under a shared vision have paved the way for a collaborative approach to space exploration, where individual aspirations complement and amplify collective endeavours. Romania's endeavours in space stand as a statement of the broader European commitment to fortify security and defence through technological innovation and cooperative ventures.

Importantly, the EU Space Strategy holds far-reaching significance beyond the borders of individual member states. By intertwining security and defence imperatives with space exploration, the strategy charts a course toward a safer and more resilient orbital environment. The emphasis on responsible conduct and conflict prevention in space serves as a testament to EU commitment to maintaining the peaceful use of outer space for the betterment of humanity.

As the EU Space Strategy takes flight and Romania continues to contribute its expertise and resources, the confluence of these efforts embodies a promising trajectory for the future. By harmonizing security, defence, and space exploration, the EU and its member states, including Romania, are not only propelling their own interests but also exemplifying the potential for global cooperation in the pursuit of common goals.



In essence, the journey into the final frontier has evolved into a journey of strategic unity and shared aspirations. The legacy of Dumitru Prunariu's space exploration and Romania's subsequent rise as a space pioneer converge with the EU Space Strategy's unfolding chapters, encapsulating the spirit of innovation, exploration, and security that define the space endeavours of the modern era.

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