Greece's Participation in the European Space Agency: Legal and Institutional Dimensions of European Integration

Fotios Papadopoulos¹ University of Peloponnese

1. Introduction

Greece's participation in the European Space Agency (ESA) presents a compelling case study of how smaller Member States navigate the institutional and legal complexities of European integration in emerging policy fields. Since its accession as a full member in 2005, Greece has progressively aligned its national space strategy with the broader objectives of the European Union, including technological sovereignty, legal harmonization, and strategic autonomy in the space sector.² This alignment, however, remains fragmented and subject to institutional, legal, and political challenges.

This presentation situates Greece's engagement with ESA within the evolving framework of European constitutional *status quo*, with particular emphasis on the interplay between intergovernmental cooperation and supranational governance. While ESA is not an EU body, its increasing functional convergence with EU institutions, particularly through flagship initiatives such as *Copernicus* and *Galileo*, raises important legal questions regarding the distribution of competences, the principle of conferral, and the role of national legal orders within this hybrid governance structure.

¹ PhD Candidate at the University of Peloponnese (Greece), focusing on the EU Constitutional Law.

² See: European Commission, *Towards a Space Strategy for the European Union that Benefits its Citizens*, COM(2011) 152 final, and *EU Space Strategy for Security and Defence*, JOIN(2023) 9 final. The alignment with strategic autonomy and technological sovereignty reflects broader policy shifts within the EU after 2016, following the Global Strategy and the establishment of the EU Space Programme under Regulation (EU) 2021/696. While Greece's national space strategy remains underdeveloped in formal terms, successive initiatives, including its participation in Copernicus and Galileo, and the establishment of the Hellenic Space Center, indicate a growing functional convergence with Union priorities.

Methodologically, the paper adopts a qualitative legal analysis based on primary sources, such as ESA convention, EU treaties, and national legal instruments, and complemented by archival material as a result of the author's *in situ* research activity, including critical documentation from the Historical Archives of the EU. In particular, the research draws upon approximately 150 official documents and items of correspondence exchanged between the European Space Agency and competent Greek authorities.³ The aim is to examine the extent to which Greece's participation in ESA reflects, contributes to, or challenges key constitutional principles of the EU, notably subsidiarity, proportionality, and institutional balance.

Ultimately, this research seeks to contribute to the broader discourse on European integration by examining how peripheral or medium-sized Member States engage with specialized international organizations and align their policies with supranational frameworks. In doing so, it also aims to provide policy recommendations for enhancing Greece's institutional presence and strategic vision within the European space governance ecosystem.

2. The Legal and Institutional Framework of the European Space Agency

The ESA, established through the 1975 Convention for the Establishment of a European Space Agency, constitutes a unique model of intergovernmental cooperation in the field of space activities. Unlike the European Union, which is based on a supranational legal order, ESA operates under the traditional principles of international law, whereby sovereign states delegate limited competences for the purpose of achieving shared scientific and technological objectives.⁴ The legal nature of ESA as an international organization, distinct from but increasingly complementary to the EU, renders

³ The examined corpus includes memoranda, minutes of bilateral meetings, legal assessments, and correspondence between ESA Directorates and Greek ministries, archived at the HAEU under the HAEU Reference Code ESA-6889. Access granted pursuant to the HAEU's standard researcher accreditation procedures.

⁴ Convention for the Establishment of a European Space Agency, opened for signature on 30 May 1975, entered into force on 30 October 1980. See also: von der Dunk, F., *European Space Agency (ESA)*, in Max Planck Encyclopedia of Public International Law.

its institutional architecture particularly relevant to contemporary debates on multilevel governance in Europe.

ESA's governance structure is centred around <u>two main organs</u>: the **Council**, composed of representatives of the Member States and vested with decision-making authority; and the **Director General**, who serves as the Agency's legal representative and executive head. Decisions within the Council are taken either by *consensus* or by a *qualified majority*, depending on the matter at hand. This intergovernmental mechanism reflects a model of cooperation grounded in the principles of equal representation, negotiated participation, and financial proportionality.

Over the past two decades, the relationship between ESA and the EU has undergone a significant transformation, marked by institutional convergence and increased policy coordination.⁵ The signing of the *ESA–EU Framework Agreement in 2004* was a milestone in this process, as it formally recognized the mutual interest of both entities in developing a coherent European Space Policy. Although the Agreement did not alter the distinct legal personalities of ESA and the EU, it introduced a formal mechanism for dialogue, joint programming, and strategic alignment, particularly in relation to the EU's flagship programs Galileo (satellite navigation) and *Copernicus* (Earth observation).

Nonetheless, the legal and institutional duality of the ESA–EU relationship gives rise to several points of tension. First, there is an evident asymmetry in competences: whereas ESA retains operational autonomy over technical and programmatic implementation, the EU possesses legislative and budgetary authority over key space initiatives through instruments such as the *EU Space Programme Regulation* [Regulation (EU) 2021/696]. Second, the divergence in membership, with ESA including non-EU states such as Norway, Switzerland, and the United Kingdom, raises questions concerning

⁵ See Framework Agreement between the European Community and the European Space Agency, OJ L 261/64, 6 August 2004. See also: European Court of Auditors, *EU Space Programmes: Galileo and Copernicus*, Special Report No. 07/2019, and European Space Policy Institute (ESPI), *ESA–EU Relations*, ESPI Report 72, 2020.

regulatory coherence and political accountability. Finally, ESA's intergovernmental modus operandi can conflict with the EU's supranational decision-making processes, particularly in areas where the Commission seeks to assert leadership in strategic autonomy and technological sovereignty.

These institutional frictions have prompted scholarly debates on the need for a reconfiguration of the ESA–EU relationship. Some commentators advocate for the integration of ESA into the EU framework as a decentralized agency, while others emphasize the merits of maintaining its independence to ensure flexibility, inclusivity, and scientific neutrality. In either scenario, the legal principles that underpin ESA's operation, voluntary participation, program-based budgeting, and industrial return, will remain central to any prospective institutional redesign.⁶

Understanding the legal foundations and institutional dynamics of ESA is thus essential to assessing the implications of Greece's participation within this complex landscape. As the next section explores, Greece's trajectory within ESA provides insights into the opportunities and constraints that smaller Member States encounter when seeking to assert influence in technically specialized, yet constitutionally significant, domains of European governance.

3. Greece's Participation in the European Space Agency: Legal, Strategic, and Institutional Dimensions

3.1 Legal Pathway to Full Membership: Historical and Normative Context

Greece's accession to the ESA constitutes a particularly illustrative example of how a peripheral Member State can engage with a specialized international organization operating at the intersection of science, technology, and European integration. While Greece's involvement in broader European institutional frameworks, such as the European Union and the Council of

⁶ For views supporting integration of ESA into the EU framework, see: Jakhu, R. and Pelton, J., *Global Space Governance: An International Study* (Springer, 2017), pp. 194–197.

Europe, has long been the object of legal and political analysis, its engagement in sector-specific organizations like ESA has received comparatively less scholarly attention. This lacuna is striking, particularly in light of the increasing significance of space as a domain of both strategic policy and legal innovation.

The pathway to full ESA membership for Greece followed the structured, multi-phase accession model defined by the ESA Council. Initially, in January 2001, Greece entered into a *Cooperation Agreement with ESA*, marking the beginning of formalized interactions between Greek authorities and the Agency.⁷ The legal nature of such agreements is fundamentally intergovernmental and is governed by public international law, lacking the direct effect or supremacy that characterizes European Union law. Nevertheless, such agreements lay the groundwork for more substantive engagement by providing for information exchange, participation in selected projects, and initial capacity building.⁸

The legal and institutional culmination of this gradual engagement occurred on 9 March 2005, when Greece acceded as a full member of ESA, upon signing and ratifying the *Convention for the Establishment of a European Space Agency* (1975).⁹ This Convention, a classical treaty under public international law, constitutes ESA's constitutional charter. It establishes the agency's legal personality, institutional architecture, financial framework, and program structure. Importantly, Greece's ratification of the Convention brought with it binding obligations, financial, institutional, and political, while

⁷ The ESA Council has developed a structured enlargement model comprising three stages: a) initial Cooperation Agreements, b) participation in the Plan for European Cooperating States (PECS), c) and eventual full membership. Greece signed a Cooperation Agreement with ESA on 19 January 2001, providing the legal basis for joint activities in selected program areas. See: ESA, *Greece signs Cooperation Agreement with ESA*, ESA Press Release, 19 January 2001; and ESA, *Enlargement of ESA and Cooperation with Central and Eastern European Countries*, ESA/C (2001) 3.

⁸ The Cooperation Agreement between Greece and ESA was signed by the Greek Minister of industry, Energy and Technology and the Director General of ESA in the presence of the Greek Minister of Transport and Communications

⁹ At the end of the Conference of Plenipotentiaries, held in Paris on 30 May 1975, the Convention for the establishment of a European Space Agency (CSE/CS(73)19, rev. 7) was opened for signature by the Member States of the European Space Conference, until 31 December 1975.

also granting rights, such as full voting participation in the ESA Council and access to both mandatory and optional program.

From a legal standpoint, Greece's ESA membership differs significantly from its EU/EC membership. Unlike EU law, ESA law does not enjoy primacy over national legal orders, nor does it entail direct effect or automatic incorporation. Nevertheless, ESA obligations do require domestic legal and administrative implementation. Thus, following its accession, Greece was compelled to establish the requisite institutional infrastructure to interface effectively with ESA's program and decision-making bodies. This included the designation of national delegates to ESA program boards and committees, the establishment of liaison offices, and the adaptation of public procurement procedures to ESA standards.

Furthermore, ESA membership necessitated the articulation of a national space policy, a requirement that presented notable challenges for Greece, given the fragmented state of its science and technology governance at the time. Until the early 2010s, Greece lacked a dedicated public authority or coherent legal framework governing space activities. Matters related to satellite communications, remote sensing, and scientific research were dispersed across multiple ministries and public institutions, including the General Secretariat for Research and Technology, the Ministry of Defence, and various universities. This institutional fragmentation impeded the formulation of a unified strategy and hindered Greece's capacity to fully exploit the industrial return mechanisms embedded within ESA's legal framework.

The absence of a comprehensive domestic space law and the respective institutional framework also posed difficulties in aligning with ESA's requirements regarding liability, data governance, and contractual compliance. Although ESA operates under the principle of intergovernmental cooperation and does not enforce supranational harmonization, it does expect its members to ensure that national legal systems are capable of supporting contractual obligations, intellectual property rights management, and the safe

operation of space-related infrastructure. In this regard, Greece remains one of the few ESA Member States without a dedicated national space law, a legislative gap that limits the ability of private entities to participate confidently in space ventures and that complicates regulatory alignment with ESA and EU frameworks.

Nevertheless, the Greek legal order has gradually evolved to accommodate the requirements of ESA membership. Key milestones in this trajectory include the establishment of designated coordination bodies, such as the **Hellenic Space Agency** in 2018 and its successor, the **Hellenic Space Center** in 2019. These developments, while primarily administrative, also carry legal implications, as they serve as the designated authorities for contractual oversight, policy formulation, and representation in international *fora*. The Hellenic Space Center, in particular, has been tasked with the formulation of Greece's national space strategy, the coordination of research and industrial actors, and the harmonization of Greek participation in ESA and EU program.

The legal and administrative foundation laid through these developments enabled Greece to enter ESA's institutional core. The geographical return principle, enshrined in ESA's Industrial Policy (Annex V of the ESA Convention), guarantees that Member States receive an industrial return proportional to their financial contribution. For Greece, this principle has functioned as a key incentive, allowing Greek entities to access funding and contracts through a fair and balanced redistributive mechanism. It has also served as a legal lever for promoting domestic capacity building in a technologically demanding field.¹⁰

¹⁰ Recently, cooperation between ESA and Greek entities has further intensified. In 2024, *Planetek Hellas* signed contracts worth \in 11.5 million with ESA for the development of the Government Hub of the Greek Earth Observation Satellite Constellation. This project includes the processing and distribution of data for applications in agriculture, forestry, water, security, and land. Additionally, the "Hellenic Space Dawn" mission, led by *Emtech Space*, marks a significant step for Greece, as it involves the design, development, and operation of two small Greek CubeSats aimed at validating Greek space technologies in orbit. This \in 4 million project further enhances the country's domestic expertise and international collaborations in the space sector. In summary, the implementation of the geographical

Nonetheless, the actual implementation of geographical return has not always yielded the expected outcomes. Structural weaknesses in Greece's research and industrial base, combined with limited administrative capacity, have often led to under-utilization of entitlements, resulting in suboptimal participation in ESA program. The legal entitlement to industrial return does not automatically translate into absorption unless matched by national readiness, legal clarity, and operational coordination. In this context, the absence of a clear legal framework for public-private partnerships in space, as well as unresolved issues concerning intellectual property rights in publicly funded research, continue to hinder Greece's capacity to fully leverage its ESA membership.

In addition to industrial participation, Greece's legal obligations under the ESA framework extend to cooperation in scientific and educational initiatives. These include collaborative research under ESA's science programs, joint doctoral and postdoctoral placements, and participation in educational outreach activities. The implementation of such activities is subject to ESA internal rules, memoranda of understanding, and administrative agreements, which Greece must ratify and internalize on a case-by-case basis. This process underscores the inherently hybrid nature of ESA law, which straddles the domains of treaty law, soft law, and administrative practice.

Greece's full membership in ESA thus entails a complex web of international, regional, and domestic legal obligations, the successful navigation of which requires not only legislative adaptation but also a strategic vision for long-term integration. The Greek experience demonstrates that while legal accession to ESA is a formal process governed by international law, substantive integration depends on the national legal system's ability to adapt, implement, and coordinate across multiple policy

return principle has served as a legal and administrative tool to strengthen Greece's capabilities in the demanding field of space technology, promoting the country's equal participation and development within ESA's framework.

domains. This interplay between formal legal status and functional participation is emblematic of the broader dynamics of European institutional integration, particularly in specialized domains such as space governance.

Finally, the legal implications of ESA membership must be understoodaccording to the author's perspective- in the context of Greece's dual role as both an ESA and EU Member State. While ESA and the EU remain distinct entities, their institutional convergence, especially following the *2004 ESA–EU Framework Agreement*, has increased the importance of internal legal consistency and external alignment. As subsequent sections will explore, this duality raises complex questions regarding the articulation of national sovereignty, supranational regulation, and intergovernmental cooperation in the field of space law.

3.2 Strategic Objectives and National Space Governance

The strategic orientation of Greece's engagement with the ESA must be understood not merely as a response to scientific aspirations or geopolitical imperatives, but as a multifaceted and evolving policy choice shaped by national priorities, institutional capacity, and the dynamics of European integration. Greece's membership in ESA represents a conscious effort to reposition itself within the broader architecture of European science and technology policy and to harness the opportunities offered by participation in a high-technology, innovation-driven field. However, this strategic intent has often been constrained by systemic limitations within the national governance framework and persistent gaps in domestic policy formulation and implementation.

3.2.1 National Objectives: Between Symbolism and Structural Necessity

Greece's motivation to join ESA and participate actively in its programs has been shaped by a combination of symbolic, economic, scientific, and geopolitical considerations. On the symbolic level, membership in ESA was perceived as a signal of Greece's aspiration to modernize its institutional apparatus and to align itself with the core of European technological governance. At a time when Greece was undergoing profound transformations in its European orientation, culminating in its accession to the *Eurozone* in 2001, the decision to accede to ESA was also part of a broader narrative of convergence and reform.

Beyond symbolism, however, substantive strategic objectives have emerged. In this context, the Greek state has identified several core aims in its space policy:

a) The *development of national scientific and technological infrastructure*, particularly in areas such as satellite communications, Earth observation, and navigation systems.

b) The *promotion of industrial competitiveness*, through access to ESA's industrial return mechanisms and the stimulation of high-value, research-intensive sectors.

c) The *enhancement of strategic autonomy*, particularly in dual-use domains such as security, border surveillance, environmental monitoring, and disaster response.

d) The *integration into EU space policy frameworks*, allowing for alignment with EU flagship program and the broader goals of the Digital and Green Transitions.

These objectives were formally articulated in strategic documents such as the **National Research and Innovation Strategy** (RIS3 2014–2020) and subsequent governmental declarations, though often without a specific legislative underpinning or long-term budgetary commitments.

3.2.2 Institutional Framework: Fragmentation and Consolidation

Despite the clarity of strategic aspirations, Greece has historically lacked a centralized and coherent governance model for space policy. Until recently, responsibilities related to space activities were dispersed among multiple ministries and agencies, including the Ministry of Digital Governance, the General Secretariat for Research and Innovation, the Ministry of Defence, and public research institutions such as the National Observatory of Athens. This fragmentation led to significant overlaps in competences, inefficiencies in program coordination, and a general absence of strategic continuity.

In an attempt to address this institutional lacuna, the Greek government established the Hellenic Space Agency, in March 2018. The Hellenic Space Agency was intended to serve as the national focal point for space policy, to represent Greece in ESA and other international bodies, and to coordinate national participation in space program. However, from its inception, the Hellenic Space Agency was plagued by governance deficiencies, limited administrative autonomy, and political controversy. Within less than a year of its creation, it was dissolved and replaced by the Hellenic Space Center in 2019, which assumed its mandate under a more technocratic and legally stable framework.

The Hellenic Space Center, as a public law entity reporting to the Ministry of Digital Governance, represents a notable improvement in terms of administrative capacity, policy coherence, and institutional legitimacy. It has been tasked with the design and implementation of the national space strategy, the coordination of participation in ESA and EU program, and the development of synergies between the academic, industrial, and defence sectors.¹¹ In parallel, the General Secretariat for Research and Innovation retains a horizontal role in integrating space activities within the national R&I strategy, including funding coordination through national and European instruments.

Nevertheless, challenges persist. The lack of a comprehensive national space law, namely a framework statute regulating licensing, liability, spectrum management, remote sensing, and commercial exploitation, constitutes a major gap in the legal-institutional architecture. The absence of such

¹¹ See in Greek the act establishing the Hellenic Space Center: <u>https://hsc.gov.gr/wp-content/uploads/2021/08/fek idrisis elked.pdf</u>

legislation undermines legal certainty for public and private actors, complicates compliance with ESA standards, and impedes the entry of private capital into the space sector. In contrast, other small or medium-sized ESA Member States (e.g. Luxembourg, Portugal) have adopted detailed national space laws that facilitate public-private partnerships, attract investment, and streamline access to ESA procurement mechanisms.¹²

3.2.3 Scientific and Industrial Ecosystem

Greece possesses a highly capable, though underutilized, scientific base that includes a number of research institutions and academic departments active in astrophysics, Earth sciences, geospatial analysis, and communications engineering. Institutions such as the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, the Aristotle University of Thessaloniki, and the National Technical University of Athens have longstanding expertise in satellite data analysis, remote sensing, and applied space sciences.

These institutions have historically served as the primary Greek interlocutors with ESA, particularly through participation in projects funded under *Copernicus, ARTES*, and ESA's educational initiatives. The *Sentinel Collaborative Ground Segment*, hosted at the National Observatory of Athens, exemplifies the scientific contribution of Greek actors to ESA-led Earth observation activities. This involvement has enabled the domestic generation and processing of satellite data for use in environmental monitoring, urban planning, agriculture, and civil protection.

¹² Luxembourg has established a robust legal and institutional framework to foster its space sector. In 2017, the country enacted the Law on the Exploration and Use of Space Resources, making it the first European nation to provide a legal basis for private operators to claim ownership of resources extracted from celestial bodies. This legislation aims to attract private investment and establish Luxembourg as a hub for space resource utilization. Portugal has developed the "Space 2030" strategy, aiming to integrate space activities into its national economy and society. The strategy emphasizes the importance of public-private partnerships and sets ambitious goals for the development of the space sector, including the creation of skilled jobs and the attraction of major players to operate in Portugal.

From an industrial perspective, however, the picture is more constrained. While a limited number of Greek SMEs and spin-offs are active in areas such as microsatellite development, software for satellite operations, and precision instrumentation, the overall space industry base remains narrow and fragmented. Barriers to entry include lack of access to risk capital, low demand for high-technology procurement, and difficulties in meeting ESA's stringent technical and financial compliance criteria.

The geographical return mechanism has in theory enabled Greek companies to access ESA contracts proportionally to the national contribution. In practice, however, the absorptive capacity of the domestic industrial base remains limited. Many Greek firms lack the requisite scale, certification, or international networks to compete effectively for ESA tenders. Additionally, the complexity of ESA's procurement system, combined with the limited familiarity of Greek public authorities with space-related public-private partnerships, has resulted in missed opportunities for industrial participation.

Despite these challenges, there have been notable success stories. For instance, Greek participation in ESA's *ARTES program* (Advanced Research in Telecommunications Systems) has allowed for the development of innovative applications in satellite communications and navigation. Greek entities have also participated in ESA's Business Incubation Centres (BICs) and have received support under ESA's Business Applications initiative to develop commercial services based on satellite data. These projects, though often pilot-scale, demonstrate the potential for translating scientific knowledge into marketable services with public value.

3.2.4 Budgetary Constraints and Strategic Prioritization

A central constraint on the effectiveness of Greece's space policy has been the limited and inconsistent level of public investment in the sector in question. Greece's annual contribution to ESA remains among the lowest of the Member States,¹³ which in turn limits the scale of industrial return and the scope of optional program participation. Moreover, domestic budget allocations for space research and infrastructure are often not earmarked as distinct budget lines, but are embedded within broader research or digital policy expenditures. This lack of visibility and predictability undermines planning and reduces Greece's leverage in ESA negotiations.

In addition, the national policy environment has historically prioritized more immediate concerns, such as fiscal stability, employment, and healthcare, over long-term investments in science and technology. As a result, space policy has often remained at the periphery of national strategic planning, without a clear allocation of resources or a sustained commitment to innovation ecosystems.

However, recent developments, such as Greece's participation in the Space19+ program, its support for the EU Secure Connectivity Program (IRIS²), and its involvement in the European Defence Fund, suggest an increasing awareness of the strategic relevance of space. In particular, the linkage between space infrastructure and critical public services (e.g. disaster management, environmental protection, telecommunications) has become more salient in light of climate change, digitalization, and geopolitical volatility. These trends provide an opportunity for Greece to reposition its space policy within a broader framework of strategic autonomy and resilience, in line with European Commission priorities and ESA's long-term vision.

4. Normative Dimensions of Greece's ESA Participation: Multilevel Governance, Sovereignty, and Legal Pluralism

Greece's membership in the ESA offers an instructive case through which to examine the constitutional implications of participation in specialized international organizations that operate beyond the classical structures of supranational governance. While ESA itself does not form part of the

¹³ See <u>https://europeanspaceflight.com/germany-italy-and-the-uk-slash-esa-contributions-by-e430m/</u>

European Union's institutional architecture, the increasing convergence of space governance regimes in Europe, reflected in joint ESA–EU programs, shared political objectives, and overlapping regulatory frameworks, raises fundamental questions concerning the distribution of competences, the articulation of national sovereignty, and the normative coherence of European legal orders. For Greece, a Member State of both the EU and ESA, this intersection creates a complex environment in which constitutional principles are not only engaged but also subtly redefined.

At the heart of this inquiry lies the question of multilevel governance: *how does Greece navigate its obligations, rights, and interests across the intergovernmental ESA framework and the supranational EU structure, particularly in a policy domain (space) that is inherently transboundary, technologically complex, and rapidly evolving*? ESA's legal order is premised upon the classical model of international organization governance, grounded in state consent, treaty-based competences, and financial proportionality. In contrast, EU law introduces a set of constitutional principles, such as primacy, *direct effect, and institutional balance that somehow reshape the relationship* between the Member State and the organization. The coexistence of these frameworks generates a form of legal pluralism that calls for careful constitutional interpretation and policy coordination.

ESA's institutional autonomy and intergovernmental nature mean that its legal instruments, such as the ESA Convention and program-specific resolutions, do not possess the same constitutional authority as EU regulations or directives. Nevertheless, the functional integration between ESA and the EU has intensified since the signing of the Framework Agreement on ESA–EU Relations in 2004, which established mechanisms for dialogue, joint programming, and strategic convergence. This agreement did not produce a formal merger of competences but facilitated cooperation in shared domains, particularly Earth observation (*Copernicus*), navigation (*Galileo*), and security-related applications. For Greece, participation in this *hybrid space regime* entails a form of dual loyalty, as it must coordinate its national legal and policy approaches to satisfy both ESA's international obligations and the EU's internal constitutional requirements.

From a constitutional perspective, the most immediate implication concerns the principle of conferral, enshrined in Article 5(2) of the Treaty on European Union, which stipulates that competences not conferred upon the Union remain with the Member States. Space policy occupies a legally ambiguous position: while Article 189 of the Treaty on the Functioning of the European Union provides a legal basis for EU action in the field of space, it does so under a shared competence framework.¹⁴ This means that both the EU and its Member States retain the right to act, provided that Union measures do not exhaust the field or trigger exclusive competence doctrines. ESA, as an international organization distinct from the EU, operates entirely outside the Union legal order but within the same functional terrain. Greece's participation in both frameworks must therefore respect the complementarity and subsidiarity principles, ensuring that actions undertaken within ESA do not contradict or undermine its EU obligations.

This leads to a further concern of a constitutional nature: the unity of the national legal order. In the Greek legal system, the ratification of international treaties and the participation in international organizations are governed by Article 28 of the Constitution, which provides for the incorporation of international obligations into domestic law under conditions of parliamentary approval and constitutional compatibility. However, unlike EU law, ESA law does not enjoy constitutional primacy and does not override national norms in the same hierarchical fashion. This creates a *layered normative environment* in which different obligations coexist, sometimes in tension. For instance, data protection regimes applicable to satellite imagery processed under ESA protocols may differ from those mandated under the EU's General Data Protection Regulation (GDPR), requiring national authorities

¹⁴ According to the para. 3 of this article "*The Union shall establish any appropriate relations with the European Space Agency*".

to reconcile technical standards and legal mandates in the absence of clear hierarchical resolution.

Moreover, the Greek Constitution does not explicitly regulate space activities, and no domestic space law exists to provide a structured framework for interpreting and applying ESA obligations. This absence of a national legislative framework means that constitutional principles such as legality, transparency, and accountability may not be adequately operationalized in the context of space governance. For instance, public procurement in spacerelated projects is often conducted through ESA channels under industrial return rules that diverge from EU public procurement directives or national transparency requirements. This raises questions about the extent to which ESA participation can be reconciled with domestic administrative law and constitutional values.

A particularly sensitive area concerns the concept of sovereignty in outer space, a domain traditionally governed by international law principles derived from the *1967 Outer Space Treaty*, to which both Greece and ESA Member States are parties. The Outer Space Treaty enshrines the nonappropriation principle and frames outer space as a global commons, yet ESA's operational mandates, especially in areas such as Earth observation, satellite communications, and security services, increasingly implicate national sovereignty concerns. Greece's participation in these programs requires a delicate balance between benefiting from shared European infrastructure and safeguarding its national autonomy, especially in sensitive geographic areas such as the Eastern Mediterranean, where satellite surveillance and data governance intersect with defence and foreign policy priorities.

This tension is further compounded by ESA's evolving role in dual-use technologies, many of which have both civilian and military applications. Although ESA itself adheres to a civilian-only mandate, its technologies, such as satellite imaging or secure communications, are often embedded within EU and NATO defence architectures. Greece's active involvement in such projects, particularly under ESA-EU joint ventures, must be constitutionally scrutinized in light of national defence obligations, parliamentary oversight, and the separation of powers. Furthermore, participation in ESA programs that are co-funded or coordinated with the *European Defence Fund* or *PESCO* initiatives raises the question of whether such involvement triggers constitutional requirements for national consent or explicit legislative approval under Greek law.

Equally important is the fragmentation of administrative competences within the Greek state. Responsibilities for space-related activities are dispersed across multiple ministries (Digital Governance, Defence, Foreign Affairs, Environment) and public bodies (Hellenic Space Center, research institutes, regulatory authorities), with no central constitutional or legislative instrument to coordinate actions, allocate competences, or adjudicate jurisdictional conflicts. This fragmentation complicates Greece's ability to develop a coherent constitutional position vis-à-vis its ESA obligations and undermines its capacity to engage proactively in ESA's decision-making processes.

In this context, the Greek legal order must increasingly grapple with the concept of constitutional adaptation to functional regimes, a phenomenon whereby domestic constitutional norms evolve, explicitly or implicitly, in response to the demands of participation in international or transnational regulatory bodies. While ESA does not impose direct constitutional amendments or override national sovereignty, it creates an operational environment in which states must continuously reinterpret their constitutional principles in light of external commitments and institutional convergence. For Greece, this means engaging in a process of legal and constitutional internalization of ESA norms, guided by principles of proportionality, legal certainty, and respect for democratic governance.

Ultimately, Greece's participation in ESA invites a broader reflection on the constitutional pluralism of European governance. In an increasingly interconnected legal landscape, where the boundaries between national, supranational, and intergovernmental regimes are porous, Member States are called upon to navigate overlapping legal spheres with sensitivity to both institutional autonomy and normative consistency. For Greece, situated at the intersection of European integration, geopolitical sensitivity, and technological ambition, the constitutional challenge is not merely one of legal compliance, but of normative articulation: *defining a constitutional identity that can accommodate the imperatives of shared sovereignty, technological advancement, and democratic legitimacy*.

5. Conclusions

Greece's participation in the ESA illustrates how a medium-sized EU Member State can strategically engage with specialized international organizations to align itself with broader European objectives in science, technology, and strategic autonomy. Although Greece's legal accession to ESA in 2005 marked a formal milestone, the deeper integration process has proven far more complex, requiring institutional adaptation, legal reform, and strategic prioritization. The paper demonstrates that while ESA operates under an intergovernmental framework distinct from the EU, the increasing convergence between the two has created a hybrid governance space. Within this space, Greece must navigate overlapping obligations and principles, balancing its roles as both ESA and EU Member State. This dual engagement challenges traditional notions of sovereignty and demands a nuanced constitutional and administrative response.

Despite efforts to consolidate its institutional framework, such as the creation of the Hellenic Space Center and participation in key ESA and EU programs, Greece still faces significant structural challenges. These include fragmented governance, the absence of a comprehensive national space law, underdeveloped public-private partnership models, and limited absorptive capacity in the domestic industrial and scientific ecosystem. Nonetheless, the benefits of ESA membership, particularly in terms of access to funding, technology transfer, and strategic influence, remain substantial. The *geographical return* mechanism has served as an incentive for domestic

industrial participation, and Greek involvement in programs like Copernicus, Galileo, and ARTES showcases its potential when institutional support is present.

Ultimately, Greece's experience underscores the importance of constitutional flexibility, legal pluralism, and long-term strategic vision in participating effectively in complex European governance regimes. Strengthening its legal and institutional infrastructure, clarifying national space policy, and enhancing inter-ministerial coordination will be crucial steps for Greece to fully capitalize on its ESA membership and to assert a meaningful role in shaping the future of European space policy.