

Administrative Law in Orbit: Institutionalising Strategic Military Space Governance in Ukraine and Beyond

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This article explores the institutionalisation of military space governance in Ukraine as a juridical response to the evolving conditions of contemporary armed conflict and the strategic recalibration of sovereign functions in orbit. Grounded in the doctrine of administrative law and international legal pluralism, the study examines Ukraine's transition from a passive beneficiary of space services to an active norm-shaping subject, culminating in the establishment of the Space Policy Directorate within the Ministry of Defence in 2025. This wartime institutional construct represents a novel model of legally structured, interoperable governance suited to hybrid conflict and multi-domain security environments.

The analysis situates Ukraine's defence-oriented space governance within the broader disintegration of unitary space law, marked by the normative fragmentation of the Outer Space Treaty regime, the proliferation of dual-use infrastructures, and the growing influence of non-state actors. Drawing on doctrinal interpretation, comparative institutional practice, and legal-institutional analysis, the article identifies a transitional governance paradigm – one that integrates national legal resilience, civil-military harmonisation, and strategic autonomy within a pluralistic legal matrix.

Ukraine's case, it is argued, does not merely reflect reactive legal adaptation under conditions of conflict; rather, it constitutes an emergent prototype of post-Westphalian legal authority in outer space. In this regard, the Ukrainian experience contributes to the theoretical and practical advancement of adaptive, accountable, and legally pluralistic frameworks for the regulation of military space power in conditions of systemic legal uncertainty.

Keywords: Military space governance, administrative law, strategic autonomy, hybrid warfare, dual-use technologies, Ukraine-Russian War, Space Policy Directorate.

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Introduction

From its earliest emergence, outer space has been shaped not merely by scientific curiosity but by the projection of sovereign power and geopolitical ambition. Initially conceived as a domain for peaceful exploration and symbolic achievement, space underwent a paradigmatic transformation following the launch of *Sputnik-1* by the Soviet Union in 1957. This event signified not only a technological milestone but also the redefinition of space as a strategic theatre, where scientific prestige, ideological rivalry, and military capability converged (Garber, 2007).

In the ensuing decades, particularly throughout the Cold War, space acquired a dual-purpose character: civilian applications – such as weather forecasting, satellite communication, and Earth observation – were developed alongside, and often indistinguishably from, military-intelligence functions. The organisational, financial, and technical architecture of space programs has increasingly blurred the line between peaceful use and militarisation. National space agencies were embedded within broader defence industrial complexes, and scientific missions often served as enablers or covers for military infrastructure.

While the 1967 Outer Space Treaty (OST)¹ sought to establish the legal foundations for the peaceful use of outer space, its normative framework has proven structurally limited in the face of evolving strategic realities. In practice, the OST regime has coexisted with trends that enable the militarisation of space technologies, particularly under the guise of dual-use systems. The operational logics of deterrence, surveillance, and asymmetric power projection have often undermined its declarative commitment to non-weaponisation and international cooperation.

As Ghauri (2024) notes, the contemporary space domain is increasingly defined not by legal neutrality but by strategic alignment, where alliances are consolidated and rivalries intensified through orbital infrastructure, constellations, and access regimes. In this context, outer space is no longer a global common governed by multilateral consensus but an arena of fragmented authority and contested legality, where traditional principles such as non-appropriation, peaceful use, and transparency are strained by emerging technologies and shifting power dynamics.

This reconfiguration of the space domain calls for a fundamental re-examination of both legal doctrine and administrative architecture. The legal order of outer space – once premised on multilateralism and restraint – now operates within an environment marked by legal ambiguity, regulatory pluralism, and intensified strategic competition. Against this backdrop, Ukraine's experience offers an instructive case: a state under existential threat that is actively constructing new institutional mechanisms to govern military space activity in line with evolving international legal realities.

¹ United Nations. (1967). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty). Adopted by the General Assembly in resolution 2222 (XXI) of 19 December 1966; opened for signature on 27 January 1967; entered into force on 10 October 1967. Retrieved from <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

2. Fragmented Governance and the Rise of Dual-Use Space Power

2.1 Competing Legal Architectures: Artemis Accords and the ILRS

The emergence of multipolar strategic coalitions – such as the U.S.-led Artemis Accords and the Sino-Russian Lunar Research Station – has introduced new vectors of geopolitical tension, not limited to technological competition but extending to questions of access to lunar resources, control over satellite infrastructure, and the integration of military doctrine into orbital systems. Ghauri underlines that space has become the “ultimate high ground,” with a growing risk that military posturing in orbit may spill over into actual conflict. The establishment of national space forces, the development of anti-satellite (ASAT) capabilities, and the integration of space into broader defence planning all indicate that outer space has been reclassified from neutral commons to an operational and potentially contested battlespace. Thus, the legal foundations of global space governance, including the OST, are increasingly inadequate to regulate a domain shaped by dual-use ambiguity, legal grey zones, and strategic deterrence dynamics (Ghauri, 2024).

Since the beginning of the 21st century, the structure of the global space order has undergone fundamental changes that have significantly complicated the classical model of legal and institutional regulation. The most significant shift has been the progressive erosion of state monopolies over access to orbit and the development of space systems. The emergence of private aerospace companies, commercial satellite operators, and multinational defence corporations has created a new constellation of actors whose interests and agendas often transcend traditional state-centric paradigms. This structural transformation is occurring alongside a reconfiguration of international space governance, in which universal multilateral treaties are increasingly supplanted by flexible, interest-driven agreements between states or between states and non-state entities.

The competing initiatives of the Artemis Accords and the International Lunar Research Station (ILRS) epitomise this shift. While both frameworks aim to establish long-term lunar infrastructure, they differ significantly in governance philosophy, legal framing, and geopolitical orientation. The Artemis Accords, led by the United States, reflect a staged model of adaptive governance rooted in the Outer Space Treaty while innovating beyond it by enabling resource utilisation and safety zones under non-binding political commitments (Deplano, 2021). By contrast, China’s ILRS initiative marks a pivot from unilateral space policy to multilateral engagement, combining strategic partnerships with an explicit ambition to enhance soft power and balance US dominance.

As Wu (2023) notes, China’s approach embodies a new hybrid structure in space politics, characterised by a complex interplay between cooperation and competition in which pragmatic openness is used to counterbalance leadership asymmetries. These parallel platforms do not merely pursue technical goals; they shape rival legal norms and institutional expectations for future space governance. Thus, the competition between the Artemis Accords and the ILRS signals the emergence of a pluralistic, even fragmented, regime of outer space law in which power, law, and cooperation intersect in increasingly dynamic ways.

2.2 The Convergence of Civilian and Military Infrastructure

The convergence of civilian and military space infrastructure has intensified normative fragmentation and polycentrism in international space law. This trend is particularly pronounced

in dual-use sectors – remote Earth sensing, global navigation, satellite communications, geospatial analytics, and early warning systems. These domains represent critical intersections of military, commercial, and civilian interests, rendering any clear and stable legal demarcation between peaceful and military use increasingly untenable.

As a result, we are witnessing a profound institutional paradigm shift: from a vision of outer space as a neutral and apolitical environment to its reconceptualisation as a multilayered arena of geopolitical competition. Today, the architecture of satellite constellations, orbital resource allocation, and access protocols is shaped less by technological logic than by national priorities, strategic calculus, and political expediency.

In such conditions, a new typology of conflict in space is formed, where competition unfolds not only between states but also between state and non-state entities. Space becomes an arena of “highly integrated strategic influence,” where the technological infrastructure simultaneously acts as a means of intelligence, control, surveillance, and cyber influence. As Bescheron and Gasnier (2023) emphasise, in the conditions of the new race for space, state and private players operate within the same ecosystem but with different motivations and legal statuses. The phenomenon of “weak versus strong” emerges, allowing medium-sized states and non-state actors to influence the global order through flexibility, innovation, and rapid development cycles.

The Ukrainian experience of war with Russia offers empirical validation of this shift. As Frąckiewicz (2025) notes, Russia’s full-scale invasion in 2022 catalysed Ukraine’s accelerated entry into the satellite age, transforming space assets from peripheral luxuries into core instruments of national defence and post-war recovery. During 2024–2025, Ukraine launched ambitious new satellite programs, established international partnerships, and operationalised commercial space services in battlefield conditions. This integrated use of space systems reflects a broader doctrinal pivot, whereby “satellites are now treated as strategic necessities” (Frąckiewicz, 2025).

For the first time in the history of war, commercial space operators – Maxar, ICEYE, and Starlink – became not just auxiliary data providers but structural elements of the national defence system. Satellite data in real time, stable communication, and operational sounding at night and in cloudy weather – all this provided the Armed Forces of Ukraine with tactical superiority, the ability to make quick decisions, instant detection of threats, and stable coordination of units. The orbit has turned into an active, albeit non-contact, combat environment.

As Flanagan et al. (2023) observe, modern deterrence in space cannot be conceptualised without reference to non-state partners and hybrid conflict logics. Their typology identifies three primary approaches to space-based deterrence: dominance by denial, deterrence by punishment, and a hybrid model. Ukraine’s experience aligns most closely with the latter – combining passive resilience with proactive cooperation with commercial actors to neutralise the asymmetrical advantages of a technologically superior adversary.

However, this hybridisation of military and commercial assets introduces several legal and institutional dilemmas. First is the question of liability: when commercial satellites contribute to military operations that result in collateral damage, does legal responsibility lie with the private operator or with the licensing state? Second is the issue of dual-use governance: what are the legal boundaries of state intervention in commercial satellite operations during armed conflict? Third, there is the challenge of international humanitarian law (IHL): how should

IHL evolve to regulate data and services that may simultaneously protect civilians and enable targeting?

Beyond these issues lies the increasingly urgent challenge of norm development and strategic communication in orbit. As Flanagan et al. (2023) underscore, credible deterrence requires not only capability but also norm-shaping through selective disclosure, signalling, and transparent communication. Yet in a legal environment lacking universal agreement on key principles – such as proximity standards for satellite maneuvers, collision risk protocols, or the legal status of autonomous decision-making in orbital operations – such norms risk remaining aspirational rather than operational.

Moreover, the ongoing *democratisation of access to orbit* – as described by Bescheron and Gasnier (2023) – further complicates the legal terrain. The entry of mid-tier space actors (e.g., the UAE, Iran, and India) has fragmented the strategic landscape and challenged the regulatory sufficiency of legacy treaties such as the 1967 Outer Space Treaty. In this evolving context, private companies are not merely contractors but strategic enablers, while newer states may act as producers of orbital threats, whether intentionally or not.

Consequently, the transformation of outer space into a complex legal and strategic environment necessitates a rethinking of regulatory paradigms. Future legal regimes must be adaptive yet legitimate, national yet internationally compatible, and above all, capable of governing hybrid actor constellations in contested domains. For states such as Ukraine, which must maintain sovereignty while operating within asymmetrical legal and technological conditions, the imperative is clear: to build flexible, pluralistic, and functionally integrated models of military space governance that can endure under conditions of strategic uncertainty.

2.3 Wartime Institutional Innovation: The Ukrainian Space Policy Directorate

In March 2025, the Ministry of Defence of Ukraine officially launched the Space Policy Directorate – a pivotal step in structuring the country’s institutional and legal infrastructure for the governance of military space activities. This newly established Directorate is not merely an administrative innovation; it represents a strategic reconfiguration of Ukraine’s approach to space as a domain of national defence and resilience. According to the Ministry, the Directorate is tasked with consolidating Ukraine’s internal capabilities and international partnerships to support the sustainable development of the military space sector (Ministry, 2025a).

The announcement of the Space Policy Directorate came just weeks after the United States paused providing critical intelligence to Ukraine. It also coincided with growing concerns over the possible disconnection of satellite internet service provided by Starlink – a product of the U.S.-based company SpaceX, owned by Elon Musk, which was reportedly considered as leverage in negotiations over a rare-earth minerals deal between Kyiv and Washington. As noted by Lapaiev (2025), Starlink is widely regarded as the most essential communications system for the Armed Forces of Ukraine (AFU) amid Russia’s ongoing invasion. Both experts and the military have repeatedly emphasised its significance. According to Yaroslav Honchar, head of the aerial reconnaissance NGO Aerorozvidka, Starlink offers a fast and stable communication channel, especially when traditional methods are disabled or jammed by Russian electronic warfare systems. The reliability of this system directly influences the effectiveness of command and control, coordination between units, reconnaissance, fire correction, targeting, and even the evacuation of the wounded (Lapaiev, 2025).

The Directorate’s responsibilities span across regulatory development, strategic coordination, and technological integration. It is empowered to draft normative legal acts

tailored to the realities of hybrid war, rapidly evolving satellite technologies, and asymmetric threats. In this context, the goal is not to replicate traditional bureaucratic structures but to create an agile, adaptive, and interoperable administrative mechanism. The Directorate also assumes a pivotal role in establishing a national model for civil-military integration in space, coordinating with the State Space Agency of Ukraine, international allies, private sector actors, and academic institutions (Ministry, 2025b).

A key innovation introduced by the Directorate is the development of legal and procedural channels for rapid access to space-derived services, including real-time satellite intelligence, communications, and early warning data (Ministry, 2025b). This is especially critical given the tripartite operational priorities outlined by the Ministry: satellite communications, reconnaissance, and missile launch detection. These components form the basis for a robust command-and-control ecosystem, enabling Ukraine to act proactively in dynamic conflict environments.

Importantly, this initiative should be viewed in the broader context of global trends. Over the past decade, an increasing number of countries have recognised outer space as a domain critical to national security and are actively working to secure their presence and interests in orbit. As noted by the Ministry of Defence of Ukraine (2025), beyond Russia, China has been developing its military space program since 2015; the United States established the U.S. Space Force (USSF) in 2019; and in the same year, India launched its Defence Space Agency (DSA). Countries such as the United Kingdom, France, Italy, Poland, and Germany maintain their own space forces, while in 2021, additional actors – including Spain, Czechia, Japan, Taiwan, Turkey, Azerbaijan, and Kazakhstan – joined this global shift toward formalising national space capabilities (Ministry, 2025b). The Ukrainian model, while still nascent, reflects an understanding of the evolving nature of military space power. Rather than building a large-scale space military bureaucracy, Ukraine is opting for a compact, expert-driven body that focuses on interoperability, legal clarity, and integration with both public and private domains.

The inclusion of military lawyers, geospatial intelligence experts, and remote sensing professionals in the Directorate's team further underscores the emphasis on cross-sectoral expertise. These experts are not only expected to manage procurement and technical assessment but also to formulate doctrinal principles and operational standards aligned with Euro-Atlantic defence norms.

This institutionalisation of space governance also carries important symbolic weight. It affirms that Ukraine does not view orbit as a mere tool of resilience or emergency adaptation but as a strategic domain where legal, technological, and military elements converge. The Directorate, thus, becomes a laboratory for developing new administrative law principles tailored to complex technological environments. As such, it may serve as a model for other countries navigating similar challenges of integrating space into national defence frameworks without duplicating Cold War-era paradigms.

Ultimately, the establishment of the Space Policy Directorate illustrates Ukraine's strategic pivot from being a passive consumer of orbital services to an emerging contributor to collective security in space. It operationalises a national doctrine of space resilience, grounded in international cooperation and administrative capacity, and reflects a more profound commitment to align military governance with the norms of the evolving global space order (Ministry, 2025b).

The institutionalisation of Ukraine's military-space governance cannot be considered in isolation from broader processes of international cooperation. As Semenchuk (2024)

emphasises, in the current geopolitical context, the exchange of satellite-based geospatial data, remote sensing materials, and topographic intelligence with allied nations has become a cornerstone of Ukraine's defence strategy. The legal frameworks underpinning this cooperation, including bilateral agreements with NATO states, are not merely technical mechanisms – they are integral to ensuring national sovereignty, military readiness, and real-time decision-making on the battlefield.

For instance, existing agreements with the United Kingdom, Italy, Hungary, and other partner states allow for the exchange of cartographic, geodesic, and satellite data essential for terrain analysis, logistics planning, and operational command. These frameworks, although often narrowly defined, provide a lawful infrastructure that supports the use of dual-use space technologies in wartime. Such technologies blur the line between civilian and military purposes, requiring legal regimes that are both flexible and responsive to evolving conditions. As Semenchuk notes, Ukraine's legal strategy must expand beyond technical data exchange to include provisions for liability, humanitarian law compliance, and the continuous coordination of government actors involved in space operations (Semenchuk, 2024).

European institutional mechanisms increasingly reinforce these efforts. A significant milestone occurred in April 2025, when the European Commission and the Government of Ukraine signed an agreement² enabling Ukraine's participation in several key components of the EU Space Programme. The agreement grants Ukraine access to Copernicus Earth observation data, critical for food security, energy planning, and post-war reconstruction, as well as involvement in the EU's Space Weather and Near-Earth Objects (NEO) monitoring initiatives (Frąckiewicz, 2025). As noted by the European Commission, this partnership marks "the first step in Ukraine's ever closer association to the Union Space Programme," contributing to Ukraine's post-conflict recovery and capacity-building in the civilian space sector.

In parallel, Ukraine accelerated negotiations to join the European Space Agency as a full member. While full membership remains a medium-term objective, Kyiv's engagement – particularly with the active support of Poland – signals the strategic importance of European integration in both civilian and military dimensions of space development (Frąckiewicz, 2025). Moreover, Ukraine is exploring industrial cooperation to diversify its access to space technologies. For example, TRL Space, a Czech aerospace company previously involved in the TROLL satellite project, is now cooperating with Ukrainian stakeholders on the DRAX mission, which envisions the launch of several optical reconnaissance satellites for defence and strategic monitoring (Lapaiev, 2025).

At the same time, the transformation of the space domain at the global level must inform how Ukraine conceptualises its military-space governance model. As Manoli (2024) argues, modern space law is witnessing a shift from traditional, state-centred control to a pluralistic structure involving private actors, non-state entities, and hybrid public-private constellations. In this evolving environment, authorities are no longer monopolised by states but are distributed across various governance centres – including commercial satellite providers, multi-stakeholder regulatory initiatives, and informal legal regimes such as the Artemis Accords.

This transformation has profound implications for Ukraine. The increasing reliance on private space companies like Maxar and ICEYE not only enables operational effectiveness but also creates new dependencies and legal vulnerabilities. As Manoli points out, the emergence

² Ministry of Strategic Industries of Ukraine. (2025, April 9). *Ukraine and the EU signed an agreement on participation in certain components of the EU Space Programme*. Retrieved from <https://mspu.gov.ua/news/ukraina-ta-ies-pidpysaly-uhodu-pro-uchast-v-okremykh-komponentakh-kosmichnoi-prohramy-soiuzu>

of “liquid authority” – the capacity of non-state actors to produce norms and influence global governance without formal legislative processes – raises pressing questions about the legitimacy, transparency, and enforceability of space law in wartime conditions (Manoli, 2024). Ukraine’s legal response must thus reconcile the need for operational autonomy with the imperative of aligning with pluralistic governance structures that are increasingly shaping the future of space activity.

Notably, the normative shift toward privatised authority in orbit – whether through soft law initiatives like the Artemis Accords or domestic legislation enabling resource extraction – signals a broader challenge for international space law. Manoli (2024) suggests that the Moon Agreement, though underutilised, offers a model for rebalancing this asymmetry. Its provisions on equitable resource sharing, peaceful use, and the prohibition of territorial claims serve as a normative counterweight to emerging practices that risk turning outer space into a domain of economic exploitation and strategic exclusivity.

For Ukraine, which is actively pursuing Euro-Atlantic integration and defending its territorial integrity against aggression, the embrace of pluralistic governance must be strategic and principled. This means participating in norm-shaping mechanisms that reflect the interests of emerging space actors while preserving the foundational ideals of non-appropriation and peaceful cooperation embedded in the Outer Space Treaty and its progeny. It also requires legal innovation – developing frameworks for public-private cooperation that ensure accountability, protect critical infrastructure, and foster resilience under conditions of total war.

Ultimately, the experience of Ukraine illustrates the necessity of adaptive legal regimes capable of governing military-space activity in environments of extreme volatility. As Manoli (2024) argues, future space governance will hinge not only on technological capacity or political alignment but on the legitimacy and coherence of the legal systems that underpin them. Ukraine stands at the intersection of this transformation – a test case for how administrative and international law can evolve to meet the strategic imperatives of a new era in orbit.

3. The Institutional Framework of Ukraine’s Military Space Governance

3.1 Establishment and Mandate of the Space Policy Directorate

The establishment of the Space Policy Directorate under the Ministry of Defence of Ukraine in March 2025 was an institutionally significant event that marked the beginning of a systemic rethinking of the role of space in the national defence system. This was officially announced during the Space for Ukraine forum, where Deputy Minister of Defence for Digital Development Kateryna Chernogorenko presented the key areas of activity of the new structure. According to the statement of the Ministry of Defence, the main task of the Directorate is to consolidate the internal and external capabilities of the state to form a sustainable military space sector of Ukraine (Ministry, 2025b).

For the first time since the start of large-scale aggression between Russia and Ukraine, Ukraine is taking steps not just to use external satellite assistance but to institutionalise its own potential in the field of defence space. As Chernogorenko emphasises, the experience accumulated during the war years, obtained in cooperation with international partners, should be transformed into a sustainable domestic ecosystem that includes scientific, industrial, and defence components. “For decades, Ukrainian scientists, engineers, and industrialists have

created a powerful scientific foundation and developed advanced space technologies. On this basis, we will create new capabilities that will strengthen the Defence Forces,” the Deputy Minister said (Ministry, 2025b).

The Space Policy Directorate is positioned not as an auxiliary structure but as a central coordinating body responsible for developing the legal and regulatory framework, selecting priority technologies, and ensuring technological integration and institutional interaction of all participants in the space sector – from defence departments and scientific institutions to international partners and the private sector (Yarova, 2025). It is important that the directorate is being formed as an entry point for all entities involved in Ukraine’s space policy, eliminating the previous fragmentation of responsibility between different state and non-state structures.

Moreover, the establishment of the directorate is accompanied by the launch of a ten-year roadmap that structures the stages of forming the national military space segment. According to the plan, at the first stage (2025–2027), the directorate will conduct a full audit of Ukraine’s space infrastructure to identify critical needs. In parallel, strategic documents will be developed that determine the vector of development of the industry. At the second stage, it is planned to deploy national satellites and space situational awareness systems (SSA), which will be integrated into defence technologies. The final phase will be the creation of an integrated space defence segment – a group of satellites providing real-time analytics – and Ukraine’s participation in international collective security projects (Ministry, 2025b; Yarova, 2025).

These ambitions demonstrate that Ukraine is moving away from the model of a consumer of external space support and is striving to form its own, technologically sovereign defence architecture in orbit. The creation of the Space Policy Directorate in this context should be viewed not only as an administrative reform but also as a strategic step towards strengthening military sovereignty in the space dimension.

The Space Policy Directorate, created in March 2025, is not just a bureaucratic superstructure within the Ministry of Defence of Ukraine but an operational, techno-strategic decision-making centre focused on wartime needs. Its establishment should be seen as an institutional response to the growing demand of the armed forces for the systemic integration of space solutions into defence planning, intelligence, and operational management processes (Ministry, 2025b; Digital, 2025).

In the conditions of total war and intensive missile strikes on ground infrastructure, Ukraine cannot afford the luxury of long-term reforms – the need for space technologies has become existential, not prospective. As emphasised in the official position of the Ministry of Defence, today there are three critical areas in which Ukraine urgently needs space support: satellite communications, intelligence and surveillance, and early warning of a missile threat (Digital, 2025).

- Satellite communications ensure the stable operation of command structures and unmanned reconnaissance systems in the face of constant destruction of ground-based telecommunications infrastructure.
- Satellite intelligence allows recording enemy movements and logistics in near real time, turning space information into tactical and strategic decisions.
- Early warning systems based on space sensors are the only way to ensure the necessary reaction time for air defence, especially in the face of massive attacks.

The directorate, created in response to these challenges, operates with a defined architecture of tasks and priorities. Its team, numbering only about 20 experts, includes military lawyers, satellite communications specialists, engineers, and procurement analysts, as well as

professionals in the field of geospatial intelligence and situational awareness in space (Digital, 2025). Despite its compact staff, the directorate is focused on highly effective, military-level management in a crisis, working within the existing budget of the Ministry of Defence without expanding the administrative apparatus.

Structurally, the directorate has become a key coordinating link connecting several key categories of stakeholders:

- The Security and Defence Forces of Ukraine as end users of satellite data.
- The State Space Agency of Ukraine and other government bodies are also key stakeholders.
- International partners and commercial developers supply the necessary technologies and infrastructure.
- Ukrainian and foreign scientific institutions and innovative teams that form the scientific and applied base for technological solutions (Digital, 2025).

Thus, the directorate fulfils three main mandate areas that determine its operational and strategic roles:

- Regulatory and legal work: preparation of draft regulations aimed at developing military space capabilities, considering the realities of hybrid warfare and the need for rapid administrative response.
- Technological integration: working with R&D centres, universities, and expert networks to select promising technologies and teams capable of providing innovative solutions for the needs of the front.
- Strategic coordination: organising contracts with international public and private partners, recommendations for the redistribution of resources based on the analysis of combat data and formalising transparent procedures for accessing space services (Digital, 2025).

The directorate acts as a “bridge” between the front and science, ensuring the translation of military operational tasks into technological requests and vice versa. This is the case when govtech meets defence-tech: a fast, analytical, strategically managed bureaucracy that works not for the process, but for the result.

The fundamental goal of the Space Policy Directorate is not simply to replicate or catch up with Russia’s space potential – which on paper has over 200 satellites and an integrated aerospace service with about 150,000 troops – but to transform Ukraine from a passive consumer of space assistance into an active contributor to alliance operations. This means Ukraine’s participation in the formation of new mechanisms of collective security based on strategic autonomy and technological sovereignty (Digital, 2025).

However, reality shows that despite its external power, Russia is experiencing growing internal systemic problems: institutional stagnation, a chronic shortage of qualified personnel, technological obsolescence, and financial isolation. The creation of the Roscosmos corporation in 2015 did not ensure modernisation, and the counteraction to international sanctions after 2014 led to Russia being put on a trajectory of complete technological de-escalation with the West, where space activities are increasingly acquiring a military character, and the near orbit (LEO) is becoming an arena of confrontation. It was in such conditions that the strategic emphasis shifted to the sphere of deterrence, and Roscosmos and the Ministry of Defence divided control over the space industry, strengthening the military component to the detriment of civilian functions (Vidal & Privalov, 2023).

Taking this into account, Ukraine, building an institutional infrastructure through the Space Policy Directorate, is striving for an alternative model based not on rivalry with a superpower in the context of a technological breakthrough, but on institutional flexibility, interaction with international partners, and the rapid integration of commercial space services. This is a path of transformation – from a “catch-up” strategy to a strategy of partnership and active participation in the international security system.

3.2 The Role of the Ministry of Defence of Ukraine vs. the State Space Agency

According to the Law of Ukraine “On Space Activities” of November 15, 1996, it is the State Space Agency of Ukraine (SSAU) that is responsible for the implementation of state policy in the field of space activities. SSAU is authorised to ensure the development, implementation, and coordination of National Targeted Scientific and Technical Space Programs, as well as to represent Ukraine in the international arena in the relevant field (Law, 1996: Art. 4-6). The main priority of SSAU is scientific research and peaceful use of space, including participation in international projects, standardisation, and licensing.

However, in the context of increasing militarisation of space, a growing threat from an aggressor, and Ukraine’s strategic dependence on dual-use and defence space services (navigation, surveillance, and communications), the role of the Ministry of Defence of Ukraine (MOU) in ensuring space security has significantly increased. Articles 27–28 of the said law expressly stipulate that the defence aspects of the use of outer space are within the joint competence of the SCAU and the MOU. In such cases, the Ministry of Defence acts not as a formal participant in the programs but as a strategic customer, user, and normative and organisational centre of the defence space architecture (Law, 1996: Art. 28).

The State Space Agency of Ukraine (SSAU), as an authorised central executive body, acts based on the Resolution of the Cabinet of Ministers of Ukraine dated May 14, 2015, No. 281, which approved the Regulation on the State Space Agency of Ukraine. According to this normative act, SSAU is responsible for the formation and implementation of state policy in the field of space activities, including international cooperation, regulatory coordination with other state bodies, development and implementation of the National Space Program, as well as supervision of space activity entities, certification and registration of objects, and control over compliance with Ukraine’s international obligations in the space sphere (Cabinet, 2015: §§3, 4, 11, 23–27).

Despite wartime disruptions, the SSAU has demonstrated notable institutional resilience. According to Frąckiewicz (2025), the National Space Programme scheduled for parliamentary approval in 2022 – which envisioned new Earth observation platforms and domestic launch vehicles – was suspended due to the full-scale invasion. However, SSAU maintained its role in key international collaborations, including the Antares and Vega launch systems and the Cyclone-4M project with Canada. Even under conditions of fiscal constraint, Ukrainian space enterprises pivoted toward Western partnerships, gradually distancing themselves from legacy ties to Russian infrastructure. This reorientation was rewarded in June 2025, when the European Space Agency (ESA) formally approved a reinforced technical cooperation agreement with SSAU, encompassing Earth observation, space weather monitoring, and sustainable agriculture applications (Frąckiewicz, 2025).

Within this dual-governance landscape, SSAU remains the institutional anchor of Ukraine’s civilian space sector. Its responsibilities include overseeing the secure operation of national systems for satellite communication, navigation, and Earth remote sensing, maintaining the

State Register of Space Activity Objects, and drafting regulations governing non-military space activities. SSAU also serves as Ukraine's official point of contact for treaty compliance and multilateral legal instruments (Cabinet, 2015: §29).

This institutional structure follows the logic of the distribution of public and administrative competences, following international practice and the doctrine of space law of Ukraine. As Loshytskyi and Koroied (2019) emphasise, SSAU plays a key role in implementing the national approach to space law, which covers both public and private international and domestic regulation. The agency forms the legal architecture of the sector, creating opportunities for the participation of non-state actors in peaceful space activities. The Ministry of Defence of Ukraine (MoD), in turn, implements space activities in the context of national security tasks, including the use of space services for reconnaissance, navigation, communication, surveillance, and strategic command. Under Articles 5, 6, and 27-28 of the Law of Ukraine "On Space Activities" of 1996, the MoD has the right to jointly develop, implement, and use dual-use technologies for defence with SSAU (Law, 1996).

Real management mechanisms support this norm: the Ministry of Defence has a Space Policy Directorate that ensures institutional coordination with the State Space Administration of Ukraine, generates requests from all branches of the armed forces, and adapts the space infrastructure to the needs of the Armed Forces of Ukraine (Ministry, 2025a).

Thus, there is a strategic functional distinction between the State Space Administration of Ukraine and the Ministry of Defence of Ukraine: the first one focuses on scientific and technical development and international cooperation. In contrast, the second one focuses on ensuring the defence interests of the state using space resources. This is consistent with the principle of dual governance in the context of a hybrid war and the growing importance of space as an operational theatre.

Today, Ukraine has a functional duality in the field of space activities, especially noticeable in the context of its defence and civil use. The main subjects of management are the State Space Agency of Ukraine (SSAU), which is responsible for the implementation of state policy in the field of peaceful use of space, and the Ministry of Defence of Ukraine (MOU), which, in cooperation with the SSAU, implements certain aspects of the defence use of space technologies. This relationship is enshrined in Articles 27–28 of the Law of Ukraine "On Space Activities" (1996), which provide for joint powers in the field of dual purpose (Law, 1996).

At the same time, as Soroka (2019) notes, the normative differentiation between the concepts of *public management* and *public regulation* allows for a more precise delineation of the institutional architecture. In her interpretation, public regulation of space activity is "a type of organizational activity of the state, which consists in a set of means, methods by which state or non-governmental organizations to which the state delegated regulatory powers set principles, norms, rules for space activity and control (supervision) over such activities for the purpose of meeting public and private interests."

In contrast, public space management is defined as "a type of organizational activity of the state, which consists in a set of means, the methods by which public administration bodies exert power over the entities of space activity for the purpose of securing public interests" (Soroka, 2019: 71).

In this context, the State Space Agency of Ukraine performs the function of public regulation, determining the legal, programmatic, and conceptual framework of the national space policy. The agency carries out planning, coordinates the implementation of National

Space Programs, represents Ukraine in international organisations, and ensures compliance with international treaties, in particular the Outer Space Treaty of 1967.

In turn, the Ministry of Defence of Ukraine implements public administration in the defence segment, and the creation of the Space Policy Directorate of the Ministry of Defence in March 2025 became an institutional manifestation of this management mandate. As an operational tool of the Ministry of Defence, the Directorate performs the following functions:

- Operational transmission of the Armed Forces' requirements in the form of legally formalised requests to the State Space Administration, private suppliers, and international partners.
- Interdepartmental coordination – organisation of information, technical, and budgetary coordination between the structures of the Ministry of Defence and the State Space Administration.
- Strategic separation – a clear division between the long-term goals of the State Space Administration (integration into the international system of peaceful space) and the combat missions of the Ministry of Defence (operational response, communications, reconnaissance, and navigation in wartime).

Thus, instead of a contradictory duplication of functions, an integration model is created, where the State Space Administration remains a strategic regulator, and the Ministry of Defence, through its Directorate, acts as a practical administrator of space resources in the security and defence sector. This meets the modern requirements for hybrid management in the context of the growing role of dual-use technologies (Ministry, 2025b; Digital, 2025).

3.3 The Role of the Space Policy Directorate in Ukraine's National Defense Architecture

The Space Policy Directorate (SPD) has emerged as an integrative operational mechanism within the architecture of Ukraine's national defense. Its core function lies in translating urgent tactical demands into strategic administrative responses, providing the legal and organizational infrastructure for the Armed Forces to interact with state agencies, scientific institutions, and private entities in the dynamic context of war.

As outlined by the Ministry of Defence of Ukraine (2025), the SPD is not a symbolic institution but a functional command node responsible for navigating the interface between military objectives and space-derived capabilities. It consolidates the defense sector's needs across three critical domains: satellite communications, real-time intelligence, and missile launch early warning. Each of these components represents a vital axis of operational resilience under hybrid warfare conditions.

A distinguishing aspect of the SPD is its multi-vectoral stakeholder model. It operates at the confluence of military, governmental, commercial, and scientific communities. This model enables not only horizontal cooperation but also vertical integration – from frontline requirements to policy design and technical implementation. The Directorate's team of about 20 experts reflects this complexity, consisting of legal specialists, satellite communication engineers, procurement analysts, and intelligence professionals (Ministry, 2025b).

Chernohorenko (2025) emphasises that the SPD is empowered to shape military space policy and directly influence procurement priorities. It serves as the legal gateway for regulatory acts and contract structures that determine access to commercial satellite constellations, data processing platforms, and surveillance technologies. Importantly, the Directorate's work is

based on the legal foundation established by the Law of Ukraine “On Space Activities,” which legitimises the Ministry’s role in national military space policymaking.

The strategic roadmap of the SPD, with implementation goals through 2030, includes the deployment of Ukrainian defense satellites, the development of national space situational awareness capabilities, and the creation of autonomous warning systems for aerial threats (Khomenko, 2025). These initiatives are not conceived in isolation. They are part of a wider trend of international militarisation of space. As the United States, France, India, and other nations formalise military space branches, Ukraine positions itself as a capable and agile partner, not through scale but through interoperability and technological fluency.

Moreover, the SPD assumes symbolic importance as a response to Russian dominance in the orbital domain. With Russia operating over 200 military and dual-use satellites, the SPD’s mission is to shift Ukraine’s posture from vulnerability to contribution. By managing the procurement of space services, including those provided by ICEYE and Maxar, and securing consistent access to radar and geospatial intelligence, the SPD creates the operational infrastructure that offsets asymmetries in physical space presence (Ministry, 2025a).

The directorate is also notable for its fiscal pragmatism. As noted in the Ministry’s Q&A brief, the SPD operates within the existing budget of the Ministry of Defence. Project funding is not automatic but contingent on separate Cabinet approvals, which enforces discipline and prioritisation (Ministry, 2025a).

Ultimately, the SPD represents a paradigmatic case of wartime administrative innovation. It illustrates how a state under existential threat can institutionalise the logic of resilience, integrating emerging space technologies into defence workflows without over bureaucratisation. In doing so, the SPD not only supports Ukraine’s military readiness but also contributes to the broader evolution of space governance as a field where sovereignty, law, and technology converge.

One of the key areas of work of the Space Policy Directorate (SPD) is the formation of a national satellite infrastructure for the needs of the command and control (C2) system. In the conditions of active war and the increasing threat from the Russian army, providing an independent, secure, and reliable satellite communication channel has become a critical task. As Lapaiev (2025) notes, the creation of a domestic satellite communication system has become a strategic priority of the Ministry of Defence of Ukraine, and by 2030, the country plans to implement a full-fledged independent C2 infrastructure based on its own satellites.

To date, the Armed Forces of Ukraine are highly dependent on a single provider – Starlink, which creates the risk of losing communication at critical moments. There have already been cases in history when Ukrainian units lost access to Starlink during operations, which led to a disruption of the command structure and a decrease in the effectiveness of combat operations (Lapaiev, 2025). Alternative options, including European companies such as Eutelsat/OneWeb, SES, Hisdesat, and Viasat, are considered as possible solutions to the problem, but their implementation requires significant investment and time resources (Frąckiewicz, 2025).

The Space Policy Directorate (SPD) is implementing a plan to develop a national satellite communications network in close coordination with the State Space Agency of Ukraine (SSAU), the General Staff of the Armed Forces, and relevant research institutions. The project includes testing advanced solutions in secure communications, anti-jamming technologies, and cryptographic protocols. As reported by Frąckiewicz (2025), this initiative marks a strategic shift toward autonomy in military communications. In 2025, Ukraine began formal negotiations to join the European Union’s IRIS² secure connectivity program, which could

provide the country with access to encrypted satellite communications channels as part of broader EU integration.

With a limited budget, Space Policy Directorate (SPD) is also exploring the possibility of creating joint ventures with European countries. One example is the cooperation with the Czech TRL Space on the Drak project, which plans to launch a series of optical reconnaissance satellites. In addition, Ukraine plans to use the convergence of civil and military solutions – for example, the combat-tested Chimaera radio technology is considered as an element of backup communications (Lapaiev, 2025).

International partners play an important role in strengthening the Ukrainian satellite architecture. In 2025, the European Defence Agency (EDA) began supplying terminals and equipment for satellite communications, which allowed the Ukrainian Armed Forces to access encrypted channels regardless of Starlink (Frąckiewicz, 2025). In the long term, Ukraine intends not only to reduce its dependence on foreign systems but also to become a full member of the European satellite ecosystem, gaining access to data from Copernicus, Galileo, and other systems (Frąckiewicz, 2025).

Thus, the national satellite communications structure acts not only as an element of technical infrastructure but also as a tool for ensuring sovereignty, strategic autonomy, and sustainability of military logistics of Ukraine. In this context, SPD plays the role of architect of the future system of defence interaction, where reliable communications are not a luxury but the basis of the army's viability in the conditions of hybrid warfare.

Conclusions

Ukraine's institutionalisation of military space governance through the creation of the Space Policy Directorate (SPD) signals not merely a response to wartime exigency but a paradigmatic shift in how middle powers conceptualise sovereignty, security, and legality in the orbital domain. The Ukrainian model challenges traditional assumptions that space power is the exclusive preserve of technologically advanced superpowers, demonstrating instead that legal ingenuity, administrative integration, and strategic use of dual-use infrastructure can enable meaningful

By embedding satellite operations, reconnaissance systems, and secure communications within a coherent and lawful defence architecture, Ukraine is forging a governance model that is at once resilient, interoperable, and normatively robust. This approach transcends reactive militarisation and illustrates how law – particularly administrative and international humanitarian law – can operate not simply as a framework of restraint but as a force-multiplier for sovereign agency, legitimising strategic actions, clarifying responsibilities, and enhancing operational transparency.

More fundamentally, Ukraine's experience exposes the insufficiency of the current international space legal regime, which remains anchored in Cold War-era binaries – civilian vs. military, state vs. private, peaceful vs. aggressive – that no longer reflect operational realities in a hybrid and commercially saturated orbital environment. In its place, Ukraine advances a model of legal pluralism and institutional adaptation, where national frameworks interface dynamically with evolving international norms, commercial ecosystems, and alliance-based coalitions.

The creation of SPD, coupled with its integration of non-state actors and emphasis on legal accountability, suggests that the future of military space governance will depend not on

the scale of power projection but on the ability to architect systems of lawful interoperability. Ukraine's trajectory compels the broader international legal community to reconsider how sovereignty, deterrence, and liability are to be understood in the era of ubiquitous surveillance, real-time geospatial warfare, and dual-use entanglement.

In this light, Ukraine does not merely adapt to the shifting contours of global space governance – it actively contributes to their reshaping. Its wartime innovations may well become normative precedents, informing how future legal regimes balance strategic necessity with international accountability. For emerging and established space actors alike, Ukraine's model offers both a blueprint and a provocation: that legal resilience, not just technological supremacy, will define the legitimacy and sustainability of space power in the 21st century.



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