LEGAL AND ADMINISTRATIVE STUDIES, www.jlas.upit.ro.
e-ISSN: 2344-6900, ISSN-L: 1583-0772
Supplement 2025, pp. 814-825

TOWARDS A EUROPEAN PRIVATE SPACE LAW. CHARACTERIZING THE CIVIL LIABILITY OF PRIVATE SPACE OPERATORS

Radu STANCU
ORCID ID: https://orcid.org/0009-0000-2552-7827
E-mail: radu.stancu@email.com
Afiliation: Legal Research Institute „Acad. Andrei Rădulescu" of Romanian Academy

Abstract: *The recent evolution of technologies has enabled space exploration to become a new virgin territory for private companies, with significant profit potential. In this context, the President of the European Commission, Mrs. Ursula von der Leyen, highlighted, among the current priorities of the Commission in Brussels, the creation of a European legal framework to regulate outer space. The purpose of this regulation is to legally define the peaceful use and exploitation of outer space, both by the Member States of the European Union and by private entities. The way in which civil liability can be attributed to private entities operating in outer space thus represents a central issue for European legal experts. The European Commission's work agenda for 2025 foresees the publication of a legislative proposal in the second half of the year.*

Keywords: *Civil liability; International Space Law; EU Space Act; Private space operators.*

Introduction

As a daily necessity for European citizens, space technologies, data, and services are of strategic importance for the European Union. However, the emergence of new state actors from outside the European area, as well as private entities that have succeeded in leveraging revolutionary new

technologies, led the European Parliament and the Council to adopt, on 28 April 2021, Regulation (EU) 2021/696 establishing the Union Space Programme and the European Union Agency for the Space Programme, repealing Regulations (EU) No 912/2010, (EU) No 1285/2013, and (EU) No 377/2014, as well as Decision No 541/2014/EU[1].

It is worth noting that, since the late 1990s, the official institutions of the European Union have begun to implement and develop their own space programmes, such as the European Geostationary Navigation Overlay Service (*EGNOS*)[2], *Galileo*[3], and *Copernicus*[4]. The aim of these programmes is to respond to the needs of European citizens and the current requirements of public policy.

---

[1] *Regulation (EU) 2021/696* of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0696

[2] *EGNOS* stands for the European Geostationary Navigation Overlay Service, specifically the European satellite-based regional augmentation system (SBAS). SBAS systems are used to enhance the signals of Global Navigation Satellite Systems (GNSS), so that they can be used for safety-of-life applications, such as precision approaches in aviation, https://www.euspa.europa.eu/eu-space-programme/egnos.

[3] *Galileo*, the European Union's Global Navigation Satellite System (GNSS), provides navigation, positioning, and timing information. Unlike other global satellite navigation systems, Galileo is a civilian system. Galileo consists of 28 satellites orbiting Earth at an altitude of 23,000 km. The signals transmitted by Galileo are freely available to anyone with a device capable of receiving them (e.g., a smartphone). Galileo is four times more accurate than GPS, offering meter-level precision and a wide range of serviceshttps://defence-industry-space.ec.europa.eu/eu-space/galileo-satellite-navigation_en.

[4] *Copernicus* is the European Union's Earth Observation Programme, which monitors the planet and the environment for the benefit of all European citizens. It provides information services based on satellite Earth observation and in situ (non-space) data, https://www.copernicus.eu/en/404.

Moreover, the EU Regulation highlights the need to explore synergies between the transport, space, and digital sectors, with a view to the wider use of new technologies such as eCall emergency calls, the digital tachograph, traffic monitoring and management, autonomous driving of unmanned vehicles, and drones.

In order to achieve the desired objectives—namely freedom of action, independence, and security—it is essential for the EU to have autonomous access to outer space. Consequently, it is imperative that the European Commission has the technical and legal tools to coordinate launch services at the European level, in accordance with Article 189, paragraph 2 of the Treaty on the Functioning of the European Union (TFEU)[1].

It should be noted that in the field of space, the EU exercises its competences in accordance with Article 4, paragraph 3 of the TFEU[2]. However, this regulation is general in nature and does not adequately address the new challenges brought about by current technological and economic developments. Furthermore, in response to these emerging

---

[1] Art. 189 of TFUE: „*1. To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall draw up a European space policy. To this end, it may promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space.*

2. To contribute to attaining the objectives referred to in paragraph 1, the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish the necessary measures, which may take the form of a European space programme, excluding any harmonisation of the laws and regulations of the Member States.

3. The Union shall establish any appropriate relations with the European Space Agency.

4. This Article shall be without prejudice to the other provisions of this Title."

6 Art. 4, al. 3 of TFUE: „ *In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programmes; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs.*"

challenges, some EU Member States have already adopted specific national regulations, creating, on the one hand, a lack of harmonisation at the European level and, on the other hand, undermining fair competition conditions, which inevitably affects the competitiveness of private space operators.

In light of these technical and legal challenges, the need for a dedicated law to regulate the scope of the EU's intervention in the space domain becomes essential—especially as space is becoming an increasingly contested field, with certain states already pursuing strategic interests in this area.

But what do we mean by space law, and more specifically by private space law (***I***), and what are the characteristics of the legal framework applicable to private entities operating in outer space, including the civil liability that may arise in the event of damage caused by them (***II***), these are the aspects we will examine in the following sections.

I. The Concept of "*Space Law*"

With the successful launch of the first satellite into Earth's orbit on 21 October 1957, a new era began for all of humanity. At the same time, a fundamental question emerged: what law would apply to outer space?
It is well known that the rules governing aeronautical flight up to that point were laid down in the Paris Convention on Aerial Navigation, signed on 13 October 1919[1] and the Chicago Convention on International Civil Aviation, dated 7 December 1944[2]. These conventions enshrined the principle of the inviolability of national sovereignty over a state's own

[1] *The Convention on the Regulation of Aerial Navigation*, signed in Paris on 13 October 1919, https://applications.icao.int/postalhistory/1919_the_paris_convention.htm

[2] *The Convention on International Civil Aviation*, signed in Chicago on 7 December 1944, published in the Official Gazette no. 14 of 24 April 1965, https://legislatie.just.ro/Public/DetaliiDocument/22939

airspace. In other words, the freedom of flight ended at the boundary of a state's sovereignty.

With the crossing of the atmospheric boundary and entry into outer space—a territory untouched by legal rules—jurists were compelled to reflect by referring to pre-existing frameworks, namely air law and maritime law. Initially, space was divided into defined zones. However, it soon became evident that outer space is unlimited, and attempting to confine it within specific areas was unrealistic. At the same time, an effort was made to characterize space law, which emerged as a consequence of an international custom grounded in the principle of freedom to explore and use outer space, starting at an altitude of approximately 100–110 km above sea level.

This approach was not accepted by legal doctrine either (Courteix, 1997). Due to the absence of a natural boundary, a rule inspired by the aforementioned international custom would be considered far too arbitrary.

Ultimately, a decision was made to establish a specific legal framework centered around the activities that can be carried out in space, in such a way that each state would have the opportunity to explore and use outer space, provided that scientific and research activities are not obstructed.

The United Nations (UN) regulates outer space through the adoption of five international treaties[1] and a set of five legal principles[1].

---

[1] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (Annex to UN General Assembly Resolution 2222 (XXI)) – adopted on 19 December 1966, opened for signature on 27 January 1967, entered into force on 10 October 1967; *Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space* (Annex to Resolution 2345 (XXII)) – adopted on 19 December 1967, opened for signature on 22 April 1968, entered into force on 3 December 1968; *Convention on International Liability for Damage Caused by Space Objects* (Annex to Resolution 2777 (XXVI)) – adopted on 29 November 1971, opened for signature on 29 March 1972, entered into force on 1 September 1972; *Convention on Registration of Objects Launched into Outer Space* (Annex to Resolution 3235 (XXIX)) – adopted on 12 November 1974,

Among all the treaties and agreements adopted by the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, adopted in 1967, serves as the foundation of space law. The other four treaties are intended to further develop the provisions set out in this foundational treaty.

The guiding thread of the legal framework developed by the United Nations revolves around three core ideas (Reijnen, 1992): the freedom of scientific research, the principle of non-appropriation, and the absence of sovereignty by any signatory state over outer space, the Moon, and other celestial bodies (Courteix, 1998). In other words, all states equally enjoy the right to explore and use outer space.

In the following sections, we will examine how special legislation regulates the engagement of civil liability.

II. THE ENGAGEMENT OF CIVIL LIABILITY IN POSITIVE PRIVATE SPACE LAW

Traditionally, under private international law, the rules applicable to civil liability follow the principle of lex loci delicti, meaning that the national law of the country where the damage occurred shall apply.

---

opened for signature on 14 January 1975, entered into force on 15 September 1976; *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* (Annex to Resolution 34/68) – adopted on 5 December 1979, opened for signature on 18 December 1979, entered into force on 11 July 1984.

[1] *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*, adopted on 13 December 1963 (Resolution 1962 (XVIII); *Principles Governing the Use* by States of Artificial Earth Satellites for International Direct Television Broadcasting, adopted on 10 December 1982 (Resolution 37/92); *Principles Relating to Remote Sensing of the Earth from Outer Space*, adopted on 3 December 1986 (Resolution 41/65); *Principles Relevant to the Use of Nuclear Power Sources in Outer Space*, adopted on 14 December 1992 (Resolution 47/68); *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, adopted on 13 December 1996 (Resolution 51/122).

However, finding a rule to frame civil liability in space presents a real challenge for legal experts, precisely due to its unique nature—namely, the absence of geographical boundaries. In particular, legal challenges arise in defining the nature of compensation, identifying appropriate means of evidence, ensuring equality between the parties involved, and avoiding obstacles in the enforcement of judicial decisions. Specifically, the 1967 Outer Space Treaty stipulates that signatory states bear full international civil liability for all national activities conducted in outer space, even if those activities are carried out by private entities (Von Derdunk, 2001)[1].

Accordingly, Article 6 of the Treaty sets out the obligation of states to continuously authorize and supervise private activities, thereby effecting a transfer of international legal liability from the private companies responsible for causing damage to the state of origin[2].

By regulating civil liability in this manner, private companies operating in space do not hold the status of direct subjects of space law, but are instead guaranteed by the states in which they are registered. For example, if a satellite owned by a private company causes damage, civil liability is incurred by the state that authorized the launch. The legal reasoning is based on the obligation of the state to exercise direct supervision and control over the private company.

---

[1] https://digitalcommons.unl.edu/spacelaw/38/?utm_source=digitalcommons.unl.edu%2Fspacelaw%2F38&utm_medium=PDF&utm_campaign=PDFCoverPages

[2] Article 6 – Outer Space Treaty (1967) : "*States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty.*
The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.
When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization. "

Furthermore, the 1972 Convention on International Liability for Damage Caused by Space Objects, which governs the financial liability regime applicable to states, distinguishes between absolute liability and fault-based liability. Thus, the 1972 Convention defines absolute liability as the full responsibility of the state from whose territory the space object that caused the damage was launched, whether the damage occurred on the surface of the Earth or to an aircraft in flight[1].

The situation is entirely different when the damage occurs in outer space. In such cases, the state from whose territory the space object or rocket was launched is liable only if it can be shown that the damage was caused by its own direct fault or by the fault of a private company for which it bears responsibility[2]. From our perspective, this places the mechanism of engaging civil liability for a private company in a grey area, as there is no direct provision for sanctioning the private operator—liability is instead mediated through the state.

In light of the above, we can state that the rapid expansion of private companies in the space sector is driving profound changes and fundamental transformations, marked by a shift from state monopoly to accelerated privatization. This evolution, fueled by technological progress, presents international law with complex challenges. At the same time, the growing congestion of Earth's orbit and the need for global cybersecurity underscore the urgent necessity of adopting a regulatory framework that is aligned with these new realities.

What is the response of the legislator in Brussels, and how does the European Union define space law?

---

[1] Article 2 - Liability Convention (1972): „*A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight*."

[2] Article III – Liability Convention (1972): „*In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible*."

Conclusions

As mentioned in the introduction of this study, the European Union has, for the first time, launched a legislative initiative aimed at regulating outer space, under the coordination of the Directorate-General for Defence Industry and Space (DG DEFIS). This legislative effort seeks to create a coherent legal framework adapted to the new technological, commercial, and geopolitical challenges.

The proposed legal rules also aim to provide solutions to several pressing issues: the increasing risk of satellite and space debris collisions; cyber threats and the lack of a unified incident notification system; difficulties in applying environmental standards due to the absence of appropriate assessment methods; and the fragmentation of the internal European market caused by the proliferation of national space laws.

An essential role in this process is played by the new generation of private actors in the space sector, commonly referred to as "*new space.*"[1] This category includes start-ups, small and medium-sized enterprises, and emerging tech companies offering innovative solutions for launch, communications, Earth observation, or downstream services[2]. Unlike traditional operators, these entities operate in a highly competitive environment and require a clear, predictable, and tailored legal framework. European regulation thus has the potential to support "*new space*" by establishing common standards that facilitate market access, attract private investment, and promote international cooperation.

At the same time, new business models proposed by companies such as SpaceX, Rocket Lab, Relativity Space, and Varda Space Industries demonstrate the potential to reduce costs, accelerate launches, and diversify orbital and suborbital services. These technical and commercial

---

[1] *Top 20 New Space companies*, https://www.go-astronomy.com/top20-newspace-companies.htm

[2] C. Piloto, *MIT Professional Education, What is the New Space Economy?*, h ttps://professionalprograms.mit.edu/blog/technology/what-is-new-space-economy

developments require legislators, including those at the EU level, to adopt a flexible, coherent regulatory framework aligned with the real needs of this expanding market.

Moreover, the associated risks—from orbital congestion to cyber threats and legal fragmentation—demand a strengthened governance model at the European Union level. The legislative initiative announced by the European Commission for 2025 directly addresses this need: to define a regulatory framework that ensures the security, resilience, and sustainability of space activities without compromising the innovative spirit that defines the new space industry[1].

Therefore, the coherent integration of "*New Space*" actors into the future European legal framework is essential for maintaining the EU's global competitiveness and for ensuring fair, safe, and sustainable access to space for all involved stakeholders.

References

Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space (Annex to Resolution 2345 (XXII)) – adopted on 19 December 1967, opened for signature on 22 April 1968, entered into force on 3 December 1968.

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Annex to Resolution 34/68) – adopted on 5 December 1979, opened for signature on 18 December 1979, entered into force on 11 July 1984.

[1]Comisia Europeană – Call for evidence: EU Space Law. Ares (2023)7269859 – 25/10/2023, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13971-EU-Space-Law-new-rules-for-safe-resilient-and-sustainable-space-activities_en

Comisia Europeană – Call for evidence: EU Space Law. Ares (2023) 7269859, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13971-EU-Space-Law-new-rules-for-safe-resilient- and-sustainable-space-activities_en.

Convention on International Liability for Damage Caused by Space Objects (Annex to Resolution 2777 (XXVI)) – adopted on 29 November 1971, opened for signature on 29 March 1972, entered into force on 1 September 1972.

Convention on Registration of Objects Launched into Outer Space (Annex to Resolution 3235 (XXIX)) – adopted on 12 November 1974, opened for signature on 14 January 1975, entered into force on 15 September 1976.

Courteix, S. (dir.). (1997). *Le cadre institutionnel des activités spatiales des États. Étude comparative*. A. Pedonne.

Courteix, S. (1998). *Droit de l'espace, Répertoire de droit international*. Dalloz.

Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted on 13 December 1963 (Resolution 1962 (XVIII))

Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, adopted on 13 December 1996 (Resolution 51/122)

Von Derdunk, F.G. (2001). *Space for dispute settlement mechanisms - dispute resolution mechanisms for space? A few legal considerations*, Space and Telecommunications Law Program Faculty Publications. https://digitalcommons.unl.edu/spacelaw/38/?utm_source=digitalcommons.unl.edu%2Fspacelaw%2F38&utm_medium=PDF&utm_ca mpaign=PDFCoverPages

Piloto, C. *MIT Professional Education, What is the New Space Economy?*. https://professionalprograms.mit.edu/blog/technology/what-is-new-space-economy

Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, adopted on 10 December 1982 (Resolution 37/92)

Principles Relating to Remote Sensing of the Earth from Outer Space, adopted on 3 December 1986 (Resolution 41/65)

Principles Relevant to the Use of Nuclear Power Sources in Outer Space, adopted on 14 December 1992 (Resolution 47/68)

Reijnen, C. M. (1994). The United National Space Treaties Analysed, Frontières ed, Gif-sur-Yvette, in *Leiden Journal of International Law, vol. 7, 2*.

Top 20 New Space companies. https://www.go-astronomy.com/top20-newspace-companies.htm

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Annex to UN General Assembly Resolution 2222 (XXI)) – adopted on 19 December 1966, opened for signature on 27 January 1967, entered into force on 10 October 1967