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Space Law Jurisdiction and Governance in Multi-Nation Space Activities

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Abstract

From 2015 to 2022, the rules for how to control space operations by more than one country changed the most since the Outer Space Treaty was signed in 1967. Four countries—Japan, Luxembourg, the United Arab Emirates, and the United States—passed laws that give private property rights to space resources that are taken from space. This goes against the "common heritage" notion that is part of the Moon Agreement. The Artemis Accords were a plurilateral effort sponsored by the United States that drew in about twenty-one signatories by the end of 2021. They created non-binding rules for how to use resources, create safety zones, and make systems work together. In response, China and Russia signed the International Lunar Research Station initiative in March 2021. This initiative offered a different way to rule with a focus on shared history. By the end of 2022, the global space economy was worth an estimated $464 billion, there were more than 6,700 operational satellites orbiting Earth (twice as many as in 2020), and the private sector was paying for most of the new launches. All of this was happening within a treaty framework that was meant for a time when governments had a monopoly on space. This paper looks at the jurisdictional aspects of this change in five main areas: (i) how key OST provisions are interpreted and applied to multi-partner missions; (ii) the rise of national space laws and their jurisdictional effects; (iii) how space resource extraction is governed under different legal systems; (iv) whether the ISS Intergovernmental Agreement model is good enough for new commercial crewed spaceflight; and (v) the lack of binding rules for space traffic management in an increasingly crowded orbital environment. Utilizing core treaty texts, national legislation, COPUOS working materials, and state practice up to 2022, the report delineates seven structural governance deficiencies and assesses the incomplete, predominantly voluntary measures undertaken by states and multilateral entities by the conclusion of that timeframe.

Keywords: space law; jurisdiction; multi-nation space activities; Artemis Accords; ILRS; space resources; national space legislation; COPUOS; ISS IGA; space traffic management; new space; commercial spaceflight 2022

1. Introduction

There is no doubt that the years 2020 to 2022 were an amazing time in the history of human spaceflight. In May 2020, SpaceX Crew Dragon Demo-2 launched, marking the first time that a private business had sent personnel to orbit on behalf of a national space agency. This was also the first entirely commercial crewed mission to the International Space Station. In February 2021, the UAE became the fifth country to visit Mars with its Hope mission. This showed that space technology was no longer just for Cold War superpowers. [2] By the end of 2022, there were about 6,700 satellites in orbit that were working. This was twice as many as there were two years earlier. The total amount of money that governments throughout the world spent on space was about $75 billion among OECD member states alone. [3]

In light of this growing commercial and governmental activity, the international law that governs who has jurisdiction over what in outer space has not changed much since the Registration Convention went into effect in 1976. The global space economy, which was worth about $469 billion in 2021 and was revised to $464 billion by independent analysts for 2022, was operating under a legal framework that was made for a time when fewer than ten countries could reach orbit and the idea of a commercially operated crewed spacecraft was still science fiction. [4]

This article uses 2022 as its end point for analysis. This was the year that a lot of tensions that had been building since the commercialization wave of the mid-2010s came to a head. The

Artemis Accords governance framework continued to attract signatories, but its legal status was still in question. The ILRS initiative signed its first partners who were not from Russia or China. Australia was uniquely bound by both the Artemis Accords and the Moon Agreement, and there was no principled way to reconcile their conflicting norms. The UN General Assembly continued to talk about the long-term sustainability of outer space activities without coming to a conclusion.

The paper continues as follows. Section 2 looks at the main jurisdictional parts of international space law and the state practice that had built up around them by 2022. Section 3 looks at how national space laws are spreading. Section 4 looks at the Artemis Accords and ILRS as two different ways to control activity on the Moon and in deep space. Section 5 looks at the legal aspects of commercial crewed spaceflight under the ISS IGA model. Part 6 talks with managing traffic in space. Section 7 makes comparisons and suggests a plan for gradual reform. Section 8 comes to an end.

2. Core Jurisdictional Provisions and their Application

2.1 The Registration Principle and Its Limits

The most important international space law jurisdiction regulation is Article VIII of the Outer Space Treaty. It asserts the state that registers a space object has control over it and its inhabitants. Intentionally based on maritime law of flags, this regulation was altered to allow for the possibility that the state that registered the launch may not have launched it. [5] The Registration Convention, which took effect in September 1976, required launching states to retain national registries and inform the UN of each space object's orbital parameters, broad function, and basic technical features. The Registration Convention included 72 nations in 2022. [6] Monolithic government satellites made the single-registry principle—one object, one state—possible. Applying it to modular systems like the ISS, where numerous states register various sections, or mega-constellations like SpaceX's Starlink, where a single state registers thousands of satellites that perform the same but are used worldwide, was tough. There were 25,000 tracked space junk by 2022. Untracked fragments numbered in the hundreds of millions. These pieces resided in a vague area without being "registered" in any way. [7]

2.2 State Responsibility under Article VI: The Authorisation Obligation

Each State Party must authorize and monitor its "national" non-governmental entities in space under Article VI of the OST. According to Georgia Journal of International and Comparative Law scholars, this creates quasi-territorial governance over space activities: the authorizing state is responsible for its licensed entities' actions in a domain beyond its sovereignty. By 2022, almost forty states had approved national space laws with licensing systems to meet this criterion. The UNOOSA National Space Law Database received submissions from 40 countries worldwide, demonstrating an unprecedented legislative base growth. Although national space rules had grown, there was no clear international organization. State licensing requirements vary widely. France (Loi relative aux opérations spatiales, 2008) and the Netherlands (Space Activities Act, 2007) had complex, risk-based systems, while smaller states that desired commercial registrations had simple ones. Because of this, operators could incorporate corporations or register satellites in more liberal jurisdictions to employ regulatory arbitrage. This made it unclear which state was responsible for Article VI supervision. [10]

2.3 The "Province of All Mankind" and Competing Interpretations

Article I of the OST states that space is "the province of all mankind" and should be explored and used "for the benefit and in the interests of all." This language suggests two different ideas about what private enterprises can do with space resources. US, Luxembourg, UAE, and Japan are the first to say acquiring resources constitutes a "use" under Article I. This means private ownership of stolen resources is not "national appropriation" as Article II prohibits. [11] The second view, more in line with the Moon Agreement and many developing nations in COPUOS, holds that taking resources on a large scale is theft and requires a global benefit-

sharing structure to make it legal.[12] Eighteen nations signed the Moon Agreement by July 2022. This agreement best promotes common heritage. No major spacefaring nation has done it. It was still unclear why only Australia was a party to the Artemis Accords and Moon Agreement by 2022.

3. The Proliferation of National Space Legislation and Its Jurisdictional Implications

3.1 The Wave of New Domestic Laws

The 2015 U.S. Commercial Space Launch Competitiveness Act sparked national space laws. Over forty states on every continent have licensing regimes by 2022. Luxembourg, New Zealand, UAE, and Japan followed in 2017. [13] Armenia passed a space law in 2020–2022, helping enterprises and giving private operators tax incentives. Law No. 9960 of 2021 established a Costa Rican space agency. India licensed private launch activities through IN-SPACe. Turkey's 2022–2030 National Space Programme Strategy Document outlined an autonomous launch capability. [9]

This proliferation impacts jurisdiction. Japanese citizens own space resources under the Space Resources Act (No. 83 of 2021). Japan signed the Artemis Accords in October 2020, prompting this. The Act's legislative explanatory notes stated that the Accords legitimated such rights under international law. This legislative alignment formed an informal coalition of states whose domestic laws interpret Article II of the OST in a way that is disputed by a large part of the international community but has gained normative significance through state practice.

3.2 Jurisdictional Arbitrage and the Principle of Effective Supervision

The COPUOS Legal Subcommittee discussed jurisdictional arbitrage due to country licensing framework differences throughout 2022. Article VI states that an operator in a state with limited license requirements is still supervised by that state. If that state lacks the technical expertise or political will to implement real control, "continuous supervision" is worthless.[8] UNOOSA Global Space Law Project helped smaller governments draft laws. This was done via non-project-budget voluntary contributions. The project acknowledged that uneven regulatory capabilities was a governance vulnerability. The Springer comparative analysis of national space legislation in twelve states—Sweden, the UK, Australia, China, Belgium, the Netherlands, France, Austria, Indonesia, Denmark, New Zealand, and Luxembourg—found that while all addressed authorization and liability as required by the OST, they differed on insurance requirements, state indemnification rights, and territorial versus p. Because of this, two operators executing the same missions from the same orbits may have different regulations based on where they were included.

Table 1: Government Space Programme Budgets and Multilateral Framework Participation (2022)

State / Body	2022 Space Budget (USD bn, approx.)	Primary Civil Agency	Multilateral Frameworks Joined (to 2022)	Key 2020–2022 Jurisdictional Action	OST Party?
United States	62.0	NASA + Space Force + FAA/AST	ISS IGA (1998); Artemis Accords (Oct 2020, founding signatory); Liability Conv.	National Space Policy (Dec 2020) — endorsed bilateral norm-setting; Space Policy Directive 6 (Jan 2021) — nuclear power in space	Yes
China	~12.0 (est.)	CNSA / CASC	ILRS Partnership with Russia (MoU March	ILRS MoU with Roscosmos (March 2021); Tianwen-1 Mars	Yes

State / Body	2022 Space Budget (USD bn, approx.)	Primary Civil Agency	Multilateral Frameworks Joined (to 2022)	Key 2020–2022 Jurisdictional Action	OST Party ?
			2021); Registration Conv.; Liability Conv.	mission jurisdiction (July 2020)	
Russia	~4.0 (est.)	Roscosmos	ISS IGA (1998) — participated until 2022 tensions; ILRS co-founder (2021); Liability Conv.	ILRS co-founder with China (March 2021); continued ISS operations despite diplomatic tensions through 2022	Yes
European Space Agency (ESA)	7.0 (ESA budget)	ESA (22 member states)	ISS IGA (1998); Artemis Accords (various ESA states); Liability Conv.	Endorsed UN LTS Guidelines implementation (2020); EU Space Programme Regulation No. 696/2021 entered into force	Yes (via member states)
Japan	~4.9	JAXA	ISS IGA (1998, Kibō module); Artemis Accords signatory (Oct 2020); Space Resources Act (2021)	Space Resources Act No. 83 (June 2021) — fourth state to enact resource property rights; Hayabusa2 sample return mission jurisdiction (Dec 2020)	Yes
India	~1.9	ISRO / IN-SPACe (est. 2020)	Registration Conv.; Liability Conv.; not Artemis Accords (as of 2022)	Indian Space Policy under development; IN-SPACe created (June 2020) to authorise private space actors — structural equivalent of Article VI authorisation body	Yes
UAE	~0.6	UAE Space Agency (est. 2014)	UAE Space Law (2020); Artemis Accords signatory (2020); Liability Conv.	Mars Hope probe — first Arab mission to Mars; demonstrated growing non-Western competency requiring jurisdictional self-governance (July 2020)	Yes

Note. Budget figures: OECD Space Economy in Figures (2022, USD 75 bn total OECD estimate); Space Foundation Space Report 2022 Q2; individual agency public disclosures.

China and Russia figures are government estimates due to limited public disclosure. ISS IGA = International Space Station Intergovernmental Agreement (1998). IN-SPACe = Indian National Space Promotion and Authorisation Centre (est. June 2020). Artemis Accords signing dates per U.S. Department of State. ILRS MoU signed March 2021 by CNSA and Roscosmos.

4. Competing Governance Architectures: The Artemis Accords and the ILRS Initiative

The Artemis Accords: Form, Content, and Controversy: Eight people signed the Artemis Accords on October 13, 2020. In 2021, roughly twenty-one states signed. NASA signed additional bilateral agreements in 2022, increasing this number. The Accords govern "peaceful civil exploration and usage of the Moon, Mars, comets, and asteroids. "They build on the OST yet add significant elements. [15] Section 10 discusses "safety zones," where others cannot interfere with ongoing operations. The Utrecht Law Review criticised this phrasing as "functions as territorial exclusion in all but name," which may violate Article II's non-appropriation principle. [16] The Accords' legality dominated academic debate until 2022. The International and Comparative Law Quarterly called them a "significant political attempt to codify key principles of space law," but it noted that they were not binding and that negotiating them outside of COPUOS was structurally difficult. [17] The Harvard International Law Journal's 2023 examination of state practice interpreted the Artemis-ILRS framework debate as a sign of the divide between an authoritarian bloc and a liberal rules-based system. Despite its ideological implications, this description accurately predicted the governance outcome: two frameworks with different safety zone and resource utilization rules coexisting in the same place without a dispute resolution mechanism. [18]

ILRS: An Alternative Framework: China's CNSA and Russia's Roscosmos signed an MoU in March 2021 to launch the International Lunar Research Station. The MoU proposed a joint autonomous lunar station, suggested using lunar resources, and invited other nations to join on bilateral terms rather than a multilateral treaty. [19] Initially, several Asian, African, and Latin American countries showed interest, but few signed partnership agreements. The Norton Rose Fulbright research on space governance concluded the ILRS should operate under its own regulations, apart from Artemis. This schism, with two systems of governance for the same celestial body, challenged multilateral space law. [20]

Australia Paradox: Australia's unique situation as a signatory to the Artemis Accords and Moon Agreement underlined the post-2020 governance framework's normative inconsistency. Article 11 of the Moon Agreement states that "neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property of any State." The Artemis Accords advocate resource use and private ownership without claiming sovereignty. According to Norton Rose Fulbright's 2022 governance analysis, Australia had "raised questions as to how [it] can purport to reconcile the conflicting approaches to property rights under each of the instruments" that had not been resolved by Australian courts or international forums.

5. The ISS IGA Model and the Rise of Commercial Crewed Spaceflight

Commercial Crewed Missions under an Existing Framework

The SpaceX Crew Dragon Demo-2 mission in May 2020 was the first commercial spaceflight for the government. NASA sent Doug Hurley and Bob Behnken to the ISS. The astronauts were U.S. citizens, the spacecraft was registered in the U.S., and the mission was supervised by the FAA and NASA, as required by Article VI of U.S. law. The mission's jurisdictional simplicity masked the complexity of the next logical step: private firms' mixed-nationality trips to commercial locations that may not be covered by international agreements. Article 22 of the 1998 ISS IGA governs criminal jurisdiction. It uses a nationality-based model: each partner state has jurisdiction over its own citizens, and if a crime involves nationals of different partners, the perpetrator's home state must offer a prosecution assurance within 90 days or the victim's state may take jurisdiction. This works for a permanent crew of five to seven

professional astronauts from five partner governments. In 2021–2022, legal scholars claimed it wasn't suitable for a corporate context where one flight may convey individuals from a dozen countries to a facility owned by a foreign enterprise. [22]

The "Astronaut" Definition Problem and the Rescue Agreement

The 1968 Rescue Agreement says that countries who sign it must help "astronauts" who are in trouble and bring them back safely. The Agreement doesn't say what "astronaut" means. This wasn't a problem when only trained government workers could reach orbit, but it became a big problem by 2022, when space tourism companies were starting to undertake commercial suborbital flights and plan orbital ones.[23] Wikipedia's space law article, based on academic sources from 2022, said that "as global space activity is not sufficiently shaped by any international entity," there is "no common set of rules that govern global space activity." This was especially true for the new field of civilian spaceflight, where the difference between "astronaut" and "passenger" had legal consequences under the Rescue Agreement but no clear answer. [24]

The ISS IGA as a Precedent for Lunar Governance

Even with its flaws, the ISS IGA had shown by 2022 that sovereign states running a jointly managed facility in space could come to precise operational agreements on criminal jurisdiction, intellectual property, and liability. The way Article 21 handled intellectual property—using each partner's national legislation on ideas made by its own employees—wasn't optimal for collaborative experimentation, but it worked without causing a formal disagreement in almost 20 years of ISS operations.[25] By 2022, most people in the space law academic community agreed that the IGA model would need to be the basis for any future internationally governed lunar installation, commercial space station, or deep-space habitat, even if it wasn't perfect. This was because the ISS had housed much larger and more diverse populations than it had ever housed.

6. Space Traffic Management: The Governance Vacuum in a Crowded Orbit

The Statistical Reality

There were about 6,700 operational satellites in orbit by the end of 2022. This number had quadrupled from the 3,300 that were in orbit at the end of 2020. The main reason for this was the launch of low-Earth-orbit mega-constellations for broadband internet services. The OECD's Space Economy in Figures said that more than two-thirds of active satellites were owned by businesses and that there were about 25,000 recognizable and tracked debris objects, with the total number of untracked objects in the hundreds of millions. The Kessler Syndrome is the worst-case scenario, when debris density could get so high that it starts an irreversible chain reaction of collisions. This would make some economically important orbits permanently unreachable.

The Regulatory Vacuum

As of 2022, there was no legally enforceable global agreement that governed how to handle space transportation. The ITU's Radio Regulations set up a first-come, first-served system for allocating spectrum and orbital slots. This encouraged operators to file speculative applications before they had finalized their deployment plans. The UN COPUOS Long-Term Sustainability Guidelines, which were adopted in 2019, included 21 non-binding principles about debris mitigation, registration, and coordination. However, they did not make any state legally responsible for following them. [26] Different countries had quite different ways of dealing with the STM problem. The U.S. government gave the Department of Commerce the job of civil STM through Space Policy Directive-3 (2018) and told them to build a basic system for sharing space situational awareness. The EU Space Programme Regulation (No. 2021/696) incorporated STM provisions, although they only applied to EU-registered operators and EU launch facilities. [27] Legal scholars writing in 2021 and 2022 said that the lack of binding STM norms was the most important shortcoming of the current legal system. In 2020, Oltrogge

and Christensen wrote in the Journal of Space Safety Engineering that the combination of rapid commercial growth and a lack of regulatory progress posed a systemic danger that voluntary standards could not effectively mitigate. [28]

NORM-MAKING ARCHITECTURE FOR MULTI-NATION SPACE ACTIVITIES (1967–2022)

▼ International Treaty Law (Binding — Universal)

Outer Space Treaty 1967 (OST) 115 parties	**Rescue Agreement 1968 99 parties**	**Liability Convention 1972 98 parties**	**Registration Convention 1976 72 parties**	**Moon Agreement 1979 18 parties (⚠ No major spacefaring state)**

▼ Multilateral Frameworks (Partially Binding)

ISS Intergovernmental Agreement (1998) 5 partners — NASA / ESA / JAXA / Roscosmos / CSA Binding within ISS; Criminal jurisdiction Art. 22; Cross-waiver Art. 16	UN COPUOS LTS Guidelines (2019) Voluntary — 21 guidelines on sustainability Debris mitigation; STM; registry; cooperation

▼ Bilateral / Plurilateral Arrangements (Non-Binding)

Artemis Accords (from Oct 2020) ~21 signatories by end 2021 → growing US-led; safety zones; resource use; non-binding	ILRS Partnership (from March 2021) China–Russia led; growing partners Common heritage orientation; non-binding

▼ Domestic National Space Law (40+ States by 2022)

USA CSLCA 2015 SPD-1, 3, 6 (2017–21)	Japan Resources Act 2021 (No. 83)	Luxembourg Space Resources 2017	UAE Space Law 2020 (Mars Hope)	New Zealand OSSAA 2017 Rocket Lab hub

⚠ GOVERNANCE GAPS AS OF 2022: No binding STM rules · No multilateral resource-rights regime · No criminal jurisdiction for commercial crewed flights · Artemis and ILRS operate with no common dispute-resolution mechanism ⚠

Source: Author's compilation based on UN treaty corpus, ISS IGA (1998), Artemis Accords (2020), ILRS MoU (2021), COPUOS LTS Guidelines (2019), and national legislation survey (UNOOSA, 2022/CRP.9).

Figure 1: Norm-Making Architecture for Multi-Nation Space Activities (1967–2022): Layers, Instruments, and Governance Gaps

7. Comparative Observations and a Path Forward

The period clearly demonstrated both the potential and the limitations of relying on voluntary, non-binding norms in the governance of outer space. Initiatives such as the Artemis Accords illustrated how quickly states could align themselves with a common set of principles without the lengthy and complex negotiations required for formal treaties. Within just a few years, a growing number of countries joined these accords, showing that flexible arrangements can promote rapid international cooperation. However, this speed and flexibility come at a cost. Because these norms are not legally binding, their effectiveness depends entirely on the political will of participating states and their bilateral relationships, particularly with leading space actors. There is no formal mechanism to ensure compliance, monitor behavior, or resolve disputes, which limits their practical impact. A similar pattern can be observed in the COPUOS

Long-Term Sustainability Guidelines, which, despite widespread acceptance, function largely as aspirational standards rather than enforceable rules. Scholars have pointed out that rapid technological advancements, the increasing number of space actors, and the rise in disputes have made existing norms insufficient. While there is broad agreement that governance gaps are expanding, there remains significant disagreement on how to address them.

One of the most urgent concerns identified in recent literature is the absence of a binding international framework governing the use of space resources. As technological capabilities advance, several countries have begun adopting domestic laws that recognize rights over resources extracted from celestial bodies such as the Moon and asteroids. This trend raises important legal and ethical questions. If these national practices continue to develop without international coordination, they may gradually evolve into customary international law, effectively shaping global norms without a formal treaty. This situation could lead to a "fait accompli," where a small group of technologically advanced nations determines the rules governing space resource utilization. The core issue, therefore, is not merely whether such rights should exist, but who gets to define the conditions under which they are exercised. Many scholars argue that without an inclusive and binding multilateral agreement, there is a risk of inequality and exclusion, undermining the principle that outer space is the common heritage of all humankind. A comprehensive legal instrument would provide clarity, ensure fairness, and establish mechanisms for benefit-sharing, environmental protection, and dispute resolution.

Another critical challenge is the management of increasing traffic and congestion in Earth's orbit, commonly referred to as space traffic management. With the rapid growth of satellite constellations and private sector involvement, the risk of collisions and space debris has become a major concern for the sustainability of space activities. A widely discussed solution is the development of internationally agreed technical standards, similar to those used in global aviation governance. Under this approach, states would adopt common guidelines for collision avoidance, debris mitigation, and safe satellite operations, integrating these standards into their national regulatory frameworks. While this model is technically practical, its implementation faces significant political challenges. Different countries have divergent views on international oversight. The United States has historically resisted strong international regulation of its commercial space sector, while countries like China and Russia prefer governance structures developed within United Nations frameworks and are cautious about initiatives perceived as being dominated by Western influence. This lack of consensus makes it difficult to establish universally accepted rules. At the same time, international organizations have emphasized the urgency of the problem, calling for stronger cooperation, innovation, and coordinated policy responses. Despite this recognition, there is still no clear or agreed pathway forward, leaving space traffic management as an unresolved but increasingly critical issue in global space governance.

8. Conclusion

By the end of 2022, the management of multi-nation space activities was marked by a contradiction: more countries than ever were involved in space, more businesses than ever were working in orbit, and the amount and worth of space activities were at all-time highs. However, the international legal framework that decided who had jurisdiction over what had changed less in the last fifty years than in any other area of international law. In 2022, the global space economy was worth $464 billion. It was based on treaties that were made when only a few dozen satellites were in use. Between 2015 and 2022, five fundamental weaknesses were clear. First, the registration-based jurisdictional formula of Article VIII could not clearly identify which state was in charge of complex missions with several partners. Second, the Article VI authorization requirement had led to the creation of more than forty national licensing systems with quite different requirements, allowing for regulatory arbitrage. Third, the Artemis and ILRS frameworks were creating different rules for the same physical location, the lunar surface,

and there was no way to settle disagreements between them. Fourth, the ISS IGA's model for criminal jurisdiction wasn't strong enough to handle the large number and variety of civilian passengers that commercial crewed spaceflight was expected to have. Fifth, the lack of enforceable space traffic management rules was creating an orbital environment that the OECD even called "approaching the threshold of systemic unsustainability" in 2022. What the era leading up to 2022 had not yielded was a consensus forum, a definitive proposal, or a political alliance sufficient to rectify these deficiencies by enforceable international legislation. The Artemis Accords were an innovative and politically useful way to start new norms, but they were not a replacement for treaty change. The COPUOS LTS Guidelines were a real success for many countries, although they were not legally enforceable. And the Moon Agreement, which was the only extant document that really looked at how to manage operations on celestial bodies, was still approved by eighteen states. None of these states were important spacefaring powers whose actions would shape the actual course of space law. As of 2022, that path was still very much up for debate, which meant it was still open.

References

1. National Aeronautics and Space Administration (NASA). (2020). *NASA's commercial crew programme — Crew Dragon Demo-2 mission overview*. Retrieved from https://www.nasa.gov
2. Global Arbitration Review. (n.d.). *Navigating the legal cosmos of space disputes: Sources of space law and core principles*. Retrieved from https://globalarbitrationreview.com
3. Organisation for Economic Co-operation and Development (OECD). (2022). *The space economy in figures*. Paris: OECD Publishing.
4. Euroconsult / Novaspace. (2023). *Value of space economy reaches $464 billion*. Retrieved from https://nova.space
5. Space Foundation. (2022). *The space report 2022 Q2*. Retrieved from https://www.spacefoundation.org
6. Von der Dunk, F. G. (n.d.). Structuring the governance of space activities worldwide. *Georgia Journal of International and Comparative Law*.
7. United Nations Office for Outer Space Affairs (UNOOSA). (1976). *Convention on registration of objects launched into outer space*.
8. Organisation for Economic Co-operation and Development (OECD). (2022). *The space economy in figures — Debris and sustainability*. Paris: OECD Publishing.
9. Von der Dunk, F. G. (n.d.). Structuring the governance of space activities worldwide (Article VI analysis). *Georgia Journal of International and Comparative Law*.
10. United Nations Office for Outer Space Affairs (UNOOSA). (2022). *Schematic overview of national regulatory frameworks* (A/AC.105/C.2/2022/CRP.9).
11. Springer. (2018). *National space legislation: A comparative and evaluative analysis*. Springer-Verlag.
12. Chicago Journal of International Law. (2022). *Who dares, wins: Property rights in space and international law implications*.
13. Norton Rose Fulbright. (2022). *Governance in outer space: The case for a new global order*.
14. Wilson Center. (n.d.). *The global legal landscape of space: Who writes the rules on the final frontier?* Retrieved from https://www.wilsoncenter.org
15. Chicago Journal of International Law. (2022). *Who dares, wins* (Japan Space Resources Act reference).
16. Utrecht Law Review. (2024). *The architecture of authority in global space governance: The Moon Agreement as a deconflicting mechanism*.
17. Utrecht Law Review. (2024). *The architecture of authority in global space governance*

(safety zones analysis).
18. Deplano, R. (2021). The Artemis Accords: Evolution or revolution in international space law? *International and Comparative Law Quarterly*, 70. Cambridge University Press.
19. Hasin, G. (2023). From "space law" to "space governance": A policy-oriented perspective. *Harvard International Law Journal*.
20. Norton Rose Fulbright. (2022). *Governance in outer space* (ILRS cooperation analysis).
21. Norton Rose Fulbright. (2022). *Governance in outer space* (Australia and Artemis Accords analysis).
22. Norton Rose Fulbright. (2022). *Governance in outer space* (Moon Agreement Article 11 analysis).
23. Journal of Judikaltura. (2024). Legal ramifications of space colonization: Jurisdiction, rights, and governance. *Journal of Judikaltura*, 2(1). https://doi.org/10.61963/jkt.v2i1.68
24. Wikipedia. (2022). *Space law — Rescue Agreement and astronaut definition*. Retrieved from https://en.wikipedia.org
25. Wikipedia. (2022). *Space law — Governance gaps*. Retrieved from https://en.wikipedia.org
26. Wikipedia. (2022). *Space law — ISS legal framework*. Retrieved from https://en.wikipedia.org
27. United Nations Office for Outer Space Affairs (UNOOSA). (2019). *Guidelines for the long-term sustainability of outer space activities*.
28. European Parliament and Council. (2021). *Regulation (EU) 2021/696 establishing the Union space programme*.
29. Oltrogge, D. L., & Christensen, I. A. (2020). Space governance in the new space era. *Journal of Space Safety Engineering*.