

THE SPACE-DEFENSE RELATIONSHIP IN INTERNATIONAL ORGANIZATIONS: PEACEFUL COOPERATION OR INCREASING COMPETITIVENESS?

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ABSTRACT

With the risks associated with the militarization of space becoming increasingly evident, the United Nations has emerged as a key forum for fostering international cooperation and establishing the foundations of space law. However, this research notes a significant trait of space law: the absence of clearly defined terminology, which, accompanied by a global interest shift, increases the risks associated with the space domain. The need for stronger international efforts becomes apparent, while space and defense are increasingly intertwined. International organizations have played a crucial role in shaping space law, yet they have faced challenges in reaching consensus on critical issues. Indeed, despite recognizing the urgency of addressing space weaponization, the international community has yet to find viable solutions. Efforts have been hampered by seemingly contradictory behaviors, heightening mistrust among actors in the increasingly congested and competitive space domain. The establishment of dedicated space forces by advanced spacefaring countries, the North Atlantic Treaty Organization's fifth operational domain and the European Union's search for synergies between civil and military space applications all demonstrate a shifting attitude towards greater involvement of the military sector in outer space.

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I. INTRODUCTION

The “space race” has always been associated with the need for competing powers to enhance their military capabilities.¹ The Soviet launch of Sputnik in 1957 commenced a technological competition which has brought about an increasing link between space and defense.² Today, outer space is recognized as a fundamental part of many countries’ national security.³

Because of the risks associated with the militarization of space, the Western and the Soviet Blocs understood that the only forum able to foster international cooperation on the field was the United Nations⁴ (UN). To prevent an escalation of the Cold War in outer space, the legislative effort of all the parties involved was of the utmost importance. Therefore, over the years, the General Assembly of the UN (UNGA) became central in the regulation of outer space, setting the foundations for the creation of a new branch of international law: space law.⁵

One noticeable trait of space law is the absence of definitions for terms such as *peaceful*, *outer space*, *space object*, *astronauts* and *weapons of mass destruction*. This absence can be justified by the long negotiating efforts required to elaborate complex notions at a multilateral level. Due to the general environment of distrust and the strategic importance of the domain, States preferred to avoid binding definitions and instead relied on mutual understanding on the importance of keeping outer space a threat-free environment.

This attitude, acceptable in a past when only a handful of countries had launching capabilities, is now proving challenging. Today, the emergence of new interests, both public and private, and the growing threats related to the weaponization of outer space, call for stronger international efforts.

To date, there is no unitary body of law regulating the military uses of outer space. The main sources of regulations are the UN Charter, the Treaty on Principles Governing the Activities of States

¹ Jayant Prasad, *Forward*, in FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY vii, vii (Ajey Lele ed., 2017).

² *Id.* at viii.

³ *Id.*

⁴ Ram S. Jakhu, *Evolution of the Outer Space Treaty*, in FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY 13, 14 (Ajey Lele ed., 2017).

⁵ Peter Jankowitsch, *The Background and History of Space Law*, in HANDBOOK OF SPACE LAW 1, 4 (Frans G. von der Dunk & Fabio Tronchetti eds., 2015).

in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies⁶ (Outer Space Treaty), the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies⁷ (Moon Agreement), the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water⁸ (Partial Test Ban Treaty), *erga omnes* and *ius cogens* norms of international law and, finally, national law. Moreover, an attentive reading of the treaties regulating the use of outer space and celestial bodies suggests the absence of a total ban on the weaponization of the domain, except in cases of nuclear weapons and weapons of mass destruction.⁹ While it may be argued that a detailed regulation of States' military activities in space could provide legal certainty and security on the matter, spacefaring nations are unenthusiastic about the idea of entering international obligations which can impact their interests and defense policies.¹⁰ However, States' practice demonstrates that the military use of outer space, so far, has been concentrated on the support of military activities on Earth¹¹ and that the international community has refrained from displaying weapons in outer space for offensive purposes.¹² Arguably, this attitude demonstrates a more ethical approach to space activities, if compared to other earthly domains. Nevertheless, one should not naively ignore that this philosophy has started to be questioned and endangered. Undoubtedly, humankind's growing reliance on space technology for civilian and military purposes poses concerns about the future protection of satellites and their possible weaponization.¹³ Although proposals on arms control have been brought forward—such as the Treaty on Prevention of the Placement of

⁶ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

⁷ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 U.N.T.S. 3 [hereinafter Moon Agreement].

⁸ Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 480 U.N.T.S. 43, 10 Oct. 1963 [hereinafter Partial Test Ban Treaty].

⁹ Outer Space Treaty, *supra* note 6, art. IV. See Fabio Tronchetti, *Legal Aspects of the Military Uses of Outer Space*, in HANDBOOK OF SPACE LAW 331, 338 (Frans G. von der Dunk & Fabio Tronchetti eds. 2015).

¹⁰ Jankowitsch, *supra* note 5, at 14.

¹¹ Tronchetti, *supra* note 9, at 333.

¹² *Id.*, at 334.

¹³ *Id.* at 344-345.

Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects, advanced by China and Russia,¹⁴ or the Code of Conduct for Outer Space Activities suggested by the European Union¹⁵—a solution is yet to be found.¹⁶ Despite the unwillingness of some actors of the international community to regulate it,¹⁷ the Prevention of an Armed Race in Outer Space (PAROS) is becoming a matter of extreme urgency.

The space-defense dichotomy is acquiring increasing importance due to the threats posed by space debris—arising from asteroids and from obsolete space objects—and State attacks, such as jamming. Another crucial issue associated with the growing importance of space-related human activities is the congestion of outer space. In principle, access to space should be guaranteed to every space actor, present and future, recognizing space as a global public good, i.e., non-rival in consumption and non-excludible. Nevertheless, the reality highlights a worrying trend: spacefaring States launch more than ever, with some actors planning to send mega-constellations of satellites into orbit.¹⁸ Moreover, private entities are now taking active part in space exploration,¹⁹ threatening a dramatic increase in the production of debris. Hence, because of the finite area to where satellites can be launched, outer space represents a common good rather than a public one. This means that its overexploitation will inevitably prevent others from its use, leading to a phenomenon called “the tragedy of the commons,”²⁰ which will

¹⁴ Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects, draft available at: <https://digitallibrary.un.org/record/633470?ln=en&v=pdf> [hereinafter 2008 PPWT]. See Tronchetti, *supra* note 9, at 378.

¹⁵ Draft International Code of Conduct for Outer Space Activities available at: https://www.eeas.europa.eu/sites/default/files/space_code_conduct_draft_vers_31-march-2014_en.pdf. See Tronchetti, *supra* note 9, at 379.

¹⁶ Jinyuan Su & Zhu Lixin, *The European Union Draft Code of Conduct for Outer Space Activities: An Appraisal*, 30 SPACE POLY 34, 39 (2014).

¹⁷ Tronchetti, *supra* note 9, at 381.

¹⁸ Andrew Jones, *The Coming Chinese Megaconstellation Revolution*, SPACENEWS (Feb. 23, 2023), <https://spacenews.com/the-coming-chinese-megaconstellation-revolution/>.

¹⁹ Brian Kennedy & Alec Tyson, *Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies*, PEW RSCH. CTR. (July 20, 2023), <https://www.pewresearch.org/science/2023/07/20/americans-views-of-space-u-s-role-nasa-priorities-and-impact-of-private-companies/>.

²⁰ Eligar Sadeh, *Evolution of Policy and Law for International Space Governance, in FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY* 13, 14 (Ajey Lele ed.,

not only be in clear contrast with the principles of free exploration and use, but will also represent an enormous risk for those objects already in space. Indeed, in the event of a collision between space objects, a chain reaction could occur, with the probability for catastrophic collisions growing progressively with the amount of debris.²¹

International Organizations (IOs) play a central part in the evolution of space law and best practices. Since the beginning of the space age, spacefaring countries have used international and regional organizations as fora to discuss and tackle space issues. Their crucial role notwithstanding, IOs can effectively function only when Member States are willing to negotiate feasible solutions to common issues. If in the past the threat of a nuclear escalation drove spacefaring nations to adopt binding norms, today this willingness seems inadequate as the most pressing topics in outer space, such as space weaponization and the emergence of unregulated private entities, remain unresolved.

In this regard, this article studies the space-defense relationship in International Organizations, focusing on the role of the United Nations in shaping the current legal framework regulating space activities as well as the current lack of consensus surrounding specific issues, such as the weaponization of space. In a similar fashion, this article will investigate the European Union (EU) approach to the space-defense dichotomy analyzing the European legal framework and the European Space Strategy. In order to better understand the EU approach, the article will briefly analyze the views of some European Member States regarding the increasing interdependence of outer space and defense.

2017). The “tragedy of the commons” refers to the damages caused by the unregulated exploitation of a common good; self-interested behaviors will cause excessive uses by some, to the detriment of society. In space, it can be associated with the proliferation of space objects and debris, because it could prevent others from reaching the orbits.

²¹ *About Space Debris*, EUR. SPACE AGENCY, https://www.esa.int/Space_Safety/Space_Debris/About_space_debris (last visited Oct. 24, 2023).

II. THE SPACE-DEFENSE DICHOTOMY WITHIN THE UNITED NATIONS

A. Peaceful Purposes

By fostering amicable relations among its members and developing internationally recognized principles, the United Nations has played a leading role in the adoption of norms regulating States' behaviors in outer space. In 1952, the UN Legal Department was already stressing the importance of keeping outer space "common property of all [hu]mankind," with the basis of the new legal order being freedom of use and non-exclusion, paramount to keep outer space safe.²²

This relatively new branch of international law—although a product of a period of enormous global changes, conflict and competition²³—differs from other fields of international law in building a different ethic.²⁴ Outer space, unlike other domains on Earth,²⁵ is not subject to national appropriation²⁶ and its exploration and use is to be carried out in the interest of all humankind²⁷. The overarching goal of preserving peace in orbit was recognized as early as 1958 in the United Nations General Assembly Resolution 1348 Question of the Peaceful Use of Outer Space, which, to that end, established the UN Committee on Peaceful Uses of Outer Space (COPUOS).²⁸ General Assembly Resolutions are not binding instruments. However, the adoption of Resolution 1348 by consensus and without a formal voting procedure demonstrated the existence of an *opinio iuris*—or better, an *opinio iuris sive necessitatis*—on the peaceful uses of outer space soon after the launch of the first human-made object into orbit, in 1957. States' *opinio iuris* has been restated and reinforced in subsequent Resolutions and Treaties, in particular the Outer Space Treaty, considered by many scholars the *Magna Carta* of space law.²⁹

²² Jakhu, *supra* note 4, at 14.

²³ *Id.* at 15.

²⁴ Jankowitsch, *supra* note 5, at 5.

²⁵ *Id.*

²⁶ Outer Space Treaty, *supra*, note 6, art. II.

²⁷ *Id.* at art. I.

²⁸ G.A. Res. 1348 (XIII) (Dec. 13, 1958).

²⁹ Jakhu, *supra* note 4, at 13.

States' willingness to cooperate was extremely valuable when an escalation of the Cold War was a tangible risk, so much so that the pillars of space law are still in place today and are widely recognized by the international community. Nevertheless, it is arduous to establish whether the core legal principles on which space law is founded constitute international custom: despite a strong *opinio iuris* on some matters, it is difficult to find enough elements as to identify State practice.

Resolution 1348 recognized the interest of humankind in space exploration and the importance of using the domain for peaceful purposes. From there on, the principle that outer space activities should be carried out for peaceful purposes has been echoed in every UN Resolution dealing with outer space.³⁰

Even if it became a pivotal principle, no real definition of the term *peaceful* has ever been adopted, creating debates over its interpretation.

Discussions have been centered on whether the term *peaceful* means "non-aggressive" or "non-military." The former interpretation, promoted by the United States,³¹ suggests that every military activity in conformity with the prohibition of the use of force, contained in the Charter of the United Nations, would be legal under international law. The latter approach, supported by the Soviet Union,³² argues that the prohibition of the use of force encompasses every possible military activity in outer space.³³

Under international law, "a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."³⁴ Considering the general obligation upon States to refrain from the use of force, "peaceful" has been interpreted as "non-aggressive," widely accepting the concept that military uses of space technology conform with international law.

³⁰ See, e.g., G.A. Res. 1721 (XVI) (Dec. 20, 1961); G.A. Res. 55/122 (Dec. 8, 2000); G.A. Res. 69/85 (Dec. 5, 2014); G.A. Res. 76/76 (Dec. 9, 2021) G.A. Res. 77/121 (Dec. 12, 2022).

³¹ Tronchetti, *supra* note 9, at 339-340.

³² *Id.* at 339.

³³ *Id.*

³⁴ Vienna Convention on the Law of Treaties art. 31, May 23, 1969, 1155 U.N.T.S. 331.

Consequently, it can be argued that peaceful military uses of outer space are compatible with the prohibition of the use of force, which could only be derogated from in case of self-defense or a United Nations Security Council Resolution under Chapter VII of the UN Charter.³⁵ As a direct consequence, as space technology developed, so did its uses in the military field.

On the one hand, a strong *opinio iuris* regarding the peaceful uses of outer space exists; on the other, identifying a shared State practice is a complex task. Arguably, spacefaring States have so far refrained from aggressive behaviors in orbit. However, some actions are not fully classified as peaceful. For instance, considering anti-satellite (ASAT) testing and deployment, as well as rendezvous and espionage missions, States' increasing trend is to resort to dangerous actions in space.

Resolution 1348 also observed the importance of international cooperation in the field. Therefore, the Assembly established COPUOS, a body initially comprising eighteen members from the Global North and the Global South.³⁶ COPUOS was tasked with reporting to UNGA on the status of international cooperation and programs devoted to the enhancement of the peaceful uses of outer space, the status of future arrangements on space cooperation and the legal issues that could arise in the exploration of the domain.³⁷

The Committee's work enabled the development of the five international treaties on space: the Outer Space Treaty,³⁸ the Rescue and Return Agreement,³⁹ the Liability Convention,⁴⁰ the Registration Convention⁴¹ and the Moon Agreement.⁴²

³⁵ U.N. Charter arts. 39-51.

³⁶ As of 2023, 102 countries are party to UNCOPUOS. See *Committee on the Peaceful Uses of Outer Space: Membership Evolution*, UNITED NATIONS OFF. FOR OUTER SPACE AFFS., <https://www.unoosa.org/oosa/en/ourwork/copuos/members/evolution.html> (last accessed Oct. 24, 2023).

³⁷ G.A. Res. 1348 (XIII) (Dec. 13, 1958).

³⁸ Outer Space Treaty, *supra* note 6.

³⁹ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Return and Rescue Agreement].

⁴⁰ Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

⁴¹ Convention on Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

⁴² Moon Agreement, *supra* note 7.

B. Delimitation of Outer Space

As the only spacefaring countries at the time of the negotiation of the Outer Space Treaty, the US and Soviet Union led the diplomatic consultations. Nonetheless, the active contribution of every member of COPUOS was essential in developing the provisions contained in the *Magna Carta* of space law. For instance, the role of the Global South was decisive in including core provisions, such as “irrespective of their degree of economic or scientific development”⁴³, within the operative part of the treaty, as supported by the Brazilian delegation.⁴⁴ The wide contribution of COPUOS members reflects the importance of the domain and the strong duties of cooperation that outer space exploration entails. Similarly, the need for a consensus in adopting decisions highlights the different ethic on which space law rests: the welfare of *all humankind* outweighs States’ interests, displaying the intention to “detoxify international relations of the phantom of sovereignty.”⁴⁵ However, reality does not always resemble Treaty principles and Preambles, and the need to find agreements can result in principles of law which may be too general, factually sacrificing certainty and predictability.

Arguably, the lack of an explicit definition and delimitation of *outer space* demonstrates this. Although the establishment of a defined demarcation of the domain has been on the agenda of the Legal Subcommittee of COPUOS since 1966, difficulties arose in identifying scientific or technical criteria precise enough to anticipate implications in future exploration and research.⁴⁶ Moreover, not every delegation perceived the issue as pressing, and those that did could not always agree on the approach to use when defining the domain.⁴⁷

⁴³ Outer Space Treaty, *supra* note 6, art. I.

⁴⁴ Jakhu, *supra* note 4, at 17.

⁴⁵ G.S. Sachdeva, *Outer Space Treaty: An Appraisal*, in FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY 24, 44 (Ajey Lele ed., 2017).

⁴⁶ Historical Summary on the Consideration of the Question on the Definition and Delimitation of Outer Space, Rep. of the Secretariat, U.N. Doc. A/AC.105/769, https://www.unoosa.org/pdf/reports/ac105/AC105_769E.pdf.

⁴⁷ *Id.*

Some delegations advanced a “spatialist” approach⁴⁸ supporting an altitude-based system.⁴⁹ Others supported a “functionalist” approach calling for a definition of outer space activities, so as to distinguish them from airspace ones.⁵⁰ In 1983, the Soviet Union proposed a boundary at an altitude not exceeding 110 km, under which States retained the right of peaceful flight over other States’ territory for returning to Earth or entering orbit. Still, no consensus was found and thus no agreement reached.⁵¹ The main reason is that some countries—such the United States—contend that the absence of a demarcation is a negligible matter that has not caused substantial legal issues in either space or air law.⁵²

On the other hand, the delegations petitioning for a demarcation of the domain—championed by Russia and China—believe it would avoid uncertainty as to which legal regime applies.⁵³ That is because, while air law is rooted in sovereignty, as every State enjoys “complete and exclusive sovereignty over the airspace above its territory,”⁵⁴ “Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by means of sovereignty....”⁵⁵ Similarly, if under air law, liability rests upon the air carrier,⁵⁶ under space law the State “is internationally liable for damage”⁵⁷ and “shall be absolutely liable to pay compensation for

⁴⁸ Frans G. von der Dunk, *The Delimitation of Outer Space Revisited: The Role of National Space Laws in the Delimitation Issue*, in PROCEEDINGS ON THE FORTY-FIRST COLLOQUIUM ON THE LAW OF OUTER SPACE 254, 256 (1998).

⁴⁹ U.N., Space Safety L. & Regul. Comm. of the Int’l Ass’n for the Advancement of Space Safety, Comm. on the Peaceful Uses of Outer Space, Suborbital Flights and the Delimitation of Air Space vis-à-vis Outer Space: Functionalism, Spatialism and State Sovereignty, at 10-11, U.N. Doc. A/AC.105/C.2/2018/CRP.9 (2018).

⁵⁰ Jonathan C. McDowell, *The Edge of Space: Revisiting the Karman Line*, 151 ACTA ASTRONAUTICA 668, 668 (2018).

⁵¹ *Id.*

⁵² *Delimitation of Outer Space, Executive Brief No.11*, EUR. SPACE POL’Y INST. (March 1, 2017), <https://www.espi.or.at/briefs/delimitation-of-outer-space/> (last visited July 30, 2023).

⁵³ *Id.*

⁵⁴ Chicago Convention on International Civil Aviation, art. 1, 15 U.N.T.S. 295 (Dec. 7, 1944).

⁵⁵ Outer Space Treaty, *supra* note 6, art. II.

⁵⁶ See The Warsaw Convention for the Unification of Certain Rules Relating to International Carriage by Air, 49 Stat. 3000, (Oct. 12, 1929).

⁵⁷ Outer Space Treaty, *supra* note 6, art. VII.

damage caused by its space object on the surface of the Earth or to aircraft in flight.”⁵⁸

Disagreements over the delimitation of outer space also exist outside COPUOS. The Fédération Aéronautique Internationale (FAI) adopted the Kármán line, 100 km, as the “edge of space,” the boundary between aeronautics and astronautics.⁵⁹ However, the US Air Force and National Aeronautics and Space Administration (NASA), among others, place such a boundary at about 80 km.⁶⁰ In 2019, FAI announced that recent data had compelled the organization to reduce the “edge of space” from 100 km to 80 km.⁶¹

The strategic importance of outer space renders the development of an international definition extremely difficult. If the boundary is set too high above sea level, some space objects may be considered aircrafts,⁶² even if the latter operate at a considerably lower altitude. Consequently, what we now consider space objects may be regulated by a different regime and their operations and passages would be subjected to States’ approval.⁶³ On the other hand, a demarcation line situated at a lower altitude risks interfering with countries’ defensive capabilities⁶⁴.

Considering the existence of operational boundaries among aerospace activities, another approach could be the “functionalist” one, but this too presents issues as the reality of activities is arduous to assess, also considering the absence of a definition of “space object.”⁶⁵

The lack of a consensus regarding the issue on the one hand, and its possible solution on the other, renders the question

⁵⁸ Liability Convention, *supra* note 40, art. II.

⁵⁹ *100 km Altitude Boundary for Astronauts*, FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE ASTRONAUTIC RECS. COMM’N, <https://www.fai.org/page/icare-boundary> (last visited Oct. 27, 2023).

⁶⁰ Nadia Drake, *Where, Exactly, Is the Edge of Space? It Depends on Who You Ask*, NAT’L GEO. SCI. (Dec. 20, 2020), <https://www.nationalgeographic.com/science/article/where-is-the-edge-of-space-and-what-is-the-karman-line>.

⁶¹ *Statement About the Karman Line*, FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE (Nov. 30, 2018), <https://www.fai.org/news/statement-about-karman-line> (last accessed July 30, 2023).

⁶² McDowell, *supra* note 50, at 668-669.

⁶³ *Id.*

⁶⁴ Executive Brief No.11, *supra* note 52.

⁶⁵ Andrea J. DiPaolo, *Definitions and Delimitations of Outer Space: The Present Need to Determine Where “Space Activities” Begin*, 39 ANNALS AIR & SPACE L. 623, 624 (2014).

extraordinarily complicated. However, it is safe to assume that the emergence of private interests will have an impact in the debate.

a. A Change in Tone

As mentioned before, “peaceful” has been associated with non-aggressive.⁶⁶ Thus, to avoid turning outer space into a nuclear warzone, States negotiated the arms control clause enshrined in Article IV of the Outer Space Treaty,⁶⁷ which prohibits the placement in orbit of “any object carrying nuclear weapons or any other kind of weapon of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”⁶⁸ Moreover, the Article forbids the “establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies.”⁶⁹

Despite the farsighted character of the Treaty provision, the Outer Space Treaty remains too general as to the issue of an arms race in outer space. Indeed, the prohibition concerns the placement of *any type of weapons only on celestial bodies*, leaving the possibility to weaponize orbits, except for nuclear weapons and weapons of mass destruction,⁷⁰ but without providing a definition of the latter. Undeniably, at the time of the negotiation of the Treaty, the issue of weaponization of space involved the actions of two countries which could discuss the topic through bilateral instruments, avoiding the lengthy process of consensus-building. The adoption of the *Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems* (ABM Treaty) in 1972 exemplifies this Cold War trend. The Treaty in question regulated the development and deployment of Anti-Ballistic Missile (ABM) technology, establishing, *inter alia*, a general obligation between the parties “not to develop, test, or

⁶⁶ Tronchetti, *supra* note 9, at 338-339.

⁶⁷ *Id.* at 340-341.

⁶⁸ Outer Space Treaty, *supra* note 6, art. IV.

⁶⁹ *Id.*

⁷⁰ The testing of nuclear weapons in outer space had already been prohibited by the Partial Test Ban Treaty. See Partial Test Ban Treaty, *supra* note 8.

deploy ABM systems or components,”⁷¹ factually integrating the general obligations contained in Article IV of the Outer Space Treaty.⁷² Following US withdrawal in 2002,⁷³ the Treaty is no longer in force, leaving the Anti-Ballistic Satellite systems factually unregulated.

The 1979 Moon Agreement marked the last international effort to find consensus on binding norms regulating outer space and represented another attempt to integrate the general arms control provisions contained in the OST. Article III bans “the threat or use of force or any other hostile act or threat of hostile act on the Moon . . .”⁷⁴ and the use of the Moon to target Earth, spacecrafts, and personnel.⁷⁵ Yet the Moon Agreement was ratified only by eighteen countries and signed by four,⁷⁶ suggesting a progressive disengagement of the international community towards legally binding norms.

The beginning of the 21st century unfolded a drastic change of international politics⁷⁷ and like a chain reaction, a general environment of growing mistrust characterized the space domain.⁷⁸

In the past twenty years, countries resumed ASAT-weapons testing: in 2007, China successfully deployed its ASAT technology against one of its satellites;⁷⁹ in 2008, the US terminated one of its

⁷¹ Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, U.S.-U.S.S.R. art. V, May 26, 1972, 23 U.S.T. 3435.

⁷² Jakhu, *supra* note 4, at 193.

⁷³ Diplomatic Notes to Russia, Belarus, Kazakhstan, and Ukraine, December 13, 2001, available at: <https://www.armscontrol.org/act/2002-01/us-withdrawal-abm-treaty-president-bushs-remarks-and-us-diplomatic-notes#notes>. See Aleksandr Klapovskiy & Vladimir Yermakov, *Russia and the Outer Space Treaty*, in *FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY* 103, 105 (Ajey Lele ed., 2017).

⁷⁴ Moon Agreement, *supra* note 7, art. III.

⁷⁵ *Id.*

⁷⁶ France is the only United Nations Security Council Member to have signed the agreement. See United Nations Office for Outer Space Affairs, Status of International Agreements Relating to Activities in Outer Space as at 1 January 2022, U.N. Doc. A/AC.105/C.2/2022/CRP.10 (Mar. 28, 2022).

⁷⁷ Ranjana Kaul, *Relevance and Limitations of Outer Space Treaty in 21st Century*, in *FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY* 48, 53 (Ajey Lele ed., 2017).

⁷⁸ Jayant Prasad, *Conclusion*, *FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY* 195, 199 (Ajey Lele ed., 2017).

⁷⁹ Kaul, *supra* note 77, at 53.

own malfunctioning space objects;⁸⁰ in 2019, India launched and then destroyed one of its own satellites,⁸¹ and in 2021, Russia used its ASAT capabilities to target and destroy one of its assets in orbit.⁸²

At the same time, the negotiation of binding mechanisms was replaced by agreements on soft law instruments, mainly UN General Assembly resolutions such as: *Guidelines Related to Space Debris Mitigation* in 2007,⁸³ *No First Placement of Nuclear Weapons, Weapons of Mass Destruction (WMD) in Outer Space* in 2014⁸⁴ and *International Cooperation on Peaceful Uses of Outer Space* in 2015.⁸⁵ In 2021, the UN General Assembly adopted a resolution that established a working group whose purpose is to consider present and future space threats and recommend regulations for activities in outer space and the prevention of an armed race.⁸⁶ In addition, the First Committee approved the draft resolution *Destructive Direct-Ascent Anti-Satellite Missile Testing*⁸⁷ proposed jointly by the United Kingdom and the US in 2022, which calls on Member States to refrain from conducting orbital debris-generating ASAT tests.

Although UN General Assembly Resolutions can be evidence of *opinio iuris* or *opinio iuris sive necessitatis*, they do not contain legal obligations and have no attached compliance mechanism. Despite recalling the principles on which outer space activities must be conducted, the UN General Assembly has not played a direct role in the development of policies aimed at addressing the space-defense relationship.

⁸⁰ *Id.* at 54.

⁸¹ Ashley J. Tellis, *India's ASAT Test: An Incomplete Success*, CARNEGIE ENDOWMENT FOR INT'L PEACE (Apr. 15, 2019), <https://carnegieendowment.org/2019/04/15/india-s-asat-test-incomplete-success-pub-78884>.

⁸² Tariq Malik, *International Space Station Dodges Orbital Debris from Russian Anti-Satellite Test*, SPACE (June 19, 2022), <https://www.space.com/space-station-dodges-russian-satellite-debris>.

⁸³ G.A. Res. A/RES/62/217 (Dec. 22, 2007). See also OFF. FOR OUTER SPACE AFFS., SPACE DEBRIS MITIGATION GUIDELINES OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (2010), https://www.unoosa.org/pdf/publications/st_space_49E.pdf.

⁸⁴ G.A. Res. A/69/438 (Dec. 12, 2014).

⁸⁵ G.A. Res. A/70/495 (Nov. 12, 2015).

⁸⁶ G.A. Res. A/76/231 (Dec. 24, 2021); see also Mary Ann Hurtado, *UN Panel Approves Working Group on Space*, ARMS CONTROL ASS'N (Dec. 2021), <https://www.arm-control.org/act/2021-12/news/un-panel-approves-working-group-space>.

⁸⁷ G.A. Res. A/C.1/77/L.62 (Oct. 13, 2022).

C. Conference on Disarmament

As previously mentioned, the five international agreements regulating space activities have been adopted through COPUOS. However, the Committee is not the only UN forum dealing with space activities. Since the 1980s, the specific issue of disarmament in outer space has been overseen by the Conference on Disarmament (CD), a deliberative body established by the UN General Assembly with the objective of finding feasible solutions to achieve global disarmament.⁸⁸ Thus far, the CD has been unable to reach consensus on norms regulating the weaponization of outer space.

Since 2008, China and Russia have jointly sponsored a Draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT).⁸⁹

The draft was widely criticized, *inter alia*, for its arbitrary clarification of some terms which are still widely debated. For instance, Article I of the PPWT proposes definitions such as:

the demarcation of “outer space” as the space beyond 100 km above sea level;⁹⁰

an outer space object as “any device, designated for functioning in outer space” whether orbiting celestial bodies or stationed therein, thus following a functionalistic approach;⁹¹

“weapons in outer space” as “any device placed in outer space...specially produced or converted to eliminate, damage or disrupt normal function of objects in outer space, on the Earth or in its air, as well as to eliminate population, components of biosphere critical to human existence or inflict damage to them.”⁹² According to the draft treaty, weapons were considered “placed” in outer space if orbiting the Earth at least once or following a section of such an orbit before leaving Earth

⁸⁸ G.A. Res. A/RES/S-10/2 (June 30, 1978).

⁸⁹ 2008 PPWT *supra* note 14.

⁹⁰ *Id.* at art. I (a).

⁹¹ *Id.* at art. I(b).

⁹² *Id.* at art. I(c).

orbit, or if “stationed on a permanent basis somewhere in outer space,”⁹³ and

the “use of force” or “the threat of force” as actions aiming at the destruction and damage of outer space objects.⁹⁴

Article II prohibits States Parties from placing objects carrying weapons in orbit or installing them on celestial bodies. It also prevents States from using or threatening to use force against outer space objects and prohibits facilitating other States or organizations from taking part in activities banned under the Treaty.⁹⁵ However, Article V provides for an escape clause in cases of self-defense as in accordance with Article 51 of the UN Charter.⁹⁶

The draft does not cover verification mechanisms. Article VI promotes confidence building measures, delegating the creation of an *ad hoc* instrument to an additional protocol.⁹⁷ However, the draft Treaty does not require States Parties to draft such protocol, leaving compliance mechanisms in the hands of an executive organization, tasked with *inter alia* observing States’ behaviors, examining their compliance to the Treaty provisions and adopting measures to end violations.⁹⁸

Furthermore, the amendment clause contained in the draft Treaty radically differed from the same clause contained in the five space treaties. While in the UN instruments proposed amendments apply only to States ratifying them after the approval of the text by the majority of States Parties,⁹⁹ in the PPWT, amendments apply to every State Party if approved by the majority of the States Parties to the Treaty.¹⁰⁰

The Permanent Representative of the United States contested the PPWT on several grounds.¹⁰¹ An example is the possibility of

⁹³ *Id.* at art. I(d).

⁹⁴ *Id.* at art. I(e).

⁹⁵ 2008 PPWT, *supra* note 14, art. II.

⁹⁶ *Id.* at art. V.

⁹⁷ *Id.* at art. VI.

⁹⁸ *Id.* at arts. VI & VIII.

⁹⁹ Outer Space Treaty at Art. XV; Rescue and Return Agreement at Art. 8; Liability Convention at Art. XXV; Registration Convention at Art. IX; Moon Agreement at Art. 17.

¹⁰⁰ 2008 PPWT, *supra* note 14, Art. X.

¹⁰¹ Conference on Disarmament, *Letter Dated 19 August 2008 from the Permanent Representative of the United States of America Addressed to the Secretary-General of the*

invoking Article 51 of the UN Charter, without explaining how the self-defense provision could be read in light of the general obligation contained in the PPWT to refrain from resorting to the use of force against space objects.¹⁰² Secondly, the draft makes no distinction between “use of force” and “threat of force”;¹⁰³ it is unclear whether the term “threat of force” could encompass the development of ASAT capabilities without their deployment, or if the destruction of one’s own space object could constitute a “threat” for the purpose of the Treaty.¹⁰⁴ Further, the PPWT does not regulate the development, testing and deployment of ASAT and other Earth-based weapons able to target satellites, which represent serious threats to space objects.¹⁰⁵ In addition, the establishment of the Executive Organization as body operating outside the UN Framework and with no provided detail on the measures to be adopted in cases of violations, would constitute an important and unjustified depart from the UN dispute resolution mechanisms.¹⁰⁶ Indeed, while executive organizations established to tackle issues relating to the interpretation of treaties do exist, they operate under the auspices of the UN.¹⁰⁷ The last significant point of criticism regards the amendment procedure, which would bind States Parties even if they did not wish to approve new amendments.¹⁰⁸

While the revised version of the PPWT erased the definition of “outer space,” recognized the “need to elaborate control measures” and introduced an amendment procedure by consent,¹⁰⁹ the Sino-Russian amended draft does not distance itself from the previous

Conference Transmitting Comments on the Draft “Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects (PPWT)” as Contained in Document CD/1839 Of 29 February 2008, U.N. Doc. CD/1847 (Aug. 26, 2008), available at: <https://digitallibrary.un.org/record/637449>. [hereinafter US PPWT Letter].

¹⁰² *Id.* ¶ 6.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* ¶ 9.

¹⁰⁶ *Id.* ¶¶ 14-16.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* ¶ 17.

¹⁰⁹ UNITED NATIONS OFF. FOR DISARMAMENT AFFS., EXPLANATORY NOTE ON THE UPDATED DRAFT TREATY ON THE PREVENTION OF THE PLACEMENT OF WEAPONS IN OUTER SPACE, THE THREAT OR USE OF FORCE AGAINST OUTER SPACE OBJECTS (2014), available at: [https://docs-library.unoda.org/Conference_on_Disarmament_\(2014\)/1319%2BRussian%2BFederation%2BExplanatory%2Bnote%2Bupdated%2Bdraft%2BPPWT.pdf](https://docs-library.unoda.org/Conference_on_Disarmament_(2014)/1319%2BRussian%2BFederation%2BExplanatory%2Bnote%2Bupdated%2Bdraft%2BPPWT.pdf).

proposal and does not clarify the meaning of “threat” and “use of force in space”. In addition, as pointed out by Ambassador Robert A. Wood, US Permanent Representative at the CD, Chinese and Russian behaviors seem in sharp contrast with the aim of the PPWT and with the intention of strengthening trust-building mechanisms.¹¹⁰ Some scholars argue that both countries’ development and testing of ASAT technology comes as a response to US ballistic missile defense systems. Thus, their actions would be fully justified under a military standpoint, also considering the US reluctance to settle the issue.¹¹¹ The criticism to the PPWT raised by US representatives is legitimate. However, it is undeniable that no alternative draft has ever been proposed to the CD, either by the US or its partners. Conversely, there is a tendency to use more aggressive tones, which, in some instances, could be read in light of the intention to assert “space dominance.”¹¹² Over the last decade, space has been progressively recognized as *congested*, *contested* and *competitive*. However, this vision seems to ignore “the other “c” word that had figured prominently in the past human activity in space: cooperation”, as Mayer puts forth¹¹³. In more recent declarations by the Trump Administration, space was described as “a new warfighting domain”¹¹⁴, making clear that “we must have American dominance in space”¹¹⁵. Even though the launch of the Artemis Program and the Artemis Accords resumed cooperation among like-minded countries, this characterization of the domain risks hindering diplomatic

¹¹⁰ U.S. Mission Geneva, *United States Remarks for Conference on Disarmament Subsidiary Body 3 – Prevention of an Arms Race in Outer Space, as Delivered by Advisor Michael Aho*, U.S. MISSION TO INT’L ORGS. IN GENEVA (Mar. 22, 2022), https://geneva.usmission.gov/2022/03/22/cd-prevention-of-an-arms-race-in-space/?_ga=2.4955381.736132293.1674154373-123992891.1674154373 [hereinafter Aho Remarks].

¹¹¹ Alexey Arbatov, *Arms Control in Outer Space: The Russian Angle, and a Possible Way Forward*, 75 BULLETIN OF THE ATOMIC SCIENTISTS 151, 152 (2019).

¹¹² Paul Meyer, *Diplomacy: The Missing Ingredient in Space Security*, in WAR AND PEACE IN OUTER SPACE: LAW, POLICY, AND ETHICS 287, 294 (Cassandra Steer & Matthew Hersch, eds., 2021).

¹¹³ *Id.* at 295.

¹¹⁴ BBC, *SpaceCom: Trump Launches Space Warfare Command* (Aug. 30, 2019) <https://www.bbc.com/news/world-us-canada-49518612>.

¹¹⁵ Remarks by President Trump at a Meeting with the National Space Council and Signing of Space Policy Directive-3 (June 18, 2018) <https://trumpwhitehouse.archives.gov/briefings-statements/remarks-president-trump-meeting-national-space-council-signing-space-policy-directive-3/>.

efforts on a wider scale and exacerbating existing mistrusts among competing actors.

As humanity becomes more reliant on space-based technologies, the need to ensure peaceful activities in orbit seems even more pressing. This highlights the importance of diplomatic consultations on the issue of PAROS within and outside international fora. While there appears to be a shared sense of urgency on the matter, countries disagree as to which means—soft or hard law—are best suited to address the issue. Advanced space-faring states seem to be unwilling to accept limits to their dual use technologies without being able to clearly assess other countries' actions and intentions. In their view, committing to binding provisions without enforcement and control mechanisms would entail losing strategic advantages¹¹⁶. Thus, the approach of the Global North, led by the US, favours non-legally binding rules of behavior and confidence building measures¹¹⁷. On the other hand, the Sino-Russian position is focused on preventing an arms race in space, supporting the development of treaty law¹¹⁸. This crucial divergence renders advancements in diplomatic endeavors difficult to achieve, also because of the existing disagreements over a clear definition of “weapon” in space. As contended by Liu and Tronchetti, while China and Russia support a restrictive interpretation, limited to objects stationed in orbit¹¹⁹, as underscored in the PPWT, European countries propose a wider definition of weapon which encompasses Earth-based technology¹²⁰, also including terrestrial technology capable of damaging satellites and their functioning.

Thus far, the two different approaches appear to be mutually exclusive, and the current geopolitical climate does not support diplomatic endeavors to tackle the most urgent space challenges.

It is worth noting, that the situation was not so different in the 1960s, when distrust and competition characterized international relations, yet countries were able to find common grounds.

¹¹⁶ Kaul, *supra* note 77, at 53.

¹¹⁷ Tronchetti, *supra* note 9, at 379.

¹¹⁸ Meyer, *supra* note 112, 290; see also Tronchetti, *supra* note 9, at 378.

¹¹⁹ H. Liu, F. Tronchetti, *United Nations Resolution 69/32 on the “No First Placement of Weapons in Space:” A Step Forward in the Prevention of an Arms Race in Outer Space?* 38 SPACE POL'Y 64, 65 (2016).

¹²⁰ *Id.*

Steps forward appear to have been made. President Biden's Administration unilaterally committed to refrain from testing any new ASAT weapon, and there has been a revival of engagement in the appropriate multilateral fora to discuss space security issues. The creation of the Working Group on Space Threats and the adoption of UNGA Resolution *Destructive Direct-Ascent Anti-Satellite Missile Testing*, calling on states to stop conducting D-ASAT operations and resume discussions on PAROS, exemplify this trend. These actions might commence a process of consensus-building that could eventually lead to the adoption of binding measures.

III. NATO'S FIFTH OPERATIONAL DOMAIN

NATO's engagement in outer space is nearly as old as the space race itself. The cooperation between the United States and NATO began in 1966, followed by the adoption of the SATCOM project in 1967.¹²¹ The fruitful SATCOM partnership among Italy, the United Kingdom, the US, Germany, Belgium, and the Netherlands led to the launch of four NATO satellites: PR/CP(70)2 and PR/CP(71)1 in 1970 and 1971, and NATO IVA and NATO IBV in 1991 and 1993.¹²² At the beginning of the 21st century, NATO stopped developing and launching its own space objects and started relying on Allies' assets, especially from Italy, France and the United Kingdom.¹²³

Through Earth observation, signal intelligence, satellite communications, disaster management, and space situational awareness, space technology can serve military and civilian uses, enhancing the Alliance's ability to anticipate and respond to potential threats¹²⁴ on Earth and in space. The latter can amount to low-end non-kinetic systems with reversible effects (for instance, jamming), and to non-kinetic and high-end kinetic that produce irreversible effects,¹²⁵ such as ASAT technology.

¹²¹ *NATO, We Have Lift Off!*, N. ATL. TREATY ORG., https://www.nato.int/cps/fr/natohq/declassified_138278.htm, (last accessed Oct. 22, 2023).

¹²² *Id.*

¹²³ *Id.*

¹²⁴ NATO's Overarching Space Policy (June 27, 2019) available at: https://www.nato.int/cps/da/natohq/official_texts_190862.htm (last visited December 16, 2023)[hereinafter NATO's Overarching Space Policy].

¹²⁵ *Id.*

As the number of space-faring nations rises, issues of orbital congestion and growing competitiveness emerge, directly contributing to increasing the risks associated with operations in the domain. Against this backdrop, the proliferation of space actors and of industrial capabilities—particularly dual use—challenges the Alliance’s technological superiority¹²⁶.

In a domain characterized by an increasing relation with defense, a more prominent role of the world most advanced defensive alliance is of the utmost importance. It is therefore not surprising that NATO Members—among the most technologically developed spacefaring countries and military powers¹²⁷—wish to enhance the Alliance’s cooperation in outer space. The 2019 London Declaration which recognized space as the fifth operational domain exemplifies such effort.¹²⁸ As a testimony of NATO’s commitment to boost cooperation in orbit, NATO’s Space Center was established in 2020, with the aim of coordinating activities with national entities.¹²⁹ This enabled the Alliance to effectively integrate space technology in different military exercises as early as 2021.¹³⁰ Furthermore, in 2021 the Alliance announced the intention to develop a Strategic Space Situational Awareness System at the Headquarters in Brussels and a NATO Center of Excellence dedicated to outer space in Toulouse, France.¹³¹

NATO’s cooperation efforts are also reflected in the joint statement signed with Luxemburg for the development of a Strategic Space Situational Awareness System in the Situation Centre’s

¹²⁶ Elio Calcagno, *NATO and Its Members: A Space Alliance?*, in *THE EXPANDING NEXUS BETWEEN SPACE AND DEFENCE* 1, 33-34 (Alessandro Marrone & Michele Nones eds., 2022).

¹²⁷ Sinéad Baker & Thibault Spirlet, *The World’s Most Powerful Militaries in 2023, Ranked*, INSIDER (Aug. 24, 2023), <https://www.businessinsider.com/ranked-world-most-powerful-militaries-2023-firepower-us-china-russia-2023-5>.

¹²⁸ London Declaration Issued by the Heads of State and Governments Participating in the Meeting of the North Atlantic Council in London, 3-4 December 2019, available at: https://www.nato.int/cps/en/natohq/official_texts_171584.htm.

¹²⁹ N. ATL. TREATY ORG., SECRETARY GENERAL’S ANNUAL REPORT 2021 (2021), https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/sgar21-en.pdf.

¹³⁰ *Id.* at 28

¹³¹ *Id.*

Geospatial Section at NATO's Headquarters, which will help understand space events and study space objects.¹³²

The principles behind the Alliance's engagement in outer space are provided for in NATO's Overarching Space Policy 2022.¹³³ The Alliance appears to have no interest in becoming a space actor or in developing its own space capabilities.¹³⁴ Instead, its main goal is engaging with NATO's members to enhance cooperation for the defense of common space assets.¹³⁵ In doing so, the Alliance will follow the internationally recognized principles contained in the Outer Space Treaty: freedom of exploration, peaceful use of outer space and rejection of national appropriation by claims of sovereignty.¹³⁶

According to the Overarching Space Policy 2022, NATO's engagement in space activities will be concentrated *inter alia* in collective defense, crisis management, support of NATO's operations, and military and political consultations.¹³⁷ To do so, Allies will provide capabilities in space situational awareness, surveillance and reconnaissance, satellite communication, position navigation and timing and early warning.¹³⁸

NATO space partnership will be fully voluntary, linking its effectiveness to partners' willingness to distribute technology and acquired data.¹³⁹

Considering the added value of outer space to NATO Partners, and the perils that unethical and aggressive behaviors in space may pose to the stability and security of the Alliance, attacks to and from outer space could trigger the mutual defense clause contained in Article 5 of the North Atlantic Treaty.¹⁴⁰ Because of the wide cluster of attacks that could damage space capabilities—reversibly and irreversibly—and the difficulty of attributing responsibility for possible attacks, the North Atlantic Council will resort to a case-by-

¹³² *Id.* See also *NATO and Luxembourg Boost Alliance Space Situational Awareness*, NATO (June. 14, 2021) https://www.nato.int/cps/fr/natohq/news_185365.htm?selected-Locale=en.

¹³³ NATO's Overarching Space Policy, *supra* note 124.

¹³⁴ *Id.* ¶ 5(g).

¹³⁵ *Id.* ¶ 7.

¹³⁶ *Id.* ¶ 5; See also *NATO, We Have Lift Off!*, *supra* note 121.

¹³⁷ NATO's Overarching Space Policy, *supra* note 124, at ¶ 6.

¹³⁸ *Id.* ¶ 7.

¹³⁹ *Id.* ¶ 5.

¹⁴⁰ The North Atlantic Treaty, April 4, 1949, Art. 5.

case approach.¹⁴¹ Potentially, this cooperation could stimulate the Alliance in adopting a shared definition of armed attack in outer space,¹⁴² which may contribute to the international debate on PAROS.

IV. THE ASIA-PACIFIC REGION WITHIN SPACE COOPERATION AND COMPETITION

The Asian continent is home to a large number of spacefaring nations; however, the strong regional competition translates into the desire to strengthen ties with allies and propose different cooperation models. This reality is evident in every field, from infrastructure building and management through the Belt and Road Initiative and the Quadrilateral Security Dialogue,¹⁴³ to outer space. On the one hand, Indian-Japanese cooperation is based on multilateral voluntary exchange of information through the Asia-Pacific Regional Space Agency Forum (APRSAF) and the Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP). On the other, the Chinese model takes the form of a binding agreement through the Asia-Pacific Space Cooperation Organization (APSCO).¹⁴⁴

Established in 1993 as a forum to enhance peaceful uses of outer space, APRSAF is now the largest conference on space activities in the Asia-Pacific and collaborates with a wide array of actors, from universities to international organizations and national space agencies¹⁴⁵—particularly the Japan Aerospace Exploration Agency (JAXA)—to strengthen multilateral cooperation on space technological advancements.

The rapid development of China as a global actor and powerful spacefaring State, is witnessed by the establishment of APSCO, through which the country cultivates multilateral cooperation in

¹⁴¹ NATO's Overarching Space Policy, *supra* note 124, at ¶ 12.

¹⁴² Calcagno, *supra* note 126, at 38.

¹⁴³ See Yun Zhao, *The Role of Regional Space Cooperation in Procuring Space Security in the Asia-Pacific Region*, in INTERNATIONAL GOVERNANCE AND THE RULE OF LAW IN CHINA UNDER THE BELT AND ROAD INITIATIVE (2018).

¹⁴⁴ *Id.*

¹⁴⁵ See *Countries and Regions*, ASIA-PAC. REG'L SPACE AGENCY F., <https://www.aprsaf.org/participants/> (last visited July 30, 2023) (stating that there were, "[a]s of November 2019, 844 organizations from 52 countries and regions, and 32 international organizations").

the region. APSCO was founded in 2005 as a non-profit inter-governmental space organization with full international legal status.¹⁴⁶ The main objectives of the organization are listed in Article 4 of its Convention: APSCO aims, *inter alia*, to promote and strengthen collaborative space programs among Member States, assist Members in space technological research and application “by elaborating and implementing space development policies,”¹⁴⁷ promote cooperation in space technology and application, and contribute to the peaceful uses of outer space.¹⁴⁸ APSCO is funded on the concept of “fair return,” ensuring participation to projects in an equitable manner with the purpose of creating a competitive space industry.¹⁴⁹ Article 6 lists the “establishment of a central data bank for development of programs of the Organization and dissemination of technical and other information relating to the programs and activities of the Organization”¹⁵⁰ as another focal area APSCO. Contrary to APRSAF, this cooperation is not on a voluntary basis. However, Member States can refrain from exchanging information with the organization—and vice-versa—if the exchange risks jeopardizing national security or agreements with third parties.¹⁵¹ While States’ refusal to transfer sensitive information for security purposes is easily understandable, the idea that an international organization could operate disregarding transparency towards its Member States is indeed questionable.

Eight countries are APSCO Members: Türkiye, Mongolia, Pakistan, Thailand, Peru, Iran, China and Bangladesh,¹⁵² and the organization’s headquarter is in Beijing.¹⁵³ The case of Türkiye is particularly interesting as the country demonstrates the intention to find a balance between its security interests and commitments as a

¹⁴⁶ Convention of the Asia Pacific Space Cooperation Organisation (APSCO), Oct. 28, 2005, 2423 U.N.T.S. 127, <https://treaties.un.org/doc/Publication/UNTS/Volume%202423/v2423.pdf>.

¹⁴⁷ *Id.* at art. 4.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at art. 5.

¹⁵⁰ *Id.* at art. 6.

¹⁵¹ *Id.* at art. 21.

¹⁵² *Member States*, ASIA-PAC. SPACE COOP. ORG., http://www.apsco.int/html/comp1/channel/Member_States/25.shtml (last visited July 30, 2023).

¹⁵³ *Asia Pacific Space Cooperation Organisation (APSCO)*, OFF. FOR OUTER SPACE AFFS. UN-SPIDER KNOWLEDGE PORTAL, <https://www.un-spider.org/asia-pacific-space-cooperation-organisation-apsco> (last visited July 30, 2023).

NATO Member, and a stronger cooperation with APSCO Countries. Arguably, the environment of growing international mistrust—expressed in the new discourse surrounding space activities—will prove challenging for Istanbul.

Among its Member States, only China, Pakistan and Iran elaborate significant space policies and programs.¹⁵⁴ The organization is a Permanent Observer at COPUOS and collaborates with several UN institutions such as the UN Platform for Space-Based Information for Disaster Management and Emergency Response (UNSPIDER) and the United Nations Office for Outer Space Affairs (UNOOSA). Dialogue extends to about thirty countries and a wide number of universities and international organizations.¹⁵⁵

APSCO is engaging in six cooperative programs.¹⁵⁶ Among them are the Data Sharing Service Platform (DSSP), a program aimed at enhancing data sharing among Member States through the creation of a platform managed by a Chinese company,¹⁵⁷ and the Joint Small Multi-Mission Satellites (SMMS) Constellation Program, through which countries share services and improve space capability. By providing three satellites, China is the greatest contributor to the constellation program, while Pakistan, Peru and Türkiye will provide three satellites as a communal effort.¹⁵⁸

Presently, APSCO is the only regional space organization on the continent. It is plausible that in the near future it could expand and play a leading role in harmonizing regional standards in outer space. Such an outcome is desirable as enhancing regional cooperation could help manage general distrust and resolve major security threats. Indeed, “regional space cooperation and regional space

¹⁵⁴ Malay Adhikari, *Impact of Outer Space Treaty on Few Observer Organisations in COPUOS*, in *FIFTY YEARS OF THE OUTER SPACE TREATY: TRACING THE JOURNEY* 140, 145 (Ajey Lele ed., 2017).

¹⁵⁵ Asia-Pacific Space Cooperation Organisation, *International Cooperation*, (visited July, 30, 2023) http://www.apsco.int/html/comp1/content/International_Cooperation/2019-02-21/17-252-1.shtml.

¹⁵⁶ APSCO’s official website does not provide information as to the advancement of the listed programs and has not been updates since 2019.

¹⁵⁷ *Cooperative Programs Data Sharing Service Platform*, ASIA-PAC. SPACE COOP. ORG., <http://www.apsco.int/html/comp1/content/DataSharingServiceNetwork/2018-07-06/62-184-1.shtml> (last visited July 30, 2023).

¹⁵⁸ *Cooperative Programs Space Segment Network and Interconnection Ground Systems*, ASIA-PAC. SPACE COOP. ORG., <http://www.apsco.int/html/comp1/content/SSNandIGS/2019-02-28/43-259-1.shtml> (last visited July 30, 2023).

security are both mutually compatible and interdependent.”¹⁵⁹ However, before being able to become a large-scale regional international organization, APSCO should improve its transparency and clarify on which grounds it may retain information in accordance with Article 21 of the APSCO Convention, especially since regional competitors may perceive the organization as Chinese-centric.

Despite the existence of programs of regional cooperation, the Asian-Pacific is undergoing a moment of serious mistrust, translating to a collective growth of military investments. It is estimated that Japan’s expenditures in defense will rise by 26.3% in 2023 and that part of the new budget will be dedicated to “cross-domain operational capabilities” both in outer space and cyberspace.¹⁶⁰ Similarly, India is promoting and investing large sums in “Make in India”¹⁶¹ to create a self-sustainable military industry.¹⁶²

Considering the military technological capabilities that the most advanced Asian spacefaring countries possess,¹⁶³ every cooperation effort needs to be understood in light of the regional competition which characterizes the continent. Enhancing cooperation through multilateral instruments is an exercise of soft law power even when those instruments are not binding but voluntary—especially due to the possible dual use of the space technology on which cooperation projects rely. Bearing in mind the mutual distrust in the continent and the increase of military arsenals in the Asia-Pacific region, improving transparency and confidence-building measures is of the utmost importance.

¹⁵⁹ Zhao, *supra* note 143, at 254.

¹⁶⁰ Takahashi Kosuke, *Japan Approves 26.3% Increase in Defense Spending for Fiscal Year 2023*, DIPLOMAT (Dec. 24, 2022), <https://thediplomat.com/2022/12/japan-approves-26-3-increase-in-defense-spending-for-fiscal-year-2023/>.

¹⁶¹ Dinakar Peri, *Union Budget 2022 | Marginal Hike in Defence Budget, Emphasis on Make in India*, THE HINDU (Feb. 1, 2022), <https://www.thehindu.com/business/budget/union-budget-2022-marginal-hike-in-defence-budget-emphasis-on-make-in-india/article38358783.ece>.

¹⁶² Vivek Raghuvanshi, *India Unveils New Defense Budget Aimed at Promoting a Self-Reliant Industry*, DEFENSE NEWS, (Feb. 3, 2022), <https://www.defensenews.com/global/asia-pacific/2022/02/03/india-unveils-new-defense-budget-aimed-at-promoting-a-self-reliant-industry/>.

¹⁶³ China and India possess and have tested ASAT weapons. See Kaul, *supra* note 77. See also Tellis, *supra* note 81.

V. SPACE COOPERATION ON THE AFRICAN CONTINENT

While Asian countries have successfully promoted space cooperation through fora and organizations, the African continent is still establishing and enhancing multilateral efforts. The development of a regional cooperation program is still in its first stages, as space activities have typically been carried out by means of bilateral agreements with non-African nations¹⁶⁴. However, space science and application is turning into a fundamental tool to enhance telecommunication technology and internet coverage, as well as to address resource scarcity¹⁶⁵. This growing importance is stimulating investments and activities in orbit. In fact, in 2020 the continent accounted for 0.7% of global space expenditure, nearly twice the budget allocated in 2018¹⁶⁶.

The African space industry is a promising sector, worth about USD 19 billion in 2021 and estimated to witness a 16% increase by 2026, reaching USD 22.64 billion.¹⁶⁷

As of 2023, about 20 African countries established a space program and around 30 have developed or are in the process of designing and launching at least one satellite¹⁶⁸. Among them, South Africa and Nigeria have robust space capabilities—as of 2023 they have launched 13 and 7 satellites, respectively¹⁶⁹—and are aiming at establishing a position of leadership in the continent.¹⁷⁰

South Africa is the most advanced spacefaring country in the region. Despite its long history of space activities—it launched the first African-built satellite in 1999—the South African National Space Policy, which created the South African National Space

¹⁶⁴ See M. Ansdell, L. Delgado, & D. Hendrickson, *Analyzing the Development Paths of Emerging Space Nations: Opportunities or Challenge for Space Sustainability?*, ILL. STATE UNIV. (Apr. 2011), https://isulibrary.isunet.edu/doc_num.php?explnum_id=448.

¹⁶⁵ Ayooluwa Adetola, *NewSpace Africa Conference 2023 to Hold in April 2023 in Abidjan, Ivory Coast*, SPACE IN AFRICA (Oct. 21, 2022), <https://africanews.space/newspace-africa-conference-2023-to-hold-in-april-2023-in-abidjan-ivory-coast/>.

¹⁶⁶ J. M. Klinger, T. I. Oniosun, *China's Space Collaboration with Africa: Implications and Recommendations for the United States*, US INSTITUTE OF PEACE (Sept. 2023) https://www.usip.org/sites/default/files/2023-09/sr-524_china-space-collaboration-africa-implications-recommendations-for-us.pdf

¹⁶⁷ Adetola, *supra* note 165.

¹⁶⁸ Klinger, *supra* note 166, at 8.

¹⁶⁹ *Id.* at 7.

¹⁷⁰ Ansdell, *supra* note 164.

Agency (SANSA), was published only in 2008.¹⁷¹ The National Policy aims to make South Africa the leading space nation by encouraging sustainable development of the domestic space industry.¹⁷²

Similarly, Nigeria possesses a strong position in the continent and is planning to further develop its capabilities. Indeed, Nigeria's National Space Policy describes space as an important instrument in the country's development and a fundamental tool in transforming the country "from the status of a consumer nation to an active participant in space technology".¹⁷³ The leading entity dealing with space activities is the National Space Research and Development Agency (NASRDA) which has extensively cooperated with international partners—particularly the UK and China—to develop and launch remote sensing and communication satellites.¹⁷⁴

While Nigeria's reliance on foreign actors renders its spacecraft portfolio more comprehensive, South Africa's efforts are concentrated in the development of indigenous spacecrafts¹⁷⁵. If on the one hand this approach increases domestic reliance, on the other it reduces the country's manufacturing capabilities.

Both nations' approaches to outer space activities and goals are similar, as they share the common objective of boosting the development of their domestic industries and ameliorating their populations' living conditions.¹⁷⁶ To this end, their cooperation is reflected in the intra-African activities which started to emerge in the last decade, such as the African Resources and Environmental Management Satellite Constellation (ARMC),¹⁷⁷ the African Space Leadership Conference (ASLC)¹⁷⁸ and also the Space Law for New

¹⁷¹ Department of Trade and Industry Republic of South Africa, *National Space Policy* (Dec. 2008) <https://www.unoosa.org/documents/pdf/spacelaw/national/safrica/nat-policyE.pdf>

¹⁷² *Id.* at foreword by Mandisi Mpahlwa, Minister of Trade and Industry.

¹⁷³ *National Space Policy* 2001, at 1, available at: <http://www.dawodu.com/space.pdf>.

¹⁷⁴ Ansdell, *supra* note 164.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* at 21.

¹⁷⁷ Adetola, *supra* note 165.

¹⁷⁸ *8th African Space Leadership Conference Focusses on Space Science and Technology for Sustainable Development*, OFF. FOR OUTER SPACE AFFS. UN-SPIDER KNOWLEDGE PORTAL (Dec. 12, 2019), <https://www.un-spider.org/news-and-events/news/8th-african-space-leadership-conference-focusses-space-science-and-technology>.

Space Actors project created by UNOOSA.¹⁷⁹ These projects aim at increasing coordination in the region and multilateral talks, while stimulating technical capabilities. The Space Law for New Space Actors program, in particular, is intended to support countries in drafting national space legislations in conformity with outer space treaties, fostering peaceful uses of outer space and achieving long-term sustainability.¹⁸⁰ Kenya Space Agency (KSA) is now collaborating with the project through a technical mission in Nairobi focused on increasing know-how and legal education.¹⁸¹

The establishment of the African Space Agency in 2019 was a great step forward in inter-African space cooperation. The African Union Commission created the agency so as to actively promote the expansion of the African space industry and address “common development challenges.”¹⁸² The African Space Agency is vested with the obligation of *inter alia* promoting and coordinating the implementation of programs, supporting Member States in adopting space policies, and fostering regional coordination.¹⁸³

Notwithstanding the growing interest in developing African space policies and programs, African actors have been approaching the space domain—or establishing their positions—through bilateral cooperation with powerful spacefaring countries and private companies. For instance, in 2019, Angola and Russia signed an agreement on research and peaceful uses of outer space to build a stronger cooperation in telecommunications and space navigation.¹⁸⁴ Using Roscosmos, the Russian State Corporation for State

¹⁷⁹ See *Space Law for New Space Actors Project*, OFF. FOR OUTER SPACE AFFS., <https://www.unoosa.org/oosa/en/ourwork/spacelaw/capacitybuilding/advisory-services/index.html> (last visited Dec. 20, 2023).

¹⁸⁰ *Id.*

¹⁸¹ Mustapha Iderawumi, *UNOOSA and KSA Collaborate under Space Law for New Space Actors Project*, SPACE IN AFRICA (Nov. 30, 2022), <https://africanews.space/unoosa-and-ksa-collaborate-under-space-law-for-new-space-actors-project/>.

¹⁸² AFRICAN SPACE AGENCY, STATUTE OF THE AFRICAN SPACE AGENCY Preamble (2018), https://au.int/sites/default/files/treaties/36198-treaty-statute_african_space_agency_e.pdf.

¹⁸³ *Id.* at art. 5.

¹⁸⁴ Space in Africa, *Russia and Angola Sign Agreement on Space Research*, SPACE IN AFRICA (Apr. 23, 2019), <https://africanews.space/russia-and-angola-sign-agreement-on-space-research/>.

Activities and Russian launching facilities, Angola launched its second communications satellite in October 2022.¹⁸⁵

Furthermore, African nations are boosting cooperation with China by taking part in the Belt and Road Initiative. In 2022, Algeria¹⁸⁶ and China signed a five-year strategic agreement to enhance bilateral relations on several fields, including outer space.¹⁸⁷ Moreover, China and the African Union Commission organized an event—Talk with Taikonauts—to educate students from Namibia and other African nations about life in space and to strengthen China-Africa partnerships.¹⁸⁸ During the event, China announced its intention to build a satellite digital-receiving ground station in Namibia.¹⁸⁹

Western spacefaring nations are also intensifying efforts to sign partnership agreements with African nations. For instance, the United States is promoting global cooperation through the Artemis Accords. Nigeria and Rwanda signed in 2022, becoming the first African nations to join the Artemis Accords.¹⁹⁰

Italy is another global actor involved in fostering space diplomacy in Africa, as demonstrated by the 2023 Memorandum of Understanding between Italy and Algeria. Rome and Algiers' partnership will focus on strengthening peaceful outer space exploration, EO and space technology, as well as infrastructural projects, training programs and know-how sharing.¹⁹¹

¹⁸⁵ Joshua Faleti, *Angosat-2 Set to Launch on Wednesday 12 October 2022*, SPACE IN AFRICA (Oct. 4, 2022), <https://africanews.space/angosat-2-set-to-launch-on-wednesday-12-october-2022/>.

¹⁸⁶ Algeria is a party to the Belt and Road Initiative as of September 2018. See Ayooluwa Adetola, *Algeria Signs 5-Year Strategic Cooperation Agreement with China*, SPACE IN AFRICA (Nov. 9, 2022), <https://africanews.space/algeria-signs-5-year-strategic-cooperation-agreement-with-china/>.

¹⁸⁷ Faleti, *supra* note 185.

¹⁸⁸ Mustapha Iderawumi, *China Set to Build a Satellite Digital-Receiving Ground Station in Namibia*, SPACE IN AFRICA (Oct. 23, 2022), <https://africanews.space/china-set-to-build-a-satellite-digital-receiving-ground-station-in-namibia/>.

¹⁸⁹ *Id.*

¹⁹⁰ Cheryl Warner, *NASA Welcomes Nigeria, Rwanda as Newest Artemis Accords Signatories* (Dec. 12, 2022), <https://www.nasa.gov/missions/artemis/nasa-welcomes-nigeria-rwanda-as-newest-artemis-accords-signatories#:~:text=E2%80%9CAs%20the%20first%20African%20nations,of%20Communications%20and%20Digital%20Economy.>

¹⁹¹ Rorisang Moyo, *Algeria and Italy Sign Space Cooperation Agreement*, SPACE IN AFRICA (Jan. 24, 2023), <https://africanews.space/algeria-and-italy-sign-space-cooperation-agreement/>.

As mentioned before, private companies are also engaging in outer space activities in Africa. SpaceX received two licenses from Nigeria and Mozambique to provide them internet services for a period of ten years. However, the affordability of those services has been questioned.¹⁹² Similarly, OneWeb announced a partnership agreement with Airtel Africa to provide connectivity services. This partnership builds on existing initiatives in Angola, South Africa, Ghana, Senegal, and Mauritius, where the companies are investing in internet penetration to support businesses and governments.¹⁹³

Undeniably, achieving a fully-fledged African-led cooperation in the continent will be arduous, firstly because of the geographical distance among spacefaring countries, secondly because of their limited resources,¹⁹⁴ and thirdly because of the historical and current reliance of foreign actors in developing space programs, which, considering the dual use of space technologies, represents a limit to these countries' national defense policies.

Notwithstanding the difficulties, cooperation efforts are proceeding and rightly so. In light of the growing importance of the domain, the role of regional partnership has become paramount to achieve and enhance peaceful uses of outer space and best practices, particularly considering that a stronger reliance on outer space might eventually lead to the security dilemma already faced by the most advanced spacefaring nations.

VI. SPACE AND DEFENSE IN EUROPE

The European approach to outer space unfolds as a governance triangle where the main actors are the European Space Agency (ESA), the European Union and European Member States.

Europe is home to the largest number of advanced spacefaring nations, and notwithstanding the apparent fragmented approach to the domain, "boasts the world's most successful example of regional

¹⁹² Mustapha Iderawumi, *SpaceX's Starlink Approved by Nigeria and Mozambique*, SPACE IN AFRICA (May 27, 2022), <https://africanews.space/spacexs-starlink-approved-by-nigeria-and-mozambique/>.

¹⁹³ Deborah Faboade, *OneWeb and Airtel Africa Collaborate to Provide Enhanced Connectivity Services in Africa*, SPACE IN AFRICA (Nov. 9, 2022), <https://africanews.space/onetweb-and-airtel-africa-collaborate-to-provide-enhanced-connectivity-services-in-africa/>.

¹⁹⁴ Adetola, *supra* note 165.

space cooperation.”¹⁹⁵ As a consequence, the European space industry is one of the most sophisticated in the world.

The need to foster space cooperation emerged during the Cold War and led to the establishment of the European Launcher Development Organisation (ELDO) and the European Space Research Organisation (ESRO) in the 1960s, which merged into ESA in 1975.¹⁹⁶

The purpose of ESA, as provided for in its establishing convention, is to advance peaceful cooperation among European nations by elaborating and implementing space policies and activities, as well as coordinating and harmonizing Member States space programs.¹⁹⁷

The European Union has been an active player in outer space since the end of the twentieth century and the 2004 EC-ESA cooperation agreement¹⁹⁸ can be regarded as the *momentum* of European involvement in space activities. From that moment onwards, the EU and ESA deepened their relations, developing valuable space projects which benefitted European citizens while reinforcing regional integration.¹⁹⁹

The legal framework regulating space can be found in the Treaty on the Functioning of the European Union (TFEU), which entrusts the EU with the competence of carrying out activities “to define and implement [space] programmes”.²⁰⁰ However, the right of the EU to exercise this competence “shall not result in Member States being prevented from exercising theirs,”²⁰¹ meaning that outer space is a shared competence between Member States and the Union. Further, Article 189 of the TFEU provides for the possibility

¹⁹⁵ Zhao, *supra* note 143, at 250.

¹⁹⁶ Meriem Behiri, Giuseppe Galeandro, Jacopo Maschini, Jahjdaniele Tonti, & Eleonora Vestito, *La Competizione Nello Spazio: Dalla Cooperazione Internazionale Diffusa Alla Cooperazione Selettiva. Quali Modelli Di Sostenibilità?*, (2021) Quaderno 21, La Comunità Internazionale 1. See also Zhao, *supra* note 143.

¹⁹⁷ UNITED NATIONS TREATY SERIES, CONVENTION FOR THE ESTABLISHMENT OF A EUROPEAN SPACE AGENCY (1975), <https://treaties.un.org/doc/publication/UNTS/Volume%201297/v1297.pdf>.

¹⁹⁸ Framework Agreement between the European Community and the European Space Agency, L 261/68 (Aug. 6, 2004) <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:261:0064:0068:EN:PDF>

¹⁹⁹ Behiri, *supra* note 196.

²⁰⁰ Consolidated Version of the Treaty on the Functioning of the European Union at art. 4, Oct. 26, 2012, 2012 O.J. (C 326) [hereinafter TFEU]

²⁰¹ *Id.*

of establishing a European space policy in order to, *inter alia*, promote technical and scientific progress.²⁰² Beside the implementation of space policies, scientific and technical progress can be achieved through joint initiatives, coordinated efforts and ordinary legislative procedures. Nonetheless, Article 189 is clear in stating that every effort aimed at enhancing cooperation cannot result in the harmonization of space laws and regulations of Member States.²⁰³ This provision is extremely important as it entails that, unless Member States autonomously decide to coordinate their space policies or to amend the TFEU, the European approach to outer space suffers a high risk of fragmentation.

In a way, this structural governance issue has already been solved, as Member States heavily rely on European projects and infrastructures for their space activities and are thus likely to cooperate in supporting EU-ESA's programs. This is particularly true considering that European Member States alone would not be able to compete at the international level.

To this end, programs established in cooperation with ESA become a fundamental tool for the European Union Space Sector. Among them, COPERNICUS was developed *inter alia* for security applications and to provide precise information regarding environmental protection. It is the most advanced electro-optical system, able to generate, detect, and measure radiation in the optical spectrum.²⁰⁴ Other relevant programs include EGNOS, GALILEO and GOVSATCOM. EGNOS is the European regional satellite-based augmentation system (SBAS), which uses existing Global Navigation Satellite Systems (GNSSs) and improves their performance.²⁰⁵

To ensure Europe's independence from the American Global Positioning System (GPS) and the Russian GLONASS and to create a GNSS which could better respond to civilian applications, the European Commission and ESA developed GALILEO, the European

²⁰² TFEU, *supra* note 200, at art. 189.

²⁰³ *Id.*

²⁰⁴ Technology Editor, *Electro-Optical Systems for Drones and UAV*, UNMANNED SYS. TECH., <https://www.unmannedsystemstechnology.com/expo/electro-optical-systems/> (last updated Oct. 20, 2023).

²⁰⁵ EGNOS, EUR. SPACE AGENCY (Nov. 23, 2000), https://www.esa.int/Space_in_Member_States/Italy/EGNOS; *See also Galileo and EGNOS*, EUR. SPACE AGENCY, https://www.esa.int/Applications/Navigation/Galileo_and_EGNOS (last visited July 30, 2023).

GNSS, to provide free and open access to position and navigation services.²⁰⁶ So far, GALILEO comprises twenty-six satellites and is the “world’s single most accurate satellite navigation system, serving more than 1.5 billion smartphones and devices.”²⁰⁷

In addition, the Global Strategy for the European Union’s Foreign and Security Policy, approved in 2016, established the European Union Governmental Satellite Communications program, GOVSATCOM. The project will develop secure communications for European public agencies and institutions, contributing to the EU threat-tackling capabilities. The need for a secure communication system derives from the wish to detach commercial satellite infrastructures from governmental ones at the European level, in order to enhance the EU’s governmental actors’ ability to respond to crises.²⁰⁸

The European Union has been heavily investing in space programs with the aim of maintaining its role as a space power and the EU’s governance structure in space highlights the cross-cutting nature of the domain’s. For instance, the Director-General for Defence Industry and Space (DG DEFIS) was created as one of the operational bodies of the European Commission (EC).²⁰⁹

DEFIS is tasked with encouraging innovation in the European Defence industry and carrying out EU Space programs —namely, Copernicus, GALILEO and EGNOS.²¹⁰ Undoubtedly, the proximity of defense and space in the EC approach demonstrates the growing importance of the space-defense dichotomy at the European level.

As the only democratically elected body within the EU, the European Parliament (EP) “gives the EU space policy-making process a democratic footprint.”²¹¹ The EP has a crucial role in supporting

²⁰⁶ Giancarlo La Rocca, *The European Way to Space: What Strategic Evolution?, in THE EXPANDING NEXUS BETWEEN SPACE AND DEFENCE* 50, 51 (Alessandro Marrone & Michele Nones eds., 2022).

²⁰⁷ *This Is ESA*, EUR. SPACE AGENCY, https://esamultimedia.esa.int/docs/corporate/This_is_ESA_EN_LR.pdf (last visited July 30, 2023).

²⁰⁸ *GOVSATCOM*, EUR. UNION SPACE AGENCY, <https://www.euspa.europa.eu/european-space/govsatcom> (last visited July 30, 2023).

²⁰⁹ La Rocca, *supra* note 206, at 52

²¹⁰ *Director General Defence Industry and Space*, EUR. COMM’N, https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/defence-industry-and-space_en (last visited July 30, 2023).

²¹¹ *The Role of the 2019-2024 European Parliament in the European Space Sector, Executive Brief No.32*, EUR. SPACE POLY INST. (June 7, 2019), <https://>

the development of the *European Space Programme*—jointly with the Council, as provided for by Article 189 of TFUE—and overseeing the EC’s activities. Indeed, the EP strongly contributed to the creation of the European Union Agency for the Space Programme (EUSPA).²¹²

Due to the importance of the space domain, the European External Action Service (EEAS) and the European Defense Agency (EDA) have become crucial stakeholders in the regional landscape. The 2011 EDA-ESA Administrative Arrangement testified the EU’s intention to foster the interrelation of space and defense; and, to that end, the agreement established a structured partnership aimed at coordinating the agencies’ respective activities while supporting the European space industrial segment²¹³.

The interdisciplinary nature of outer space was further demonstrated during the COVID-19 emergency, when satellite technology supported crisis management efforts and security measures. At the same time, because of the crucial role played by space there is a pressing need to protect space objects from threats and natural hazards.²¹⁴ This realization is manifested by the approval of Regulation 2021/696 and Decision 2021/698. The former created EUSPA and established the *European Union Space Programme*²¹⁵, while the latter acknowledged the possibility of responding to attacks and threats to EU space infrastructures.²¹⁶

EUSPA represents an important step in establishing a fully-fledged European space policy. Indeed, it aims at enforcing and overseeing the security of the EU Space Program to benefit the European Union and its Member States, and at the same time at

/www.espi.or.at/briefs/the-role-of-the-2019-2024-european-parliament-in-the-european-space-sector/ (last visited July 30, 2023).

²¹² *Id.*

²¹³ Administrative Arrangement between the European Defence Agency and the European Space Agency Concerning the Establishment of their Cooperation (June 2011) <https://eda.europa.eu/docs/default-source/documents/documents/aa---eda---esa-20-06-11.pdf>

²¹⁴ La Rocca, *supra* note 206, at 50.

²¹⁵ Regulation (EU) 2021/696 of The European Parliament And Of The Council 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, (Apr. 28, 2021).

²¹⁶ Council Decision (CFSP) 2021/698 On The Security Of Systems And Services Deployed, Operated And Used Under The Union Space Programme Which May Affect The Security Of The Union, And Repealing Decision 2014/496/CFSP, (Apr. 30, 2021).

increasing the competitiveness of the European space industry.²¹⁷ EUSPA's activities will be carried out in conjunction with ESA. However, while EUSPA is a body representing the political will of the EU, ESA will focus on research and scientific space applications.²¹⁸ It has been argued that merging EUSPA and ESA could provide strategic advantages for the region as it would further strengthen its role as a global actor.²¹⁹ Although desirable in principle, such a considerable change must be approved by Council of ESA Member States and the Council of the European Union, and it seems unlikely that ESA's Members not part of the EU, namely the United Kingdom and Norway will endorse it.

In addition to the Regulation 2021/696 and Decision 2021/698, the European Commission adopted in 2021 the Action Plan on Synergies Between Civil, Defence and Space Industries to facilitate "civilian-space-defence cross-fertilisation."²²⁰ The plan intends to foster dual use innovation, thus avoiding duplicating civilian technology for military and defense purposes so as to enhance European security and economic growth and strengthen the Single Market.²²¹

Europe's increasing link between space and defense is further recognized in the 2022 Strategic Compass, a visionary plan whereby the European Union pledges to bolster the EU's security and defense policy by 2030.²²² The European Union will *inter alia* develop an EU Space Strategy for Security and Defense "in order to strengthen its ability to anticipate, deter and respond to current and fast-emerging threats and challenges, and safeguard the EU's

²¹⁷ *About EUSPA*, EUR. UNION AGENCY FOR THE SPACE PROGRAMME, <https://www.euspa.europa.eu/about/about-euspa> (last visited July 30, 2023).

²¹⁸ Josely Moda, Maria Vittoria Prest, Eleonora Messina, Maria Enrica Ragone, Pietro Santoriello, & Alessandro Bonifazi, *Il Diritto Delle Attività Spaziali Tra Cooperazione E Competizione Per Lo Spazio*, (2021) Quaderno 21, La Comunità Internazionale 167.

²¹⁹ *Id.*

²²⁰ *Action Plan on Synergies Between Civil, Defence and Space Industries*, EUR. COMM'N, https://commission.europa.eu/system/files/2021-03/action_plan_on_synergies_en_1.pdf (last visited July 30, 2023).

²²¹ *Id.*

²²² *A Strategic Compass for a Stronger EU Security and Defence in the Next Decade*, COUNCIL OF THE EUR. UNION (Mar. 21, 2022), <https://www.consilium.europa.eu/en/press/press-releases/2022/03/21/a-strategic-compass-for-a-stronger-eu-security-and-defence-in-the-next-decade/> (last visited July 30, 2023). [hereinafter EU Strategic Compass].

security interest.”²²³ This effort will be supplemented by the development of policies to support the *European Defence Technological and Industrial Base* and its crisis-management ability.²²⁴

Considering NATO’s Brussels Declaration and the new approach of the European Union, together with the general international environment of mistrust, it appears that outer space is turning into a more competitive domain. Among NATO and EU/ESA members, reorganizations of the space sector and its governance are taken place. These are accompanied by a change of perspectives towards investments in dual use space technologies and an increasing assertiveness when tackling international threats.

A. France and Germany

The evolution is evident in France, where the 2019 Space Defence Strategy increased the role played by national defense actors. Along this line, France established the Space Command (*Commandement de l’espace—CdE*) which will coordinate space-defense capabilities and will operate under the Air and Space Force. In addition, the French strategy advocates for an “active space defence,”²²⁵ entailing that the country would be ready to respond to space threats by operating, *inter alia*, lasers and patrolling nanosatellites. This resolute approach comes as a response to the 2017 reported case of alleged espionage against the French-Italian Athena-Findus satellite.²²⁶

To additionally enhance its already expanding space-defense industry, France is planning on increasing the funds dedicated to satellite capabilities, particularly SSA.²²⁷

Moreover, following NATO’s recognition of outer space as an operational domain, the NATO Center for Excellence was established in Toulouse, further strengthening France’s pivotal role within the Alliance and as a global spacefaring nation.²²⁸

²²³ *Id.*

²²⁴ *Id.*

²²⁵ THE FRENCH MINISTRY FOR THE ARMED FORCES, SPACE DEFENCE STRATEGY 10 (2019), https://www.gouvernement.fr/sites/default/files/locale/piece-jointe/2020/08/france_-_space_defence_strategy_2019.pdf.

²²⁶ Calcagno, *supra* note 126, at 41.

²²⁷ SPACE DEFENCE STRATEGY, *supra* note 225.

²²⁸ *Id.*

Conversely, Germany is pursuing a more cautious approach, as shown by 2010 German Space Strategy, where the importance of maintaining a civil approach to space applications was outlined.²²⁹ Despite including outer space as a military operational domain, the 2016 White Paper on German Security Policy is centered on intensifying transparency and confidence-building measures,²³⁰ factually overlooking the growing competitiveness of the domain.

Currently, German military affairs in space are overseen by the Air Force and the country's space programs, presenting a dual—military and civilian—approach that focuses on SSA and SATCOM. Moreover, the new Space Command was established in 2021, under the German Armed Force. The body was designed to comprise every aspect of the space domain under a single command²³¹ and fully reflects the reforms that have been taking place in spacefaring countries in the past years.

A change in Germany's peaceful approach is to be expected in the next years, considering both the growing militarization of outer space, and the important debates taking place in the country regarding the military support to Ukraine. Arguably, the war in Ukraine represents an important shift in international relations, as it augmented European and USA concerns about Russian aggressiveness and Russian-Chinese cooperation. Indeed, security in outer space is turning into a crucial issue in Europe, and Germany is now planning on deploying a missile warning system in space, previously possessed only by Russia and the US.²³²

B. The Increasing Role of Defense in Italy's Space Activities

As a world-leading spacefaring country, second in Europe for number of objects in orbit and the third greatest contributor to

²²⁹ Federal Ministry of Economics and Technology (BMW), *Making Germany's space sector fit for the future, The space strategy of the German Federal Government* (Nov. 2010) <https://csps.aerospace.org/sites/default/files/2021-08/German%20space%20strategy%20Nov10.pdf>

²³⁰ White Paper on German Security Policy And The Future of The Bundeswehr (June 2016) <https://www.bundeswehr.de/resource/blob/4800140/fe103a80d8576b2cd7a135a5a8a86dde/download-white-paper-2016-data.pdf>

²³¹ Calcagno, *supra* note 126, at 40.

²³² Tim Stickings, *Germany Could Build Missile Warning System in Space*, THE NATIONAL (Jan. 4, 2023) <https://www.thenationalnews.com/world/europe/2023/01/04/germany-could-build-missile-warning-system-in-space/> (last visited July 30, 2023).

ESA,²³³ the increasing role of defense in Italy's space activities should not be overlooked. The country developed a holistic approach to the space sector, focusing on cooperation and space diplomacy in addition to space science and applications. Worth about 2 billion euros,²³⁴ the space industry holds a fundamental role in Italy. Indeed, the country is second in Europe for investments in the sector as percentage of GDP,²³⁵ and the industrial landscape includes more than 200 companies, covering the entire space supply chain.²³⁶

The Italian institutional framework for space governance was comprehensively reformed in 2018 with the law “11 gennaio 2018, n.7. *Misure per il coordinamento della politica spaziale e aerospaziale e disposizioni concernenti l'organizzazione e il funzionamento dell'Agenzia spaziale italiana.*”²³⁷ Although not regulating the functioning of the space domain thoroughly, the law is a remarkable step in setting the foundations for an exhaustive and far-reaching approach to outer space, establishing the Inter-Ministerial Committee for Space Policies and Aerospace Research (*Comitato interministeriale per le politiche relative allo spazio e alla ricerca aerospaziale*—COMINT) chaired by President of the Council of Ministers, and vesting the President of the Council of Ministers with the responsibility of coordinating national space and aerospace policies.

In line with the reforms undertaken by Italy's partners, the Office of the Military Council (*Ufficio del consigliere militare*—

²³³ Giancarlo La Rocca & Alessandro Marrone, *Italy and Space, A Strong Position to Enhance*, in THE EXPANDING NEXUS BETWEEN SPACE AND DEFENCE 62, 62 (Alessandra Marrone & Michele Nones eds., 2022); See also *Funding*, EUR. SPACE AGENCY, https://www.esa.int/About_Us/Corporate_news/Funding (last visited July 30, 2023).

²³⁴ Alessandro Gili & Davide Fanciulli, *A Strategy for the EU and Italy in the Space*, ISPI (Dec. 10, 2020), <https://www.ispionline.it/en/publicazione/strategy-eu-and-italy-space-28632> (last visited July 30, 2023).

²³⁵ Rocca & Marrone, *supra* note 233, at 70.

²³⁶ *Italian Space Industry Online Catalogue*, IT. SPACE INDUS., <https://italianspaceindustry.it> (last visited July 30, 2023).

²³⁷ Legge 11 gennaio 2018, n.7: *Misure per il coordinamento della politica spaziale e aerospaziale e disposizioni concernenti l'organizzazione e il funzionamento dell'Agenzia spaziale italiana* (18G00025), <https://www.gazzettaufficiale.it/eli/gu/2018/02/10/34/sg/pdf>.

UCM) role is now coordinating and supporting Italian space activities at a governmental level.²³⁸

Following the 2018 reform, the President of the Council of Ministers published the *Government Guidelines on Space and Aerospace*²³⁹ and the *National Security Strategy for Space*,²⁴⁰ in 2019. The Guidelines clarify Italy's priorities in outer space, so as to further nurture its position as a global space actor.²⁴¹ The *National Security Strategy for Space* recognizes the gaps of the existing international legislation and the need to address contemporary developments of the space domain.²⁴² Similarly, the Strategy stresses that the growing risks related to space competitiveness and congestion require reinforcing Italy's Space Situational Awareness and Space Surveillance Tracking.²⁴³

Moreover, the document underlines the need to protect national security and defense interests given the increasingly blurred line between the military and the civilian uses of outer space.²⁴⁴ Hence, it emphasizes the importance of acquiring new capabilities to "prevent, deter and defend" space infrastructures from attacks, and develop norms with the objective of reinforcing the industrial sector in its military and civilian use.²⁴⁵

Due to the growing importance of the domain for national interests, on August 2, 2022, the Presidency of the Council of

²³⁸ Il Presidente del Consiglio dei Ministri, Articolo unico (Apr. 14, 2018) https://presidenza.governo.it/AmministrazioneTrasparente/Organizzazione/ArticolazioneUffici/UfficiDirettaPresidente/UfficiDiretta_CONTE/COMINT/DPCM_20180414.pdf

²³⁹ Presidenza del Consiglio dei Ministri, *Indirizzi del Governo in materia spaziale e aerospaziale* (Mar. 25, 2019) https://presidenza.governo.it/AmministrazioneTrasparente/Organizzazione/ArticolazioneUffici/UfficiDirettaPresidente/UfficiDiretta_CONTE/COMINT/DEL_20190325_aerospazio.pdf [hereinafter *Presidenza Indirizzi*].

²⁴⁰ Presidency of the Council of Ministers, *National Security Strategy for Space* (2019) https://presidenza.governo.it/AmministrazioneTrasparente/Organizzazione/ArticolazioneUffici/UfficiDirettaPresidente/UfficiDiretta_CONTE/COMINT/NationalSecurityStrategySpace.pdf [hereinafter *Presidenza Security Strategy*].

²⁴¹ *Presidenza Indirizzi*, *supra* note 239.

²⁴² *Presidenza Security Strategy*, *supra* note 240.

²⁴³ *Id.*

²⁴⁴ *Id.*

²⁴⁵ *Id.*

Ministers established the Office of Space and Aerospace Policies as a body supporting the President in coordinating space policies.²⁴⁶

The dual character of outer space applications and their strategic relevance brought about a restructuring within the Ministry of Defense and the establishment of the General Space Office (*Ufficio Generale Spazio*—UGS) in 2019 and the Space Operations Command (*Comando Operazioni Spaziali*—COS) in 2020.²⁴⁷ The former is tasked with international cooperation, space programs and space policies, factually developing the strategic horizon of space operations. The latter carries out such programs and space strategies. Under COS supervision, in 2021, the Joint Centre for Satellite Remote Sensing (*Centro Interforze di Telerilevamento Satellitare*—CITS) and the Joint SICRAL²⁴⁸ Management and Control Centre (*Centro di Interforze di Gestione e Controllo SICRAL*—CIGC SICRAL) effectively re-orbited an obsolete satellite—SICRAL 1—from the Geostationary Orbit to a graveyard orbit, as to avoid creating risks to other operational satellites.²⁴⁹ This was a remarkable operation for three reasons. Firstly, it represented the first re-orbiting mission undertaken by the Ministry of Defence,²⁵⁰ demonstrating the effectiveness of the military reorganization. Secondly, the operation confirmed Italy's outstanding capabilities in outer space. Thirdly, it proved Italy's commitment to avoiding outer space congestion.

Undoubtedly, the reorganization of the Ministry of Defence portrays an attempt to augment the relation between space and defense and reflects the recognition of outer space as an operational domain within NATO and its partners. This attitude was echoed in the 2021-2023 Defence Multiannual Programmatic Document where Italy pledged to ensure the surveillance and defense of its

²⁴⁶ Decreto del Presidente del Consiglio dei Ministri, art. 1, July 15, 2022, <https://presidenza.governo.it/AmministrazioneTrasparente/DisposizioniGenerali/AttiGenerali/DpcmOrganizzazione/DPCM%2012%20luglio%202022.pdf>.

²⁴⁷ Rocca & Marrone, *supra* note 233, at 66.

²⁴⁸ *Sistema Italiano per Comunicazioni Riservate ad Allarmi* – SICRAL is the Italian system of early warning communications. Similarly, SICRAL satellites support armed forces in tackling natural disasters. See *Spazio: conclusa con successo la prima operazione di re-orbiting satellitare*, MINISTERO DELLA DIFESA, (May 12, 2021), https://www.difesa.it/Primo_Piano/Pagine/spazio-conclusa-con-successo-la-prima-operazione-di-re-orbiting-satellitare.aspx.

²⁴⁹ *Id.*

²⁵⁰ *Id.*

airspace while contributing to the Euro-Atlantic defense efforts and the respect of international law.²⁵¹ However, Italy still lacks a comprehensive investment plan that could practically support the increasing importance of the military sector in space-related matters.

The country's overarching strategic interests in outer space can be successfully safeguarded only through the enhancement of bilateral and multilateral relations.

In the European Union, France is one of Italy's most relevant partners. Their collaboration was further consolidated by the Treaty between the Italian Republic and the French Republic for a Stronger Bilateral Cooperation,²⁵² which specifically addresses outer space cooperation, regarded as a key European strategic area of development, in Article 7. Thus, the Parties commit to harmonizing their space strategies and peaceful exploration activities and to enhancing bilateral partnership in the industrial, scientific, and technological sectors.²⁵³

Another successful example of space diplomacy is the signature of the US-led Artemis Accords in 2020 and the decision to join the Artemis Programs²⁵⁴. The US-Italy cooperation efforts are also manifested in the 2022 Dart Mission, a joint endeavor to which ASI participated by providing NASA with LiciaCube, a nanosatellite created to share real time images. ASI-NASA partnership enabled the orbital change of an asteroid and constituted the first planetary defense mission.²⁵⁵

Italy perceives Space diplomacy as a means to increase space safety. For instance, the 2017 statement delivered to the UN First Committee by the Italian Ambassador Vinicio Mati underlined Italy's intention to support the implementation of Transparency and

²⁵¹ Documento programmatico pluriennale per la Difesa per il triennio 2021-2023 – Doc. CCXXXIV, n. 4, Sept. 14, 2021.

²⁵² Quirinal Treaty, *Trattato tra la Repubblica Italiana e la Repubblica Francese per una Cooperazione Bilaterale Rafforzata*, (Nov. 26, 2021).

²⁵³ *Id.* at art. 7.

²⁵⁴ *Artemis, siglato il primo accordo multilaterale di cooperazione internazionale*, AGENZIA SPAZIALE ITALIANA (Oct. 13, 2020), <https://www.asi.it/2020/10/artemis-siglato-il-primo-accordo-multilaterale-di-cooperazione-internazionale/>.

²⁵⁵ Marco Battaglia, *Difesa planetaria. Dart è un successo grazie all'Italia*, LE FORMICHE (Oct. 12, 2022) <https://formiche.net/2022/10/difesa-planetaria-dart-e-un-successo-grazie-allitalia/>.

Confidence Building Measures.²⁵⁶ Further, considering the country's role as one of the major proponents of the EU draft International Code of Conduct, Ambassador Vinicio Mati remarked Italy's commitment to responsible space behaviors.²⁵⁷ Ambassador Gianfranco Incarnato, Italian Permanent Representative to the CD, reiterated this position in 2018, emphasizing the Italian pledge to PAROS and to preventing outer space from becoming an area of conflict.²⁵⁸

VII. CONCLUSIONS

Space law suffers from the unclearness of its terminology. In the past, the lack of clear boundaries and precise definitions represented only a marginal issue. However, today the emergence of new actors, both public and private, could lead to different and conflicting interpretations of the vague language adopted in the legal framework regulating space activities. This is particularly evident with regard to the outer space confine and its definite extent. Indeed, air law and space law operate on distinct and divergent sovereignty and liability principles. The boundary between air and space is a gray area where several activities could take place but where no clear legal regime applies. Thus, the increasing technological capabilities and number of actors involved in space activities warrants a clearer legislation to guarantee certainty and predictability.

Since the launch of the first object into orbit, the international community has stressed the importance of using outer space for peaceful purposes. This principle, enshrined in the Outer Space Treaty and reiterated in every UN Treaty and Resolution, represents the *opinio iuris* which has guided the actions of spacefaring

²⁵⁶ PERMANENT MISSION OF ITALY TO THE UNITED NATIONS, STATEMENT BY H.E. AMBASSADOR VINICIO MATI, PERMANENT REPRESENTATIVE OF ITALY TO THE CONFERENCE ON DISARMAMENT TO THE FIRST COMMITTEE OF THE 72ND UN GENERAL ASSEMBLY OUTER SPACE (2017), <https://www.un.org/disarmament/wp-content/uploads/2018/11/statement-by-italy-72-os.pdf>.

²⁵⁷ *Id.*

²⁵⁸ PERMANENT MISSION OF ITALY TO THE UNITED NATIONS, STATEMENT BY H.E. AMBASSADOR GIANFRANCO INCARNATO, PERMANENT REPRESENTATIVE OF ITALY TO THE CONFERENCE ON DISARMAMENT TO THE FIRST COMMITTEE OF THE 73RD UN GENERAL ASSEMBLY (2018), <https://www.un.org/disarmament/wp-content/uploads/2018/10/statement-by-italy.pdf>.

nations. In this regard, outer space activities have historically been characterized by an ethic founded on peaceful cooperation and mutual understanding, in a fashion contrary to other domains on Earth. Notwithstanding its importance, there exists no definition of *peaceful use*, and the term *peaceful* has been interpreted as *non-aggressive*, meaning that military activities in orbit would conform with international law. However, the extent of these military activities is yet to be clearly defined, effectively generating additional legal grey areas.

Despite the need for regulatory efforts to tackle the increasingly urgent issue of the weaponization of space, so far, the international community has not been able to find feasible solutions to the matter. The PPWT represented an effort to regulate the space arms race. Beside banning aggressions in outer space, the draft Treaty provided States with the possibility of resorting to the use of force in case of self-defense under Article 51 of the UN Charter, a possibility which no international space law treaty had ever given to its signatory States as it suggests the prospect of an armed conflict in space. The ASAT tests that have been taking place in the last fifteen years demonstrate a contrasting attitude: while officially calling for PAROS, States are reluctant to renounce the development and deployment of offensive military capabilities, strengthening the national interdependence of space and defense. Arguably, this apparently ambivalent behavior is to be expected considering the growing worries and exacerbating mistrust among an increasingly large number of actors. Indeed, outer space is now perceived as a congested and competitive domain, where ensuring “space dominance” and “space power” is paramount. These terms carry a particularly strong stance and risk jeopardizing the peaceful and cooperative ethic on which space law supposedly rests.

In the past ten years, the most advanced spacefaring countries have created Space Forces as separate branches of their militaries, factually increasing the importance of the military in the outer space domain. By analyzing different national and international approaches to outer space, this attitude change is apparent. NATO has recognized the possibility of triggering the collective self-defense clause enshrined in Article V of the NATO Treaty in cases of attacks to Allied space objects. However, the lack of definition of what constitutes an armed attack capable of triggering this clause

creates substantial room for interpretation and a case-by-case approach. Some NATO Allies have embraced this view: for instance, France has adopted the doctrine of “active space defense” in cases of aggressive actions towards its space objects. Likewise, Italy has comprehensively reformed its space legal framework, strengthening the role of national defense actors and acknowledging—through the Italian National Space Strategy—the importance of preventing and deterring attacks in defense of allied space objects.

This change of posture is not only visible at the national level, but also at the supranational one. Indeed, the link between space and defense in the EU is growing stronger, as demonstrated by the intention to enhance synergies between the civil and military space sectors and the acknowledgment of the possibility of responding to threats and attacks to EU space infrastructures.

It is arduous to fathom and foresee the future direction of space law. The current trends display a progressive disengagement of the international community towards legally binding norms and a stronger involvement of the military sector. Indeed, the current scenario does not seem to be paving the way for resolute cooperative efforts in enhancing space law principles. However, history has demonstrated that even in times of outstanding conflicts and mistrust, the international community was able to find common grounds and avoid escalations. Hopefully, subsequent developments do not thwart the efforts made thus far in building a peaceful and cooperative future for space law.