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The Billionaire Space Race: Can Biden Bridle Bezos?

Rachel Jacob*

I. Introduction

So here . . . is the first generation of the Spaceborn; there would be more of them in the years to come. Though there was sadness in this thought, there was also a great hope. When Earth was tamed and tranquil, and perhaps a little tired, there would still be scope for those who loved freedom, for the tough pioneers, the restless adventurers. But their tools would not be ax and gun and canoe and wagon; they would be nuclear power plant and plasma drive and hydroponic farm. The time was fast approaching when Earth, like all mothers, must say farewell to her children.¹

Outer space is the sort of subject that makes for highly acclaimed science-fiction films and literature: its breadth is fascinating, yet it feels distant from everyday reality. But what if human life in space was not just a fictional notion, conceivable only “in a galaxy far, far away”?²

In 2011, the National Aeronautics and Space Administration (“NASA”) and its international partners completed the construction of the International Space Station (“ISS”).³ The ISS has made it possible for humans to have an ongoing presence in space; in fact, astronauts have lived on the ISS since 2000, well before the construction of the station was completed.⁴ In 2024, NASA expects to send the first woman and next man to the moon through the agency’s Artemis lunar exploration.⁵ By that time, fifty-five years will have passed since the first man on the moon, Neil Armstrong, planted the American flag on the moon’s lunar highlands.⁶ Artemis is tasked with exploring the entirety of the moon’s surface, with an intention to find water and

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¹ Arthur C. Clarke, 2001: A Space Odyssey, 61 (Ray Lovejoy et al. eds., 1968).

² STAR WARS EPISODE IV: A NEW HOPE (Twentieth Century Fox 1977).

³ *What Is the International Space Station?*, NASA (Oct. 30, 2020), <https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-the-iss-58.html>.

⁴ *Id.*

⁵ *What is Artemis*, NASA (July 25, 2019), <https://www.nasa.gov/what-is-artemis>.

⁶ *July 20, 1969: One Giant Leap For Mankind*, NASA (July 20, 2019), https://www.nasa.gov/mission_pages/apollo/apollo11.html.

other critical resources needed for long-term exploration.⁷ As of September 2021, the world has witnessed two commercial suborbital space flights, and one civilian-only orbital trip around the Earth.⁸

This paper argues that the modernization of space-related technology has initiated a host of uncertain and potentially destabilizing issues surrounding space exploration, space governance, and international security. As a result, the Biden Administration, with the help of other influential nations (i.e., superpowers)⁹, must update international treaties to better reflect the modern complexities relating to outer space. Without the adequate development of space law alongside technology, relations between nations will quickly deteriorate.¹⁰ However, since multilateral treaties of this sort often take years to come to fruition¹¹, the Biden Administration

⁷ NASA, *supra* note 5.

⁸ Michelle Shen, *William Shatner went to space. Here's how much it would cost you.*, USA TODAY (Sept. 15, 2021), <https://www.usatoday.com/story/money/2021/09/15/how-can-go-space-inspiration-4-and-future-space-travel/8350606002/>.

⁹ See *World Superpowers 2021*, WORLD POPULATION REVIEW, <https://worldpopulationreview.com/country-rankings/world-superpowers> (last visited Dec. 2, 2021) (“[w]orld superpowers, also called global superpowers, are the world’s most powerful nations that have the most influence over the world. These countries’ have dominant positions characterized by their ability to exert influence or project power on a global scale.”); Rolando Y. Wee, *What are Global Superpowers?*, WORLDATLAS (April 25, 2017), <https://www.worldatlas.com/articles/what-are-global-superpowers.html> (“Lyman Miller defined superpower as a country that had advantage in the four axes of power. These are military, economic, political, and cultural.”); Laura Silver, Kat Devlin & Christine Huang, *China’s Economic Growth Mostly Welcomed in Emerging Markets, but Neighbors Wary of Its Influence*, PEW RSCH. CTR. (Dec. 5, 2019), <https://www.pewresearch.org/global/2019/12/05/chinas-economic-growth-mostly-welcomed-in-emerging-markets-but-neighbors-wary-of-its-influence/> (“China has emerged as a global economic superpower in recent decades.”).

¹⁰ Cf. Joshua Fiveson, *Disruptive Technology and the Future of International Law*, COLUMBIA J. INT’L AFF. (Feb. 19, 2020), <https://jia.sipa.columbia.edu/online-articles/disruptive-technology-and-future-international-law> (discussing the automation of warfare internationally and arguing that “[t]he pace of technology is often far greater than our collective ability to contemplate its second and third order effects, and this reality counsels cautious reflection as we enter a new chapter in the age-old story of war and peace.”).

¹¹ See Kimberly Amadeo, *Pros and Cons of Multilateral Trade Agreements*, THE BALANCE (May 28, 2021), <https://www.thebalance.com/multilateral-trade-agreements-pros-cons-and-examples-3305949> (“[t]he biggest disadvantage of multilateral agreements is that they are complex. That makes them difficult and time consuming to negotiate. Sometimes the length of negotiation means it won’t take place at all.”); Christopher Newman, *Artemis Accords: why many countries are refusing to sign Moon exploration agreement*, THE CONVERSATION (Oct. 19, 2020), <https://theconversation.com/artemis-accords-why-many-countries-are-refusing-to-sign-moon-exploration-agreement-148134> (“[p]revious attempts to govern space have been through painstakingly negotiated international treaties.”).

should prioritize implementing responsible domestic space laws that complement, rather than contradict, existing international laws.

In Part II, this paper will trace space law as it stands today, particularly focusing on the “five United Nations treaties on outer space” and other multilateral agreements.¹² This section will conclude with an examination of the enforceability of these space laws. Part III will then transition to 21st century developments in space, as were briefly outlined above. Finally, Part IV will address the United States’ imperative role in shaping the future of space law. Here, this paper will make the case for a revamped international treaty, spearheaded by the Biden Administration, that better reflects modern space exploration, governance, and matters of security.

II. Space Law As We Know It

There are two juxtaposing reasons why space law could be described as an enigma. On the one hand, while many Americans are tuned into major developments in space¹³, the average citizen is likely blissfully unaware of what constitutes “space law”—the body of law that has regulated such developments.¹⁴ Moreover, “while much attention has been paid to the geostrategic and economic significance of space, perhaps the most foundational area has been

¹² *International Space Law: United Nations Instruments*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS (May 2017) [hereinafter *UN Instruments*], https://www.unoosa.org/res/oosadoc/data/documents/2017/stspace/stspace61rev_2_0_html/V1605998-ENGLISH.pdf.

¹³ *See, e.g.*, Chris Jackson, *Attitudes Toward Space Exploration: New C-SPAN/Ipsos Poll*, IPSOS (July 10, 2019), <https://www.ipsos.com/en-us/news-polls/cspan-space-exploration-2019> (“two-thirds of Americans (65%) say they have watched a space shuttle launch live either in-person, on TV, or via the internet”).

¹⁴ *See* Clyde Haberman, *Space Law: The Next Generation*, PBS, <https://www.pbs.org/wgbh/americanexperience/features/chasing-moon-space-law-next-generation/> (last visited Nov. 2, 2021) (“[i]t may surprise some people to learn that international compacts governing the exploration and exploitation of space have long made celestial bodies ready for the mercantile taking . . .”); Deanna Paul, *Space: The final legal frontier*, WASHINGTON POST (Aug. 31, 2019), <https://www.washingtonpost.com/technology/2019/08/31/space-final-legal-frontier/> (“[y]es, space law is a thing. (And it doesn’t involve real estate or aliens.)”).

largely left on the backburner: space governance.”¹⁵ Yet, space law has in fact existed for over half a century, and it has only been tested a handful of times.¹⁶ This leads to the second reason why space law is so perplexing: it has stood as a silent protector of humanity for years despite the fact that it is largely unenforceable.¹⁷ This section begins by outlining the various legal instruments that make up space law, and concludes by examining various arguments on whether or not space law is enforceable.

A. What is “Space Law”?

Since the first human-made satellite orbited the Earth in 1957, the United Nations has played an integral role in maintaining the peaceful exploration of space. The UN’s significant interest in the peaceful exploration of outer space’s uncharted territory was fueled not only by the obvious historical backdrop of nations battling to expand their jurisdiction, but more specifically, by the U.S.-Russian rivalry during the Cold War.¹⁸ In 1959, the UN established the

¹⁵ Sophie Gognichvili et al., *The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?*, WILSON CENTER (Oct. 1, 2021), <https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>. See also Jackson, *supra* note 13 (“[a]bout one in five Americans classify themselves as “very interested” in space exploration, and only about a third believe the benefits are greater than the costs.”).

¹⁶ For example,

[i]n 2006, China targeted a U.S. satellite with a laser, which was interpreted as an anti-satellite experiment. In 2007, China destroyed one of its own satellites in an ASAT weapon test, creating an international enormous amount of dangerous space debris. Although China’s actions drew international condemnation, the conduct was found not to violate the [Outer Space Treaty], and no country took legal action.

James Fukazawa, *Does the U.S. Space Force Violate the Outer Space Treaty?*, DENV. J. INT’L L. & POL’Y, (2020) (citing Becky Ferreira, *The new Space Race, and the desperately outdated laws that govern it*, DOCUMENT JOURNAL (May 28, 2019), <https://www.documentjournal.com/2019/05/the-new-space-race-and-the-desperately-outdated-laws-that-govern-it/>), <http://djilp.org/does-the-u-s-space-force-violate-the-outer-space-treaty/#post-9754-footnote-ref-30>; Jason Krause, *The Outer Space Treaty turns 50. Can it survive a new space race?*, ABA JOURNAL (April 1, 2017, 5:00 AM), https://www.abajournal.com/magazine/article/outer_space_treaty). See also Henry Hertzfeld, *Current and Future Issues in International Space Law*, 15 ISLA J. INT’L COMPAR. L. 325, 331 (2009) (“[t]here are few actual cases that have been adjudicated concerning activities actually occurring in space. Most space law today focuses on more mundane problems such as negotiating government contracts, applying for domestic licenses for launch and operation of satellites, allocating spectrum rights, or complying with export control issues.”).

¹⁷ See discussion *infra* Section II.B; Haberman, *supra* note 14 (“[w]hat a lot of folks don’t know is that the treaty was actually a disarmament treaty.”).

¹⁸ See *COPOUS History*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/copuos/history.html> (last visited Dec. 2, 2021); Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era*

Committee on the Peaceful Uses of Outer Space (COPUOS) “to govern the exploration and use of space for the benefit of all humanity: for peace, security and development.”¹⁹ Importantly, COPUOS was instrumental in developing the five treaties and five principles governing space law today.²⁰

1. Treaties

There are five commonly referred to UN treaties on outer space: (1) the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies’ (“The Outer Space Treaty”)²¹; (2) the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (“The Rescue Agreement”)²²; (3) the Convention on International Liability for Damage Caused by Space Objects (“The Liability Convention”)²³; (4) the Convention on Registration of Objects Launched into Outer Space (“The Registration Convention”)²⁴; and, (5) the Agreement Governing the Activities of States on the Moon and

of Globalization, 37 SUFFOLK U. L. REV. 1041 (2004) (“[b]orn of Cold War forces, the COPUOS space treaties contain both the aspirations and fears of the times.”); Michael Beaver, *Current Space Law Limitations and Its Implications on Outer Space Conflicts*, E-INTERNATIONAL REL. (June 16, 2015) (citing P. J. Blount, *Renovating Space: The Future of International Space Law*, 40 DENV. J. INT’L L. & POL’Y 515, 16 (2011)), <https://www.e-ir.info/pdf/56755> (since “all five of the major international space treaties were crafted and signed during the ‘Cold War’, the United States and the Soviet Union played a major role as the architects of these cornerstones of space law and shaped them in accordance with the geopolitical climate between the superpowers at the time.”).

¹⁹ *Committee on the Peaceful Uses of Outer Space*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/copuos/index.html> (last visited Dec. 2, 2021).

²⁰ *Id.*

²¹ Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter *Outer Space Treaty*].

²² Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter *Rescue Agreement*]; *International Space Law*, SPACE FOUNDATION, <https://www.spacefoundation.org/space-brief/international-space-law/> (last visited Dec. 2, 2021) (“[t]hrough this Agreement, signatories agree to take all possible actions to help or rescue astronauts in need, and if applicable, return them to the nation from which they launched. Additionally, signatories agree to help return to the sponsoring nation any space objects that land on Earth outside of the country from which they were launched.”) [hereinafter *SPACE FOUNDATION*].

²³ Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter *Liability Convention*]; SPACE FOUNDATION, *supra* note 22 (“[t]hrough this Convention, Signatories take full liability for any damage caused by their space objects and agree to standard procedures for adjudicating damage claims.”).

²⁴ Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter, *Registration Convention*]; SPACE FOUNDATION, *supra* note 22 (“[e]xpanding a space object register, the Convention empowers the UN Secretary-General to maintain a register of all space objects.”).

Other Celestial Bodies (“The Moon Agreement”)²⁵. Collectively, these five treaties address issues ranging from “the non-appropriation of outer space by any one country, arms control, [and] the freedom of exploration[,]” to “liability for damage caused by space objects, [and] the safety and rescue of spacecraft and astronauts.”²⁶ Additionally, these treaties speak to “the prevention of harmful interference with space activities and the environment, the notification and registration of space activities, scientific investigation, the exploitation of natural resources in outer space, and the settlement of disputes.”²⁷

Among the five treaties, the Outer Space Treaty is perhaps the most comprehensive and relevant to what is known as “space law.”²⁸ Some even refer to this Treaty as “the Magna Carta of Space.”²⁹ Critically, the Treaty outlines principles for the exploration of and operation within space. First, according to the Treaty, all countries are free to explore outer space, and space activities should benefit all.³⁰ Second, “there is no claim for sovereignty in space; *no nation can ‘own’ space, the Moon or any other body.*”³¹ Third, the Treaty bans the use of weapons of mass destruction, and furthermore, it requires that any use of the Moon, the planets, and other celestial bodies be for peaceful purposes.³² Fourth, all astronauts are deemed “envoy[s] of mankind,” and

²⁵ Dec. 18, 1972, 1362 U.N.T.S. 3, 18 I.L.M. 1434 [hereinafter Moon Agreement].

²⁶ *Space Law Treaties and Principles*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html> (last visited Dec. 2, 2021) [hereinafter *UN Treaties and Principles*].

²⁷ *Id.*

²⁸ See generally, Gabrynowicz, *supra* note 18 (“Space law is a complex mixture of international and domestic laws that govern a wide spectrum of activities . . . The fields of law these activities can involve include administrative law, intellectual property law, arms control law, insurance law, environmental law, criminal law, and commercial law. . . .”); Agostino Latino, *Navigating Space Law: Regulations and Legal Principles of the Cosmos*, ITAL. INST. INT’L POL. STUD. (Dec. 11, 2020), <https://www.ispionline.it/en/pubblicazione/navigating-space-law-regulations-and-legal-principles-cosmos-28605> (“space law can be defined as the set of rules and principles aimed at regulating the space beyond the aerial zone and the objects, celestial bodies and related activities within it.”); *UN Instruments*, *supra* note 18 (“[t]he year 1967 represented a milestone in space history with the entry into force of the foundational instrument of international space law: the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.*”).

²⁹ Paul, *supra* note 14; He Qizhi, *The Outer Space Treaty in Perspective*, 25 J. Space L. 93 (1997).

³⁰ SPACE FOUNDATION, *supra* note 22.

³¹ *Id.* (emphasis added).

³² *Id.*

as such, all signatory states must provide support when needed, including assistance with emergency landing³³ Fifth, “signatory states are each responsible for their space activities, including private commercial endeavors, and must provide authorization and continuing supervision.”³⁴ Finally, the Treaty warns about contaminating outer space, and directs that “nations are responsible for damage caused by their space objects.”³⁵

The Moon Agreement both builds on aspects of the Outer Space Treaty and adds other significant provisions for signatories. Specifically, the Agreement reiterates that the Moon and other celestial bodies may only be used for peaceful purposes and must not be contaminated.³⁶ Similar to the Outer Space Treaty’s notions on jurisdiction, Article 11 of the Agreement explicitly states that States’ explorative activities and missions on the Moon cannot establish a property right or jurisdiction over the Moon:

Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person. The placement of personnel, space vehicles, equipment, facilities, stations and installations on or below the surface of the moon, including structures connected with its surface or subsurface, shall not create a right of ownership over the surface or the subsurface of the moon or any areas thereof.³⁷

The Agreement also adds that “the UN should always be made aware of any [manned or unmanned Moon] station . . . and that if resource mining on the Moon becomes feasible, an international regime must be established to govern how those resources are obtained and used.”³⁸

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ Moon Agreement, *supra* note 25.

³⁸ *Id.*; SPACE FOUNDATION, *supra* note 22.

2. Declarations and Legal “Principles”

In addition to creating the five treaties on outer space, COPUOS also developed five governing “principles”, all of which have been formally adopted through United Nations General Assembly Resolutions.³⁹ Of these five principles, three are particularly relevant for purposes of this paper. First is the Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (“The Declaration of Legal Principles”), which was established in 1962, and provides legal guidelines for actors pursuing space exploration and use.⁴⁰ More specifically, it establishes the authority of international law.⁴¹ For example, the fourth principle in the Declaration expounds, “[t]he activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.”⁴² Additionally, the Declaration addresses the need for States to ensure even non-governmental compliance; that is, States are essentially responsible for the actions of the private sector in space.⁴³ Accordingly, “the activities of non-governmental entities in outer space shall require authorization and continuing supervision by the State concerned.”⁴⁴

Second, COPUOUS established the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (“The Nuclear Power Sources Principles”), which similarly requires that international law is followed with respect to all activities involving the use of nuclear power

³⁹ *UN Treaties and Principles*, *supra* note 25.

⁴⁰ G.A. Res. 1962 (XVIII), U.N. Doc. A/RES/1962 (Dec. 13, 1963) [hereinafter *The Declaration of Legal Principles*], <https://www.unoosa.org/oosa/en/ourwork/spacelaw/principles/legal-principles.html>.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

sources.⁴⁵ These Principles specifically address general goals for radiation protection and nuclear safety. Accordingly, “[i]n order to minimize the quantity of radioactive material in space and the risks involved, the use of nuclear power sources in outer space shall be restricted to those space missions which cannot be operated by non-nuclear energy sources in a reasonable way.”⁴⁶ Furthermore, these Principles stress the notion of international responsibility. Principle 8 of the Nuclear Power Sources expressly incorporates article VI of the Outer Space Treaty, requiring that States “bear international responsibility for national activities involving the use of nuclear power sources in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities”⁴⁷

Lastly, the Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (“The Broadcasting Principles”) was created to both fill the void left by the Outer Space Treaty on issues relating to satellite broadcasting and to pacify fears that broadcast signals might threaten internal national affairs.⁴⁸ According to The Broadcasting Principles, States should inform the UN of all activities in the field of international direct television broadcasting by satellite, and should notify and consult any State where the

⁴⁵ G.A. Res. 47/68, U.N. Doc. A/RES/47/68 (Dec. 14, 1992) [hereinafter The Nuclear Power Sources Principles], <https://www.unoosa.org/oosa/en/ourwork/spacelaw/principles/nps-principles.html>.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ G.A. Res. 37/92, U.N. Doc. A/RES/37/92 (Dec. 10, 1982) [hereinafter The Broadcasting Principles], <https://www.unoosa.org/oosa/en/ourwork/spacelaw/principles/dbs-principles.html>; *A Brief Overview of Norms Development in Outer Space*, UNITED NATIONS INSTITUTE FOR DISARMAMENT RESEARCH (May 30, 2013) [hereinafter *Overview: Outer Space Norms*] (citing Stefanie Schmahl, *The United Nations Facing the Challenges of the “Information Society”*, in MAX PLANCK YEARBOOK OF UNITED NATIONS LAW 197-231 (A. von Bogdandy & R. Wolfrum eds., 2007); V. Kopal, *The role of United Nations declarations of principles in the progressive development of space law*, 16 J. SPACE L. 12 (1988)), <https://www.unidir.org/files/publications/pdfs/a-brief-overview-of-norms-development-in-outer-space-en-462.pdf> (“[w]hen the first satellite began to transmit radio signals back to Earth, space activities were greatly influenced by Cold War tensions. Concerns over propaganda and state sovereignty left many wondering whether broadcast signals were a threat to internal national affairs. Finding that the Outer Space Treaty did not directly address direct broadcasting by satellite, a number of initiatives sought to address the legal and political questions that arose from direct broadcasting by satellite.”).

satellite broadcasting services is intended to be received.⁴⁹ Similar to the previous two Principles, this Principle commands that international law should apply to all activities relating to international broadcasting by satellite.⁵⁰ Likewise, this Principle reiterates the notion of State responsibility for all those who carry out broadcasting activities under a State's jurisdiction (i.e., both governmental and non-governmental).⁵¹ Notably, however, a consensus could not be reached regarding The Broadcasting Principles, and few states have complied with its provisions.⁵² During the drafting period for these Principles, it became clear that it would be "impossible to reconcile positions on several issues, including obligations for state consultations, the seeking of prior consent for broadcasting into a foreign state, state responsibility for all broadcast activities, and the applicability of the principles to international law."⁵³ The two major opposing positions were "those most interested in preserving the free flow of information and those seeking to protect state sovereignty."⁵⁴

3. International Space Station-Related Agreements

Other significant instruments in the space law arena pertain to the International Space Station. As mentioned above, the International Space Station ("ISS") was constructed to maintain human presence in space, and many entities around the world, both governmental and non-governmental, have contributed to the establishment of the ISS. Considering the various actors and interests involved, several key instruments were created: (1) the Intergovernmental Agreement on Space Station Cooperation; (2) four memoranda of understanding between NASA

⁴⁹ The Broadcasting Principles, *supra* note 48.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Overview: Outer Space Norms*, *supra* note 48.

⁵³ *Id.*

⁵⁴ *Id.*

and the Canadian Space Agency, the European Space Agency, the Russian Space Agency, and the government of Japan; and (3) the Code of Conduct for the International Space Station Crew.

The Intergovernmental Agreement on Space Station Cooperation (“IGA”), which is signed by 15 governments, provides a “a long term international cooperative framework on the basis of genuine partnership, for the detailed design, development, operation, and utilization of a permanently inhabited civil Space Station for peaceful purposes, in accordance with international law.”⁵⁵ The IGA permits the Partner States to extend their own national jurisdiction to the elements and over personnel they provide. For example, European law applies to the European Columbus Laboratory. Essentially, this legal framework recognizes “the jurisdiction of the Partner States’ courts and allows the application of national laws in such areas as criminal matters, liability issues, and protection of intellectual property rights.”⁵⁶

The four memoranda of understanding requires that each Partner State approve the Code of Conduct before sending crew members to the station. The Code of Conduct “establishes a chain of command on-orbit, a clear relationship between ground and on-orbit management, management hierarchy, standards for work and activities in space, and disciplinary regulations.”⁵⁷ As explained in the memoranda, the Code of Conduct’s approval is critical since the crew of the ISS operates as one integrated team.⁵⁸

⁵⁵ Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, at <https://www.state.gov/wp-content/uploads/2019/02/12927-Multilateral-Space-Space-Station-1.29.1998.pdf> (last visited Dec. 2, 2021) [hereinafter *ISS Agreement*].

⁵⁶ *International Space Station Legal Framework*, THE EUROPEAN SPACE AGENCY, https://www.esa.int/Science_Exploration/Human_and_Robotic_Exploration/International_Space_Station/International_Space_Station_legal_framework (last visited Dec. 2, 2021).

⁵⁷ Joanne Wheeler & Vicky Jeong, *The Space Law Review: International Treaties*, SPACE L. REV. (2020) [hereinafter Wheeler, *Space Law Review*], <https://thelawreviews.co.uk/title/the-space-law-review/international-treaties>.

⁵⁸ *Id.*

In sum, the various treaties, principles, and agreements that make up space law generally encompass the following three ideals: (1) no State has ownership or jurisdiction over outer space and celestial bodies, and all States are free to carry out space-related activities (i.e., exploration, satellite broadcasting, etc.); (2) the various space-related activities conducted by States should be for peaceful purposes; and (3) States bear responsibility for the actions and activities of both governmental and non-governmental actors under their jurisdiction.⁵⁹

B. Is Space Law Enforceable?

The enforceability of space law is widely debated.⁶⁰ On the one hand, space law has lasted for over half a century and has rarely, if ever, been violated.⁶¹ Some have attributed space law's lasting impact to the flexibility it offers, as well as the context surrounding its inception.⁶² On the other hand, space law can hardly be violated if it is not agreed to, signed, or ratified.⁶³ Additionally, many provisions set forth in the various space law treaties and principles are idealistic in nature.⁶⁴ Moreover, the ambiguity within the various legal instruments pertaining to

⁵⁹ See SECURE WORLD FOUNDATION, HANDBOOK FOR NEW ACTORS IN SPACE 3-10 (Christopher D. Johnson ed., 2017) [hereinafter SPACE HANDBOOK], https://swfound.org/media/205710/handbook_for_new_actors_in_space_2017_web2.pdf (last visited Dec. 2, 2021).

⁶⁰ See generally, Goguichvili, *supra* note 15; Hertzfeld, *supra* note 16; Krause, *supra* note 16.

⁶¹ See *supra* note 16 and accompanying text; Jill Stuart, *The Outer Space Treaty has been remarkably successful – but is it fit for the modern age?*, THE CONVERSATION (Jan. 27, 2017), <https://theconversation.com/the-outer-space-treaty-has-been-remarkably-successful-but-is-it-fit-for-the-modern-age-71381> (“over the 50 years of its existence, the treaty has never actually been violated. Although many practical challenges have been made – these have always been made with parts of the treaty in mind, rather than seeking to undermine it entirely.”).

⁶² See Loren Grush, *How an international treaty signed 50 years ago became the backbone for space law*, THE VERGE (Jan. 27, 2017), <https://www.theverge.com/2017/1/27/14398492/outer-space-treaty-50-anniversary-exploration-guidelines> (“the hallmark of the Outer Space Treaty is that it isn't too detailed. ‘It doesn't solve every problem’ . . . The document is just 17 short articles in length; as a comparison, the Law of the Sea Treaty — a set of rules governing the use of the world's oceans — spans hundreds of articles in length . . . Created when space travel was in its infancy, the agreement was meant to address issues that could arise as space technology advanced.”).

⁶³ See, e.g., The Moon Agreement, *supra* note 25; Newman, *supra* note 11 (“[t]he Moon Agreement of 1979 attempted to prevent commercial exploitation of outer-space resources, but only a small number of states have ratified it – the US, China and Russia haven't.”).

⁶⁴ See Beaver, *supra* note 18 (the issue with the Outer Space Treaty “is its largely ambiguous and idealist nature, indicative on the drafters' intention for future generations to clarify emerging space related issues as the years passed. Review of various articles within the Outer Space Treaty leave much room for interpretation especially regarding the idea of commercial entities undertaking space mining operations.” (internal citations omitted)).

space law have left ample room for interpretation—a fact that many States have capitalized on when conducting space-related activities.⁶⁵ The arguments for and against the enforceability of space law will be discussed in turn.

1. Yes, Space Law IS Enforceable

For those that argue that space laws are enforceable, the concept of customary law⁶⁶ is key. Accordingly, “long before the conclusion of the 1967 Outer Space Treaty, important principles had been established as customary international space law[,]” most of which were later explicitly adopted by the various space law treaties.⁶⁷ Thus, because the Outer Space Treaty merely codified existing customary laws, the Treaty is considered binding on all members of the international community—with or without their signature and ratification.⁶⁸ This is why some scholars believe that the existing space law regime, as a “soft law,” works.⁶⁹

⁶⁵ *Id.*

⁶⁶ Customary law is not a written source. A rule of customary law, e.g., requiring States to grant immunity to a visiting Head of State, is said to have two elements. First, there must be widespread and consistent State practice – ie States must, in general, have a practice of according immunity to a visiting Head of State. Secondly, there has to be what is called “*opinio juris*”, usually translated as “a belief in legal obligation; ie States must accord immunity because they believe they have a legal duty to do so.

Christopher Greenwood, *Sources of International Law: An Introduction* (2008), <http://legal.un.org/avl/pdf/ls/Greenwoodoutline.pdf>; see also Rebecca Crootof, *Change Without Consent: How Customary International Law Modifies Treaties*, 41 YALE J. INT’L L. 237, 284 (2016) (“treaty and customary international law are considered coequal sources of international legal obligations”).

⁶⁷ In contrast to other international customary laws (i.e., head-of-state immunity), space law became customary rather quickly; this was perhaps due to the reality that space explorations and activities were historically infrequent. However, “most [scholars have] held that international law, particularly the customary law of outer space, does not require the existence of practice for a long period of time.” See Qizhi, *supra* note 29 (citing V.S. Vereshchetin and G.M. Danilenko, *Custom as A Source of International Law of Outer Space*, 13 J. SPACE L. 22 (1985)). See also Christopher D. Totten, *Head-of-State and Foreign Official Immunity in the United States After Samantar: A Suggested Approach*, 34 FORDHAM INT’L L. J. 332 (2011) (the “concept of immunity for foreign heads of state has existed since ancient times”).

⁶⁸ Qizhi, *supra* note 29 (citing II Y.B. INT’L L. COMM’N. 368-72 (1950) (“A principle or rule of customary international law may be embodied in a bipartite or multipartite agreement so as to have, within the stated limits, conventional force for the state parties to the agreement so long as the agreement is in force; yet it would continue to be binding as a principle or rule of customary international law for other states.”)).

⁶⁹ See Hertzfeld, *supra* note 16.

The multilateralist⁷⁰ nature of the various treaties that have been adopted only furthers the argument that space law is enforceable.⁷¹ To be sure, the UN has explicitly qualified all five treaties and principles as multilateral legal instruments.⁷² As a result, “[i]mplications for not complying could include sanctions, but mainly a lack of legitimacy and respect which is of importance in the international arena.”⁷³

The flexibility of existing space law perhaps poses a double-edged sword. To those who consider space law enforceable, its lack of detail is a good thing: “[b]uilt into the [Outer Space Treaty] was the promise of a future that wasn’t yet known, so the text was purposefully designed to be flexible and open to interpretation. Much of that promise has been met”⁷⁴

2. No, Space Law IS NOT Enforceable

Space laws are not anomalous as compared to other internationally crafted laws, and as such, they face many of the same hurdles.⁷⁵ Most notably, while treaties are binding on the nations who sign them, there is a striking lack of enforcement. Specifically, in the context of space law, there are no “space police.” This means that an individual, a company, and even a signatory of the space law treaties or other instruments can simply ignore the obligations and

⁷⁰ [M]ultilateralism is an institutional form which coordinates relations among three or more states on the basis of “generalized” principles of conduct—that is, principles which specify appropriate conduct for a class of actions, without regard to the particularistic interests of the parties or the strategic exigencies that may exist in any specific occurrence. John Ruggie, *Multilateralism: The Anatomy of an Institution*, 46 INT’L ORG. 562, 571 (1992).

⁷¹ Stuart, *supra* note 60. See also Goguichvili, *supra* note 15 (“multilateral agreements have facilitated international cooperation and legal frameworks for participating states in their space activities and projects”).

⁷² See *Status of International Agreements relating to Activities in Outer Space*, UN OFFICE OUTER SPACE AFFAIRS (Jan 1, 2021), https://www.unoosa.org/pdf/misc/lts/Int_Agreements.pdf.

⁷³ Stuart, *supra* note 60. See also Liability Convention, *supra* note 23; Vincent Pouliot, *Multilateralism as an End in Itself*, 12 International Studies Perspectives 18-26 (2011), <https://doi.org/10.1111/j.1528-3585.2010.00416.x>, (“multilateralism lends legitimacy to the policies that it generates by virtue of the debate that the process necessarily entails”).

⁷⁴ Sarah Kellog, *50 Years of Space Law: Time to Rewrite the Rules?*, WASHINGTON LAWYER (December 2017), https://cpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/7/314/files/2018/10/Sp.-Law-Article-DC-Bar_December2017-1wimfngn.pdf.

⁷⁵ Krause, *supra* note 16 (the Outer Space Treaty is “very similar to maritime law, which guarantees peaceful passage through navigable waters by ships of all nations. But in application, the treaty is more similar to the Antarctic Treaty System, a series of international agreements that call for cooperative management of Antarctica as a non-militarized environment, and put off claims of sovereignty for an indefinite period.”).

legalities if they so choose.⁷⁶ Moreover, while “principles adopted by the General Assembly reflect and supplement those set out in the UN space treaties[,]” they are not legally binding.⁷⁷

Further, what happens when an active State actor does not sign the treaty or agreement that directly addresses its activity in space? The Moon Agreement is exemplary.⁷⁸ That Agreement states that “if resource mining on the Moon becomes feasible, an international regime must be established to govern how those resources are obtained and used.”⁷⁹ The United States, however, never signed this Agreement. Should the US be free to excavate resources from the Moon, without the approval of the UN or other States who have signed the Agreement?

Another difficulty with enforceability stems from a key component of space law: State responsibility. Several of the UN Treaties and Principles require States to obtain compliance from citizens and private actors venturing into space.⁸⁰ Yet, the accountability of States for the actions of their citizens in outer space has been aptly described as contrasting “the usual affairs of humankind” since

. . . governments are not generally responsible for the actions of their citizens. If a citizen of Country A goes abroad to Country B, and someone in Country B wants to bring a claim against them, they don’t often also name Country A’s government as a defendant. In the usual dealings between people and foreign governments, people are not the responsibility of their governments. This is not the case in outer space activities. In fact, in activities dealing with outer space, the situation is reversed.⁸¹

⁷⁶ Stuart, *supra* note 60.

⁷⁷ Wheeler, *Space Law Review*, *supra* note 57. See generally *Overview: Outer Space Norms*, *supra* note 48.

⁷⁸ See discussion *supra* Section II.A.1.

⁷⁹ *Id.*

⁸⁰ See, e.g., The Outer Space Treaty, *supra* note 21. See also Frans G. von der Dunk, *The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law*, Space, Cyber, and Telecommunications Law Program Faculty Publications 69 (2011), <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1068&context=spacelaw> (“[c]ontrary to the version of the concept applicable under general international law, where ‘direct state responsibility’ only pertained to acts somehow directly attributable to a state and states could only be addressed for acts by private actors under ‘indirect,’ ‘due care’/ ‘due diligence’ responsibility, Article VI made no difference as to whether the activities at issue were the state’s own (‘whether such activities are carried on by governmental agencies’ . . .) or those of private actors (. . . ‘or by non-governmental entities’)”).

⁸¹ SPACE HANDBOOK, *supra* note 59, at 9.

Thus, while the frequent imposition of State Responsibility found in space treaties, principles, and agreements is idealistic, it is counterintuitive. Moreover, the lack of specific guidance under Article VI of the Outer Space Treaty leaves a plethora of unanswered questions:

What is the exact scope of the international responsibility which any state carries under this key clause, as no doubt being that state's main concern in terms of implementing the [authorization] requirement and using it for that purpose? To what extent would such [authorization] then be able to cover also all possible situations where international liability, under the Liability Convention, may be claimed? What would be the ramifications of one state [authorizing], through registration of the space object, the operations undertaken therewith, on a quasi-national/ quasi-territorial basis, with another state [authorizing] the operator of that subject to undertake such operations on the basis of national and/or territorial jurisdiction?⁸²

Article VI is not the only provision within the realm of space law that has created uncertainty; recall, the ambiguity of the Outer Space Treaty poses a double-edged sword.⁸³ For those arguing against the enforceability of space law, the lack of detail in the various space law instruments is critical.⁸⁴ For example, the Outer Space Treaty forbids the use of weapons of mass destruction in space.⁸⁵ However, such weapons are not the only option that could threaten the peaceful exploration of all States in space. In fact, almost “any satellite could have a malevolent purpose due to the nature of “dual use” technologies—devices that can be deployed for both peaceful and military purposes.”⁸⁶ To further illustrate, consider the potential catastrophic effects of anti-satellite weapons (“ASAT”):

⁸² Von der Dunk, *supra* note 79.

⁸³ See discussion *supra* Section II.B.1.

⁸⁴ See Hertzfeld, *supra* note 16 (“There still remain many issues concerning space law that are unresolved. One reason is the lack of issues ripe for a court or legislative determination. Another reason is the built-in flexibility of the system of space laws that allow for changing interpretations and definitions”); Becky Ferreira, *The new Space Race, and the desperately outdated laws that govern it*, DOCUMENT JOURNAL (May 28, 2019), <https://www.documentjournal.com/2019/05/the-new-space-race-and-the-desperately-outdated-laws-that-govern-it/> (“[t]he treaties are good documents but they set up principles . . . They don’t get that specific. There are a lot of voids that are not clearly delineated in the treaties that will be resolved by national interpretations, which will vary”).

⁸⁵ The Outer Space Treaty, *supra* note 21.

⁸⁶ Ferreira, *supra* note 83.

In the absolute worst-case scenarios, anti-satellite weapons could perform “kinetic kills” on other spacecraft by intentionally colliding with them. In addition to satellite-on-satellite violence, missiles could be launched from the ground to obliterate objects in orbit. Such a hypothetical attack would not only damage its main target, it could also unleash a torrent of dangerous debris in orbit that could threaten other spacecraft.

This point, of course, turns back to the lack of “space police” enforcing existing space laws. In a similar vein, while the Outer Space Treaty and Moon Agreement require that activities in space be conducted for “peaceful purposes,” they do not prevent States from maintaining military presence in space.⁸⁷ More specifically, though States cannot establish military bases on the Moon or other celestial bodies⁸⁸, they are free to create and maintain space stations similar to the ISS.⁸⁹

Article I of the Outer Space Treaty also casts uncertainty, where only national appropriation of outer space and the celestial bodies is prohibited.⁹⁰ This “leaves open the possibility of an individual or private association lawfully appropriating any part of outer space.”⁹¹ Similarly, Article II of the Outer Space Treaty prohibits national appropriation of outer space territory.⁹² Thus, when read together with Article I, “the prohibition on national appropriation establishes that outer space is a *res communis*, not subject to the common heritage doctrine⁹³, which means that states are free to use the area so long as their activities

⁸⁷ See The Outer Space Treaty, *supra* note 21; Moon Agreement, *supra* note 25; Paul, *supra* note 14 (“[t]he ‘peaceful purposes’ limitation doesn’t apply to deep space activity . . . There, the bar is exclusively on nuclear weapons and weapons of mass destruction. There’s no prohibition on things like setting up military bases, conducting weapons testing, or bringing weapons into space, so long as they aren’t weapons of mass destruction and comply with other Outer Space Treaty requirements”).

⁸⁸ Moon Agreement, *supra* note 25.

⁸⁹ Paul, *supra* note 14 (In 2019, “President Trump announced the establishment of the U.S. military’s Space Command . . . like the U.S., Russia and China are building space forces, and ‘once you have a dedicated force, you’re preparing for war’”).

⁹⁰ See Beaver, *supra* note 18.

⁹¹ *Id.*

⁹² The Outer Space Treaty, *supra* note 21.

⁹³ The common heritage doctrine is

do not deprive other states of the same right.”⁹⁴ However, without the international oversight and guarantee of preservation for future generations, States may contrive conflicting interpretations that focus on their own economic gain.⁹⁵

Overall, while there is merit to arguments made in support of the enforceability of existing space law, the arguments against are far more robust.⁹⁶ In the very least, it can be agreed upon that existing space law has been effective up until the 21st century.

III. 21st Century Space Developments

Although at first glance the existing body of space law appears to address a wide variety legal and geo-political issues, with the modernization and development of new space-related technology, these laws may prove ineffective, or in the very least, outdated. This Section will examine the developments made in both space exploration and commercialization.

A. Space Exploration

Among the most obvious developments in space is the capability, efficiency, and feasibility of space exploration. NASA, for example, has refocused its direction in space to four

comprised of several elements and generally provides that: (1) the designated areas shall not be appropriated, (2) the use of the area and its resources will be managed by an international authority, (3) benefits from the area will be actively and equitably shared, (4) the area will be peacefully used, and (5) the area's resources will be protected and preserved for the benefit of all mankind.

David Johnson, *Limits on the Giant Leap for Mankind: Legal Ambiguities of Extraterrestrial Resource Extraction*, 26 AM. U. INT'L REV. 1479, 1484 (2011).

⁹⁴ *Id.* But See Lynn M. Fountain, Note, *Creating Momentum in Space: Ending the Paralysis Produced by the "Common Heritage of Mankind" Doctrine*, 35 CONN. L. REV. 1753, 1753 n.3 (2003) (arguing that the Common Heritage doctrine should not apply to outer space because it represents a classic "tragedy of the commons" problem and fails to efficiently allocate resources).

⁹⁵ See Beaver, *supra* note 18.

⁹⁶ See also Feyisola Ruth Ishola, Oluwabusola Fadipe & Olaoluwa Colin Taiwo, *Legal Enforceability of International Space Laws: An Appraisal of 1967 Outer Space Treaty*, 9 NEW SPACE 1 (March 19, 2021), <https://doi.org/10.1089/space.2020.0038> (“efforts to structure space governance by creating soft laws commendable as they may be, do nothing to dispense of the fact that non-binding decisions and resolutions are not capable of enforcing the rule of law...this underscores the need to intensify international exchanges and cooperation in the governance of outer space on the basis of security and stability and peaceful uses.”)

strategic goals: (1) transition U.S. human spaceflight in low-Earth orbit to commercial operations, which support NASA and the needs of an emerging private sector market; (2) extend long-duration U.S. human spaceflight operations to lunar orbit; (3) enable long-term robotic exploration of the Moon; and (4) enable human exploration of the Moon as preparation for human missions to Mars and deeper into the solar system.⁹⁷

NASA, and the US government, are not alone in their endeavors to propel space explorations. On the contrary, “Russia and China have begun to draw up ambitious plans for missions that would directly compete with those of the United States and its partners, ushering in a new era of space competition that could be as intense as the first.”⁹⁸ Among these plans, the two countries are coordinating a series of lunar missions, which will culminate in the construction of a permanent research base on the South Pole of the moon by 2030.” While China is not among the Partner States of the ISS⁹⁹, Russia currently is. So, what will happen when the research base is constructed? Will Russia back out of its obligations and agreements relating to the mission of the ISS? Some publications have indicated this possibility, emphasizing that Russian officials have signaled that they may pull out of the ISS once the current agreement expires in 2024.¹⁰⁰ Aside from the Chinese-Russian partnership in space, China has by itself has developed its space program. In the Spring of 2021, “China launched the first modules of a new

⁹⁷ *NASA's Exploration Campaign: Back to the Moon and on to Mars*, NASA (April 16, 2018), <https://www.nasa.gov/feature/nasas-exploration-campaign-back-to-the-moon-and-on-to-mars>.

⁹⁸ Andrew E. Kramer & Steven Lee Myers, *Russia, Once a Space Superpower, Turns to China for Missions*, N.Y. TIMES (June 15, 2021), <https://www.nytimes.com/2021/06/15/world/asia/china-russia-space.html>.

⁹⁹ *Id.* (“China . . . was never invited to join the International Space Station. Legislation adopted by the American Congress in 2011 prohibited NASA from virtually any cooperation with the Chinese space administration or any related companies, citing the risk of espionage.”). See also Makena Young, *Bad Idea: The Wolf Amendment (Limiting Collaboration with China in Space)*, DEFENSE360 (Dec. 4, 2019), <https://defense360.csis.org/bad-idea-the-wolf-amendment-limiting-collaboration-with-china-in-space/>.

¹⁰⁰ Kramer & Myers, *supra* note 55.

orbiting space station.” Evidently, with the expansion of space exploration – in part, by competing actors – comes a need for more comprehensive space governance.

B. The Commercialization of Space Travel

In addition to space exploration, the commercialization of space travel may require a more complete international legal response. Recently, a handful of American entrepreneurs have ventured into the field of space travel. Tesla’s CEO, Elon Musk, founded “SpaceX to develop reusable rockets that would lower the cost of blasting people and things into space.”¹⁰¹ In 2012, SpaceX “became the first private company to send a spacecraft to the International Space Station.”¹⁰² In September 2021, SpaceX launched four private passengers into orbit Wednesday on the first mission to space with an all-civilian crew.”¹⁰³ However, Elon Musk’s ultimate plan is to facilitate humanity’s ability to settle on Mars.¹⁰⁴ Accordingly, Musk wants to establish a city of one million people on Mars by 2050, using a fleet of 1,00 SpaceX Starships to shuttle the population to the red planet.¹⁰⁵

Likewise, Amazon’s former CEO and billionaire Jeff Bezos founded Blue Origin with the goal to make space exploration cheaper through recyclable boosters.¹⁰⁶ Since its founding, Blue Origin has focused on space tourism. In fact, in July 2021, Blue Origin completed its first human flight, with Bezos aboard.¹⁰⁷ Two years earlier, in 2019, “Bezos revealed plans for a lunar

¹⁰¹ Tim Levin, *Jeff Bezos just launched to the edge of space. Here's how Blue Origin's plans stack up to SpaceX and Virgin Galactic.*, BUSINESS INSIDER (July 20, 2021), <https://www.businessinsider.com/elon-musk-jeff-bezos-branson-spacex-blue-origin-virgin-2021-5>.

¹⁰² *Id.*

¹⁰³ Denise Chow, *SpaceX makes history with first all-civilian spaceflight*, NBC NEWS (Sept.15, 2021), <https://www.nbcnews.com/science/space/spacex-makes-history-first-civilian-spaceflight-rcna2027>.

¹⁰⁴ Levin, *supra* note 58.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

lander called Blue Moon, which the company said would be ready in 2024 and would eventually help establish a "sustained human presence" on the moon."¹⁰⁸

On the other hand, Richard Branson entered the billionaire space race with subtly different goals.¹⁰⁹ Branson's Virgin Galactic instead "is focused on suborbital tourism, rather than launching people and payloads into space. It also has a radically different method of sending spacecraft out of Earth's atmosphere[,]” with spacecraft being flown to 50,000 feet.¹¹⁰ From that point, “the ship detaches and glides for a few seconds before firing up its rocket motor and beginning a near-vertical ascent to about 300,000 feet.”¹¹¹ Since sending its first fully-crewed flight to the edge of space, Virgin Galactic has sold 600 passenger tickets for between \$200,000 and \$250,000 each.¹¹² Virgin Galactic's future plans, similar to SpaceX and Blue Origin, seeks to make human presence in space more economical and efficient. Specifically, “Virgin Galactic plans to operate a fleet of vehicles that could fly tourists to space hotels, transport researchers to floating labs, or provide lightning-fast transcontinental flights.”¹¹³

Finally, several companies have indicated an interest in creating tourist accommodations in space. For example, the Orbital Assembly Corporation, is planning to open a luxury space hotel, the “Voyager Station”, by 2027.¹¹⁴ This hotel would accommodate 280 guests, plus 112 crew members.¹¹⁵ Still, while the commercialization of space opens a plethora of opportunities for mankind, it concomitantly opens a wide variety of legal issues, especially pertaining to jurisdiction.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Nick Mafi, *The World's First Space Hotel to Open in 2027*, ARCHITECTURAL DIGEST (March 5, 2021), <https://www.architecturaldigest.com/story/worlds-first-space-hotel-open-2027>.

¹¹⁵ *Id.*

IV. Shaping Biden’s Foreign Policy on Space

As U.S. Representative Jim Bridenstine has illuminated, “[f]ifty years ago there were two nations in space ... and our main concern was nuclear proliferation.”¹¹⁶ Now, however, “almost every nation on Earth has some sort of presence in space.”¹¹⁷ Yet, as mentioned above, space exploration and activity are not limited to government actors; to the contrary, non-governmental actors—particularly, billionaires within U.S. jurisdiction—have moved to the forefront outer space developments.¹¹⁸ Therefore, comprehensive space law reform is not only necessary for all members of the international community, it is also pivotal for Biden Administration in order to bridle the billionaire space race.

A. Outer Space Multilateralism Revamped

Multilateralist cooperation, when executed correctly, can be a powerful and effective tool for tackling some of the world’s most difficult problems – “from climate change and poverty eradication to abuses of human rights and arms proliferation” and even further to the prevention of world pandemics such as COVID-19.¹¹⁹ Recently, Secretary Blinken emphasized the Biden Administration’s renewed multilateralist interest and efforts:

[w]e have rejoined the Paris climate accord, recommitted to the World Health Organization, and we’re seeking to rejoin the Human Rights Council. We’re engaged in diplomacy to return to mutual compliance with the Joint Comprehensive Plan of Action and to strengthen the nuclear nonproliferation regime. We are by far the largest contributor to COVAX, the best vehicle for the

¹¹⁶ Krause, *supra* note 16.

¹¹⁷ *Id.*

¹¹⁸ See discussion *supra* Section III.A-B.

¹¹⁹ *Stronger Multilateralism Key to Tackling Tough Global Challenges but Not at Expense of State Sovereignty, Several Speakers Warn as General Assembly Debate Continues*, UN (Sept. 28, 2019), <https://www.un.org/press/en/2019/ga12198.doc.htm>; see also *Secretary of State Antony J. Blinken, Virtual Remarks at the UN Security Council Open Debate on Multilateralism* (May 7, 2021) [hereinafter Blinken, *Virtual Remarks*], <https://www.state.gov/secretary-antony-j-blinken-virtual-remarks-at-the-un-security-council-open-debate-on-multilateralism/> (“[w]e built the multilateral system in part to solve big, complex problems like these, where the fates of people around the world are tied together and where no single country – no matter how powerful – can address the challenges alone”).

equitable distribution of COVID-19 vaccines, and we're making tens of millions of doses available to others without political considerations.¹²⁰

Blinken also announced the Biden Administration's willingness to work with non-traditional partners for the greater good.¹²¹ Such partnerships can be forged "across regional lines, bringing together cities, the private sector, foundations, civil society, and social and youth movements."¹²² Moreover, while Blinken acknowledged that U.S. interests continue to diverge from those of the United Nations, he nevertheless promised that the Biden Administration "will spare no effort to find and stand on that common ground with any country that upholds its [multilateralist] commitments."¹²³ Given the Biden Administration's enthusiasm to revitalize international cooperation, spearheading the construction of a new or updated, comprehensive treaty on outer space would likely only further legitimize the United States as a global partner.¹²⁴ Although a binding update or successor to existing space law may seem daunting given the current geopolitical landscape, "the fact that the U.S. and the U.S.S.R. overcame deep mutual animosities to create the [Outer Space Treaty] in 1967 remains an inspiring example of the foresight we require in [2021]."¹²⁵

So, what should a revamped treaty on outer space look like? There are at least three key concerns that must be addressed: (1) jurisdiction and appropriation in space; (2) responsibility and liability of non-governmental actors; and, (3) non-nuclear warfare in space. In other words, a treaty reflecting modern advancements in space will comprehensively tackle issues on space governance, the exploration and commercialization of space, and international security in space.

¹²⁰ Blinken, *Virtual Remarks*, *supra* note 118.

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Id.*

¹²⁴ See generally Pouliot, *supra* note 73 (arguing that "multilateralism as its own end constitutes a pragmatic, first step toward enhancing global governance").

¹²⁵ Ferreira, *supra* note 83.

As a preliminary matter, it is impractical from a historical perspective to maintain an anti-sovereignty and anti-appropriation approach in space. Concededly, allowing for the establishment of sovereignty and appropriation would likely create a contentious debate among members of the international community since space-faring countries like the U.S., Russia, and China have the upper hand. However, this is a window through which the Biden Administration can exemplify its commitment to multilateralist efforts in space. Consider, for example, the possibility that countries could be grouped together – whether by economic necessity, by regional location, or by common interest – to form recognized coalitions. These coalitions might each have a “team captain,” determined by the most advanced space program within the Coalition. At the same time, these coalitions would not be required to invest the same or even similar resources; instead, each State within the coalition would provide their space program as is, or as planned. Each coalition would more or less be considered equal in terms of resources, wealth, and competing interests. Based on this sort of structure, a revamped treaty could likely permit sovereignty and appropriation based on a first (coalition) come basis. Alternatively, this structure could remain in place, but before claiming territory or objects in space, approval could be required first from COPUOUS. More generally, with a new or updated treaty, COPUOUS should play a larger adjudicative role.

Building on the above illustration, non-governmental actors should no longer be the responsibility of States.¹²⁶ As evidenced by the Billionaire Space Race, the space-related resources and technologies maintained by private actors far exceed that of most States. As such,

¹²⁶ Edward Kwakwa, *The Future of Multilateralism*, ASIL Proceedings (2018) (“multilateralism could also be perceived in the form of international cooperation that involves states as well as non-state or private sector entities. It may be useful to think of multilateralism not just in terms of states, but also in terms of systems that enhance the global compact—systems that enhance multilateral cooperation. In so doing, it becomes evident that multilateral enterprises are best conceived of as partnerships, among states and non-state entities alike.”).

an effective multilateral treaty must specifically regulate the private industry in order to instill conditions of both inclusivity and legitimacy.¹²⁷ Private actors and organizations can be assigned to the various coalitions on a continued basis. In the alternative, a treaty could impose on non-governmental actors a duty to share technology (and profits) with other States, which may or may not have a space program in place. Similarly, COPUOUS could create an international taxing system.¹²⁸ Finally, an updated or new multilateral treaty must explicitly address various types of space warfare—from satellite interference, to the presence of military forces, and it must do so in clear terms.¹²⁹

In sum, while the Biden Administration should strive to spearhead a new or revamped multilateral treaty on space law, such a treaty could take years to reach. To compound this reality, “decision-making in COPUOS requires consensus among all Member States . . . [and as] of 2019, there were 95 members of COPUOS”¹³⁰ Thus, the Biden Administration should prioritize its efforts on the development and implementation of responsible national space laws—ones that operate congruently within the existing international legal framework.¹³¹

¹²⁷ *Id.* (“multilateralism can be seen as the greatest source of legitimacy and inclusiveness in the international system.”).

¹²⁸ In a very influential book published in 1938 Henry Simons, a professor at the University of Chicago, made a strong case for taxing all sources of income of individuals as a whole (the global income) and for taxing this total with progressive rates. This approach, it was argued, would better satisfy equity considerations. Coming during the Great Depression and soon after the New Deal (and just before World War II) this tax became very popular in the United States where the “global income tax” helped finance the Second World War. The concept was exported to other countries, and in the 1950s and 1960s, American tax consultants were active in trying hard to promote this tax in developing countries.

Vito Tanzi, *Globalization, Tax System, and the Architecture of the Global Economic System*, INTER-AMERICAN DEVELOPMENT BANK, <https://publications.iadb.org/publications/english/document/Globalization-Tax-System-and-the-Architecture-of-the-Global-Economic-System.pdf>.

¹²⁹ C.f. discussion *supra* Section II.B.2.

¹³⁰ Wheeler, *Space Law Review*, *supra* note 57.

¹³¹ See generally Krause, *supra* note 16; Goguchvili, *supra* note 15; SPACE HANDBOOK, *supra* note 59; Paul, *supra* note 14. *See also* Young, *supra* note 99 (“[a]s China grows as a space power, U.S. cooperation in selected civil space projects could be one of the best ways to understand the goals and capabilities of the Chinese space agency. Moreover, it would establish avenues of communication and trust between the two nations that could be mutually beneficial in the future. The Wolf Amendment’s statutory exclusion of U.S. – Chinese bilateral cooperation in space

V. Conclusion

*Any man who had ever worked in a hardened missile site would have felt at home in Clavius. Here on the Moon were the same arts and hardware of underground living, and of protection against a hostile environment; but here they had been turned to the purposes of peace. After ten thousand years, Man had at last found something as exciting as war . . . Unfortunately, not all nations had yet realized that fact.*¹³²

In short, existing space law is, in the very least, outmoded. With the development and modernization of space-related technology and capability in the 21st century comes the need for a new or revamped multilateral treaty. By spearheading such an initiative, Biden Administration will establish the United States' credibility on the international level and will furthermore make good on its promises to revitalize multilateralist cooperation.

has only incentivized China to accelerate its space development programs, creating a serious challenger to U.S. leadership in this vital domain of exploration. History has shown that when the U.S. cooperates with foreign competitors in civil space projects, it enhances NASA's leadership role. The Wolf Amendment has neither discouraged Chinese space ambitions or altered China's behavior on human rights—it has only muddled our relationship with China and created an opening for a challenger to NASA's leadership role in space exploration.”)

¹³² Clarke, *supra* note 1, at 58.