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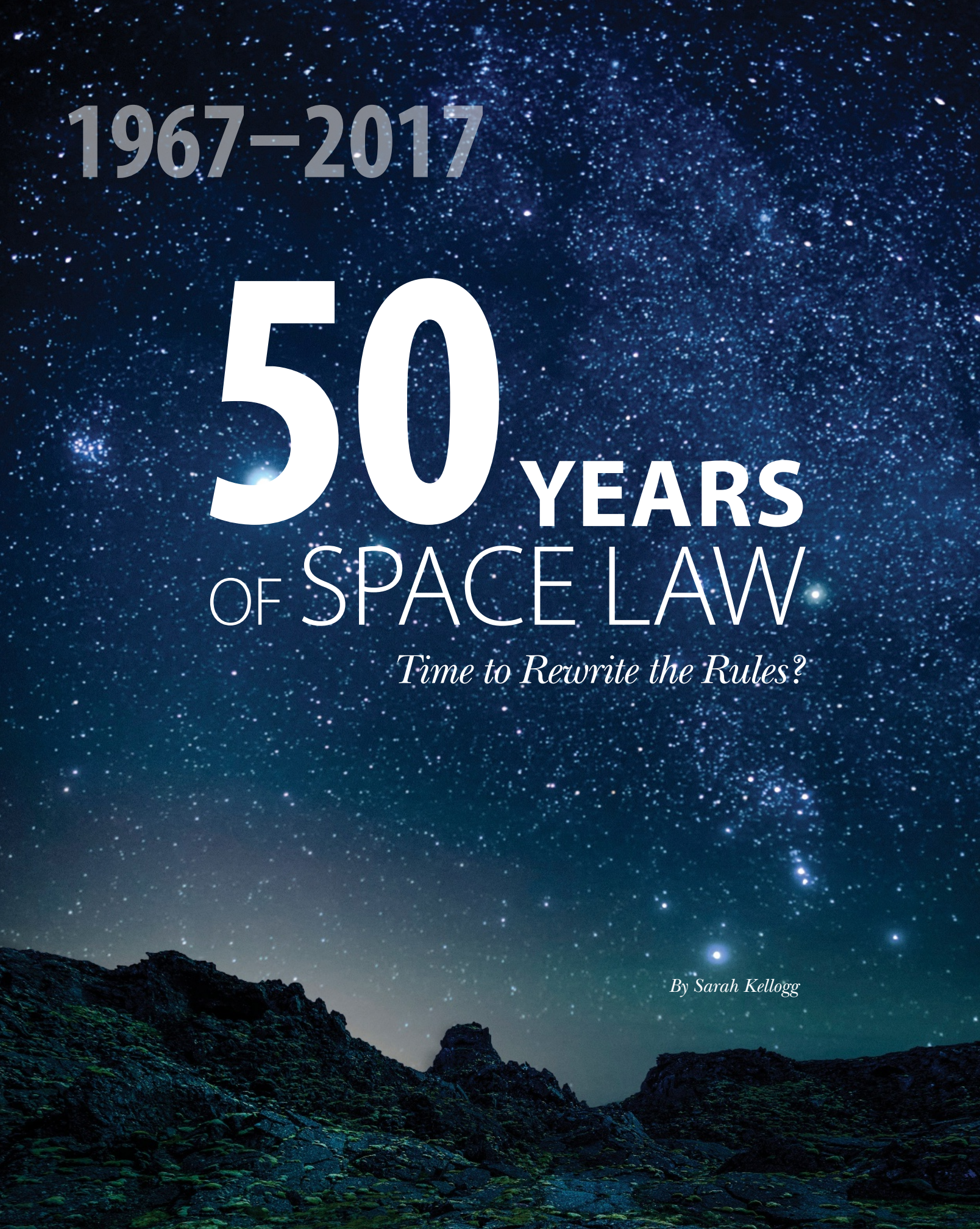


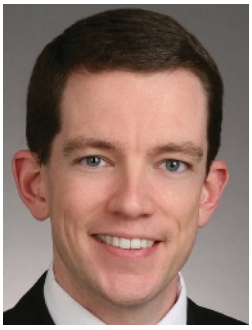
50 YEARS OF SPACE LAW

Time to Rewrite the Rules?

By Sarah Kellogg

When the United States, the United Kingdom, and the Soviet Union came together 50 years ago to codify the rules of outer space, they offered an aspirational view of space exploration and a vision built on the defining principles of democracy, equality, opportunity, and peace.

Ultimately, 107 nations would become parties to that agreement, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. Known as the Outer Space Treaty (OST), the agreement was remarkable for its prudence and for what it left unwritten.



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>
> PAUL STIMERS
> *K&L Gates LLP*

"The treaty has stood the test of time," says Pamela L. Meredith, chair of the space law practice group at Zuckert, Scoutt & Rasenberger, L.L.P. "It has not been an impediment to commercial space development. It has greatly influenced domestic legislation as well as international and domestic policy on space. If we look back to 1967, when the treaty was adopted, it laid down some fundamental principles that have held up quite well. It was also a springboard for subsequent space treaties."

Comprised of 17 short articles, the treaty delineated the overarching principles to guide the peaceful development of outer space to the benefit of everyone. Built into the 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, albeit at a slower pace than some might have expected. For the most part, space has not become a province for war, though spy satellites abound, and many governments and corporations have freely invested in exploring the cosmos, limited only by their imaginations and their pocketbooks.

Space development and travel have long been the purview of the government, particularly in the United States where NASA is synonymous with space. Today the new space economy is driven as much if not more by the private sector, as corporations look to opportunities in low-Earth orbit, the surface of the moon, and beyond.

Space opportunities are flourishing, thanks to technological breakthroughs that result in miniaturization and advanced manufacturing, and have made satellites smaller, launches cheaper, and remote sensing ubiquitous.

While the broad-brush principles of the treaty have held up, many space law experts believe the doctrine is insufficient to regulate a more vigorous, commercialized, and accessible cosmos. They say the treaty is a foundation and must be supplemented with new international regimes and domestic statutes to address the onslaught of legal and regulatory issues arising daily.

"This is a treaty written 50 years ago," says Eric Stallmer, president of the Commercial Spaceflight Federation, an advocacy group for human space flight." In theory, it's still a very good document. We should be adhering to it. As the industry is evolving, we need to evolve the rules of the road. In 1967 there were probably 20 to 25 satellites in space. Now there are probably 4,800."

A FARSIGHTED ACCORD

Signed in January 1967, and entered into force in October that year, the OST balanced the power of the world's nuclear juggernauts: the United States and the pre-breakup Soviet Union that were in the midst of a heated space race at the time. Yet, it also looked to protect the interests of other nations that hadn't invested widely in space or Cold War armaments.

"The Outer Space Treaty was very much a product of its time," says Paul Stimers, a partner at K&L Gates LLP. "It was designed to limit the downside for the U.S. and the Soviet Union, and to make sure that no one would be hurt by coming in second."

The OST tasked its parties with avoiding the "harmful contamination" of the Earth and celestial bodies. Known as planetary protection, this element of the treaty is a more futuristic concern even today, and it will be decades before contamination of the cosmos and back-contamination of the Earth become real threats.

Another important tenet of the OST was its declaration on space ownership. The cosmos is open to everyone, but no nation or private company can claim ownership of space or celestial bodies. The OST also was predicated on government space programs working cooperatively with the civil space industry over time.

Over the years, the United Nations fleshed out the contours of the OST, building on it four additional treaties that outlined the safety and rescue of spacecraft and astronauts (1968), the liability for damage caused by space objects (1972), the notification and registration of space activities and scientific investigation (1976), and the exploitation of natural resources in outer space and the settlement of disputes (1984).

U.S. FINE-TUNING

The United States has long been a leader not only in space exploration but also in building the legal and regulatory groundwork for space development. Using the OST as a base, it has layered on U.S. regulations to respond to advanced technologies and new opportunities in every decade since the 1967 enactment.

"As a general rule, we wanted space law to look like terrestrial law," says Stimers. "We wanted it to be Western in approach. We've taken a good first step toward that in the United States."

In the 1970s, telephone and telegraph companies launched satellites into space for the first time. The government responded by using an old tool for a new purpose, with the Federal Communications Commission (FCC) licensing these early space ventures under the Commission Act of 1934.

The Reagan administration commercialized space transportation in the 1980s, contracting with Lockheed Martin and Boeing for launch vehicles and the launches themselves. In response, Congress adopted the Commercial Space Launch Act in 1984. The act was amended in 1988 to include liability and risk-allocation provisions for human space flight.

Remote sensing came of age in the 1990s, and the United States enacted the Land Remote Sensing Policy Act of 1992. While there were many restrictions on licensing for companies, there was great opportunity in taking technology designed for intelligence reasons and repurposing the data for private industry.

By the early 2000s, companies were developing smaller and economical satellites in constellations that allowed more freedom in terms of orbit location. The FCC responded with more

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regulations, including how to deal with space debris from wayward satellites. The United States also amended the Commercial Space Launch Act in 2004 to address ongoing concerns around human space flight.

By 2015 the legislative focus was on setting rules for mining resources, whether from the moon or asteroids. The U.S. Commercial Space Launch Competitiveness Act of 2015 ensured that U.S.-based companies would get the rights to resources they extract from space, even if they couldn't own the "land" they extracted them from.

"Domestic regulatory regimes exist today for commercial satellite communications, satellite remote sensing, and space transportation. There is a regulatory void for many of the new commercial space activities," says Meredith. "As a domestic matter, we need to create some certainty for companies that want to go ahead with these activities and attract some investment to these projects."

21ST-CENTURY TREATY

While the central principles of the OST have been sporadically, and at times disjointedly, supplemented with domestic legislation and international regimes, many believe that a more comprehensive revision is necessary to reflect today's reality.

Today's satellite telecommunications, remote sensing, and space-launch enterprises are growing in complexity. Meanwhile, space development has been more explicitly defined by government agencies and private corporations, from visions of Mars settlements to extractions of minerals from asteroids.

"In the last decade, it's been more and more apparent that the law set up in the 1960s worked fine for 50 years, but now, the fact is, there isn't enough law for the circumstance," says Chris Johnson, space law advisor for the Secure World Foundation, a nonprofit dedicated to sustainable space development. "For what we want to do in the future, we will need more law."

Up to now, the governing approach has focused on regulating an activity — communications, space transportation, remote sensing, and resource extraction. The question going forward is, what is the government to do about new activities that don't fall neatly into the scope of current laws?

"There are a lot of holes in the treaties that need plugging, and some definitions that aren't precise," says Henry Hertzfeld, a professor who focuses on legal issues of space at the Elliott School of International Affairs at The George Washington University. "Sooner or later, we're going to have to face those issues."

The challenge in crafting rules for space in the 21st century is that nations must make decisions that are both mundane and profound. What laws should astronauts live under on the moon or on Mars?

Paul Stimers, courtesy of K&L Gates LLP; Pamela Meredith, courtesy of Zuckert, Scoutt & Rasenberger LLP

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> HENRY HERTZFELD
> *Elliott School of International Affairs, The George Washington University*

Sightseeing Archive/Digital Vision/Getty Images

Who is accountable for cleaning up space debris? And what should be done about commercial space disputes?

Companies like Blue Origin and SpaceX are moving at a speed previously unseen in the space industry, and they are looking to lawmakers and international diplomats to find solutions to their regulatory challenges as quickly as their companies are advancing the new space race.

"We're moving into an era of more private companies, both here and abroad, being involved in space, and we're providing incentives for this to happen," says Hertzfeld. "If something does happen that's an accident or a problem, we don't have a good dispute resolution system up there."

THE NEXT STAGE

Experts believe the best regulatory approach may be incremental, combining discrete, reasonable regulation with a *laissez-faire* sense of enterprise. A hybrid regulatory structure would allow principal documents like the OST to stand while giving companies and countries enough freedom to move within its boundaries.

"I think that space will become more like the oceans where there are multiple players. There are some states there. There are private corporations. There are private individuals," Secretary of the U.S. Air Force Heather Wilson said in September during a space forum hosted by *Politico*.

Outstanding issues on liability for disaster, ownership of space, and sovereignty of national operations are the kind of accord busters that may not be solved for decades to come. In the meantime, there are plenty of emerging problems facing space development that international leaders could tackle.

Orbit Location. The International Telecommunication Union, which operates as part of the UN, allocates the limited number of orbital slots available above Earth, and potential legal claims and disputes may not be satisfied with the ITU allocation mechanism in the future.

Oversight Authority. Moon Express wants to go to the moon, and Bigelow Aerospace seeks to create private space stations in orbit, but there is no current regulatory framework that allows the U.S. government to oversee those missions. Again, oversight has been handled on an activity-by-activity basis, and any new legislative solution needs to be holistic, though not too prescriptive.

Space Maintenance. With millions of pieces of space debris zipping through orbit, it's clear that space maintenance is an important activity in the not-too-distant future. Companies need to repair and refuel satellites and remove dead satellites before their orbits decay. These types of space hygiene must be regulated internationally, experts say, because the impact is global.

Space Enforcement and Dispute Resolution. Enforcement of current rules is often slow due to ambiguities in the rules and national security issues. Many believe stronger enforcement and dispute resolution are necessary when bad actors break the rules, whether it's shooting a satellite down or failing to get appropriate consent from tourist astronauts for space flight.

In the 50 years since its adoption, the OST grounded global space development in universal and conscientious principles. Yet, like space exploration and development itself, the pace of updating the OST for a new generation has taken decades. The legal and regulatory challenges ahead are complex and multifaceted, making it essential for international leaders to establish legal accords that respond in real time and to realistic disputes.

Sarah Kellogg is a regular contributor to Washington Lawyer.

Henry Hertzfeld, courtesy of Henry Hertzfeld