



Space safety and sustainability: Preserving our future in orbit

Space is among Earth's shared resources. The dramatic increase in space-related activity has led governments around the world to ensure its long-term sustainability. These developments impact the strategic plans of satellite operators.

As space operations increase, countries are enforcing newly formulated space safety regulations to secure exploration and a shared utilization of outer space. While space safety focuses on immediate risks associated with space activities, space sustainability, in contrast, involves the long-term use and preservation of space resources. For example, the Federal Communications Commission (FCC) has implemented space safety rules related to orbital debris, which contribute to the long-term sustainability of outer space, focusing on mitigation measures, collision avoidance, post-mission disposal, and record-keeping.

As a result of this regulatory trend, space operators are proactively adapting their networks, implementing safety measures, and integrating best practices into their operations to ensure compliance. Space operators are also engaged in a dialogue with the FCC and other regulators to ensure these new rules do not stifle the growth of this important industry. Several players are involved in these efforts, including national space and regulatory agencies, international organizations, military and defense agencies,

and commercial space companies. In the last few years, numerous jurisdictions and regulatory players have released consultations about space safety and sustainability and/or are actively engaged in international safety efforts to develop comprehensive frameworks that address crucial aspects of space operations:

Developments in key jurisdictions

- [Australia](#)
- [Canada](#)
- [China](#)
- [Colombia](#)
- [France](#)
- [Germany](#)
- [Luxembourg](#)
- [New Zealand](#)
- [Saudi Arabia](#)
- [United Kingdom](#)
- [United States](#)

Regulatory players

- [European Commission](#)
- [The United Nations Office for Outer Space Affairs \(UNOOSA\)](#)
- [The World Economic Forum \(WEF\)](#)
- [The Federal Communications Commission \(FCC\)](#)

Regulators are promoting responsible space practices among satellite operators and encouraging them to design and operate their satellites in a manner that minimizes space debris. The FCC's involvement focuses on orbital debris mitigation plans addressing:

- **Post-mission disposal:** Requiring satellite operators to complete disposal of their satellites no more than five years following the end of mission, which is different from the current UNOOSA 25-year disposal guideline
- **Collision avoidance:** Metric to minimize the risk of collision with other space objects, such as providing the overall collision probability of a satellite during its lifetime, using the National Aeronautics and Space Administration (NASA) Debris Assessment Software, among other tools
- **Propulsion needs:** Appropriate capabilities to meet a proposal for reserved propulsion for station-keeping and collision avoidance maneuvers
- **Satellite constellations' impact:** Requiring constellation operators to continue coordinating with NASA to avoid the loss of launch and reentry opportunities



- **Satellite's impact on science missions:** Potentially requiring operators to coordinate with NASA and the National Science Foundation to avoid impacting science missions involving astronomy

In the US

In the United States, the Federal Aviation Administration (FAA), Commerce Department, and State Department are also engaged in space safety efforts. The FAA has established

(OSC) to release a [Request for Information](#), seeking industry input on the proposed capabilities of the SSA service that the OSC expects to provide, such as warnings of potential collisions, launch collision avoidance screenings, and forecasting object reentries.

Although such regulatory objectives are necessary, they must be executed carefully because the benefits resulting from space operations, including global connectivity, are essential for the world's economy and for ensuring the quality of life on Earth.

In May, the State Department released a [Strategic Framework for Space Diplomacy](#), promoting space safety and security cooperation and stating that it will pursue a rules-based international framework for outer space activities, including the long-term sustainability of space.

- **Orbital separation among satellites:** For instance, required separation between orbital locations of constellations
- **Disclosure requirements:** For instance, providing information to support space situational awareness (SSA), minimize debris generated by release of persistent liquids from a deployed satellite, and identify planned rendezvous and proximity operations

licensing requirements and safety regulations for commercial space launch, reentries, and launch sites, including conditions for launch vehicle designs, operations, and safety practices. The FAA also conducts safety inspections of launch vehicles, sites, and associated facilities to ensure compliance.

The Commerce Department has also developed [guidelines](#) for SSA and has established a Space Policy Directive to promote sustainable space activities, which directed the Office of Space Commerce

US policy, country-specific international rules, and commercial and federal efforts are the trends in space safety regulations. We expect regulators to become more restrictive in managing space activities. Between federal and commercial operators, the number of satellites continues to grow exponentially, leading to potential for orbital congestion. If not managed carefully, orbital congestion can limit the availability of valuable positions for future space activity and contribute to the growth of graveyard orbits.

Global objectives

The FCC, as a global regulatory leader, will continue supporting the use of outer space while closely monitoring operators' space activities, implementing rules and license conditions to minimize orbital debris. Other space agencies and internal regulatory bodies will likely adapt and/or support space safety rules to protect space, our shared resource. For example the WEF recently released [guidelines](#) for mitigating orbital debris, supporting the FCC's post-mission disposal rule of five years after end of life of spacecraft, among other recommendations. The United Nations also [released](#) a policy paper, identifying challenges caused by the increasing amounts of orbital debris and continuing efforts to address space diplomacy ahead of a 2024 UN conference called Summit of the Future.

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The voice of business stakeholders

While significant progress has been made in addressing these issues, much work remains to be done. Our team understands the existing and proposed rules and recognizes both the threat and opportunity of space safety and sustainability. We are actively tracking this issue and ensuring that the voice of business stakeholders is represented in the policy-making process. We encourage anyone with questions or concerns to reach out for further explanation of these important trends. Reach out to any of the authors or any member of our team to learn more.

For more information

Find out more about our firm at dlapiper.com or contact:



Matt Botwin
Principal, Regulatory and Government Affairs
Intellectual Property and Technology - Telecom
T +1 212 335 4582
matt.botwin@dlapiper.com



Ben MacWilliams
Principal
T +1 206 839 4865
ben.macwilliams@dlapiper.com



Emily Marshall
Associate
T +1 404 736 7823
emily.marshall@dlapiper.com



Raymond Navarro
Associate
T +1 202 799 4252
raymond.navarro@dlapiper.com