

# Op-ed | Space Safety Concerns Put Economic Growth at Risk

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Vice President Kamala Harris' recent announcement of a U.S. commitment to avoid direct-ascent, anti-satellite missile testing reflected important strategic considerations, but also highlighted the growing economic importance of space. Rapidly growing congestion of the space environment demands heightened Executive **and** Legislative Branch attention to protect the astronauts aboard the International Space Station, billions of dollars of U.S. investment, and the expected growth of the space economy.

Beyond purposely harmful behavior that increases the number of objects in orbit, the number of satellites launched to low Earth orbit (LEO) has increased exponentially. In 2010, there were a mere 997 satellites in orbit, most in distant geostationary orbits. Over a decade later, around 8,000 satellites are circling our planet, most in LEO. Only about 5,000 of those are active.

The increase in satellites reflects the energy and interest of a new generation of private entities leveraging the space domain for entrepreneurial ventures. According to "The Space Report 2021" published by the Space Foundation, the global space economy increased from \$428 billion in 2019 to \$447 billion in 2020. In addition, commercial space activities grew 6.6% to nearly \$357 billion in 2020, representing nearly 80% of the space economy. Because of this entrepreneurial spirit, capital and labor availability, and the government's hands-off approach to business, the U.S. private sector is leading the world in the economic development of space. As this growth accelerates, however, the

consequences of insufficient attention to space safety and sustainability could become problematic. The U.S. government must carefully enable the stability and ground rules that will allow the commercial sector to thrive aside civil and national security space.

Nowhere is this truer than in LEO where key participants from the United States and Europe to Russia and China are moving to take advantage of the utility and growing flexibility of small satellite constellations. Consequently, LEO will soon be overwhelmed with satellite operators striving to coexist in the same space with little to no international ground rules on acceptable behavior, guidelines for coordination, or models to define acceptable traffic density.

To make matters worse, Congress has not fully enabled a lead civil agency to negotiate such matters. This leaves our thriving industry to fend for itself while safety problems and concerns mount. The space industry has filled in the gap by developing a range of impressive, commercially available capabilities for tracking space objects and predicting their trajectories to prevent collisions. Rather than developing a new technical system for space traffic management, our federal space agencies should technically validate the effective commercial capabilities already in the market.

The United States has been working on this problem since 2010, when the Obama administration established an interagency effort to tackle space traffic management; subsequently, in 2018, the Trump administration established Space Policy Directive 3. SPD-3 called on the Department of Commerce to assume the lead role for ensuring the safety and sustainability of the emerging space economy. The department's Office of Space Commerce (OSC) has two critical tasks that need a comprehensive strategy: 1) establishing behavioral ground rules for space traffic management and coordination and 2) engaging with industry and facilitating economic growth in the space sector. While the Biden administration has endorsed these tasks, the department has been slow to focus

on them despite the other Commerce roles that impact the space economy, such as trade promotion, export controls, and managing the nation's weather satellite fleet.

Unfortunately, Congress also has failed to fully endow the Office of Space Commerce with the appropriate legal authorities to accomplish these aims—including on-orbit mission authorization for commercial activities beyond communications and Earth observation—a critical missing piece of the U.S. government requirements under the tenets of the Outer Space Treaty. The office, funded at \$16 million in fiscal year 2022, though with a much larger request for fiscal year 2023, still lacks necessary resources to fulfill its mission. In addition, the administration took a considerable amount of time to appoint a new director and consequently the office has been unable to adjust its vision and direction to account for a swiftly changing commercial and international landscape, including those driven by the Russian invasion of Ukraine. These shortcomings are unacceptable.

The private sector continues to plan, execute, and engage in space activities, and we are at the point where the policy outlined in SPD-3 needs to be fully implemented to ensure everyone's continuing success. The uncertainty around the future state and global management of LEO will soon tip the risk/reward equation negative and the nascent space-based economy will shrink. Congress must recognize the criticality of having a government agency actively engaged in nurturing and protecting our space sector's interests and act now to formally name and properly fund OSC as that agent.

***Dan Dumbacher** is an engineer who developed propulsion systems for crewed space vehicles during his 33-year NASA career. Today, he is the executive director of the American Institute of Aeronautics and Astronautics (AIAA) – the world's largest professional society for aerospace engineers. He holds a bachelor's degree in mechanical engineering from Purdue University and an MBA from the University of Alabama in Huntsville. (Twitter @AIAA\_Dan)*

**Kevin M. O'Connell** is a recognized expert on space commerce, the global space economy, international intelligence, and U.S. national security matters. For almost four decades, he has focused on space commercialization and technological competitiveness and how to advance them in global markets. He served as Director of the Office of Space Commerce (OSC) within the U.S. Department of Commerce (2018–2021), as the principal architect of outreach to U.S. private space companies to facilitate innovation and encourage increased market growth and viability.

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