

# Maintaining the Space Edge

## Strategic Reforms for U.S. Dominance in Low Earth Orbit

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### KEY TAKEAWAYS

- Low Earth orbit (LEO) satellites are central to U.S. and global economic and national security. In addition to their uses in citizens' daily lives, LEO satellites have transformed the modern battlefield, as clearly demonstrated by the war in Ukraine.
- The United States currently maintains a leadership role in LEO, as measured by the number of orbital launches and share of global space economic value. However, in the long term, without sustained investments and proactive policy and regulatory reforms, the United States risks losing its competitive edge in this technology ecosystem to China's expanding LEO ambitions.
- Against the backdrop of rapid commercial sector growth and competition heating up with China, the U.S. space policy and regulatory environment must evolve to both keep pace with and enable space sector growth, all while promoting a secure and sustainable LEO ecosystem.
- The Trump administration must address national space policy fragmentation across dozens of civilian and national security agencies to implement administration priorities for policy and regulation.

### BACKGROUND AND CONTEXT

Since the first satellite was launched in the 1950s, digital infrastructure has gradually extended from Earth to outer space. In recent years, that extension has accelerated, as LEO—orbital regions **1200 miles or less** from Earth—became home to over **12,000 active satellites**; nearly 10,000 of those are U.S.-owned and circling the Earth at speeds of **17,500 miles per hour**. LEO satellite constellations, today primarily operated by the private sector, are rapidly transforming networks and computing, providing one of the most critical and cutting-edge components of modern digital infrastructure. They are an essential dual-use technology and have proven to be crucial force multipliers on the battlefield. In the war in Ukraine, LEO constellations enabled communication in remote and hard-to-access areas, provided crucial intelligence to governments, and were used to disrupt enemy operations and assets. Future conflicts will be defined by combatants' ability to use and deny space-based services for strategic communications; positioning, navigation, and timing; and intelligence, surveillance, and reconnaissance.

Today, the United States is the leading space power by key metrics, including value of the space economy (accounting for government and commercial investments) and sheer number of orbital launches. However, despite leadership in LEO today, in the long term, the United States risks losing its competitive edge to China without investments in and proactive policy and regulation reform around this technology ecosystem.

### LEGISLATIVE OR POLICY IMPLICATIONS

Against the backdrop of rapid U.S. commercial sector growth and competition heating up with China, the space policy and regulatory environment is at a crossroads. The U.S. government should both keep pace with and enable space sector growth, all while promoting a secure and sustainable space ecosystem as LEO becomes more congested. Streamlining alone, however, is insufficient to ensure continued U.S. leadership in space. While the "light touch" approach that the United States has so far taken to space regulation should be maintained, there is increasing support for additional, targeted regulations to ensure that the federal government is authorizing responsible commercial space activities, such as

- providing a safe and predictable operating environment to responsible space companies, including by ensuring that the government invests in civil and commercial space situational awareness to properly track spacecraft;
- accounting for orbital debris and overall congestion of the LEO environment through policies such as reasonable post-mission

disposal rules, while avoiding arbitrary limits on the number of LEO satellites;

- maintaining flexibility and requiring regular reviews to account for rapid technology development, as well as keeping close engagement with industry on the regulation of novel and emerging space activities; and
- providing access to spectrum and addressing spectrum challenges in the increasingly contested LEO environment.

## CHALLENGES AND RISKS

Today, China lags behind the United States' position in LEO in key metrics, including orbital launches (and overall number of satellites) and government and commercial investment. However, with China highly motivated to close the gap, U.S. dominance in LEO today does not guarantee the same tomorrow; indeed, the United States is currently highly reliant on a single launch provider—SpaceX—and the Starlink constellation constitutes a majority of all U.S. satellites.

The evolving launch market is one instructive example of the competitive threat posed by China, and why the United States cannot fall behind. The United States' lead in launch is more vulnerable than it may appear, as its position is heavily dependent on SpaceX's reliable, reusable capabilities. While China has been unable to develop launch systems like those now standard in the United States, this may not be the case for long. Notably, President Xi Jinping has identified these vulnerabilities in China's space infrastructure and is committed to catching up in reusable spacecraft technology. China's plans to launch its own reusable launch vehicle to LEO in 2025 underscore its intent to develop a rival to SpaceX.

In other sectors, including renewable energy infrastructure and electric vehicles, China has previously repeatedly demonstrated the ability of its neo-mercantilist model to attain significant—or, in some cases, dominant—market share in complex technologies within very short timeframes. LEO satellite infrastructure matters to the Chinese Communist Party for several reasons: control of communications, norms shaping, and export of digital authoritarianism. Outside of China, LEO communications constellations could service many other countries, shaping their information flow and presenting an immense opportunity for China's soft-power projection and control of online norms. China's state-backed, quasi-commercial GuoWang constellation provides insight into existing capabilities and future ambitions; it reportedly possesses not only broadband communication payloads, but dual-use capabilities including laser communication, synthetic aperture radar, and optical remote sensing.

## RECOMMENDATIONS

To promote long-term leadership in the LEO ecosystem, the United States should adopt a multifaceted, cohesive policy agenda and adequately staff, fund, and protect critical government space functions that set and implement national priorities. To do so, the Trump administration should do the following:

- Build on the December and August 2025 space executive orders and prioritize streamlining licensing for commercial space activities to reduce barriers to innovation.
- Coordinate U.S. government and industry entities to communicate about and mitigate threats to space systems, including by reinvigorating interagency discussion on classifying space systems as a formal critical infrastructure sector.
- Take a leading role on the international stage, including by mobilizing a like-minded coalition at the 27th World Radiocommunication Conference or linking Development Finance Corporation loans for LEO-focused projects to standards promoting sustainable space ecosystem growth.

## Additional Resources

Full Report: **Maintaining the Space Edge: Strategic Reforms for U.S. Dominance in Low Earth Orbit**

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