

# **Sustained U.S. Leadership in Space**

## **A Proposal for the Modern Era**

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### ***Introduction***

Space is increasingly considered to be a warfighting domain.<sup>1</sup> History shows it can just as readily be a forum for cooperation.<sup>2</sup> Not too long ago, two polarized nations—nuclear-armed and locked in existential opposition—faced the prospect of military confrontation. Both looked to space as the next frontier, racing one another to capitalize on the technological, security, and political possibilities the environment presented. From this competition emerged mutual discovery, an orbital handshake, joint missions and treaties, and finally the International Space Station (ISS)—a manifestation of trust, collaboration, and achievement.<sup>3</sup> Remarkably, the United States and Soviet Union found a shared purpose in space, successfully setting the stage for decades of stability.

Today, the world is again gripped by tensions between leading powers. As in the past, they are gazing skyward. This time, however, these nations are not the only competitors. A vibrant commercial ecosystem has democratized access to the technology necessary to reach and maintain a presence in space, whether for scientific, security, or economic means. As a result, space is increasingly contested, congested, and competitive.<sup>4</sup> Its strategic importance to the U.S. has also never been greater.

To sustain America's preeminence in this rapidly evolving landscape, the U.S. must position itself as the partner of choice for nations looking to advance their military, commercial, and scientific space innovation. To cooperate with established and potential space partners, the U.S. should expand the Artemis Accords, overhaul current space technology export regulations, and lead in diplomacy and policymaking regarding global space issues such as orbital debris and standards of behavior. Furthermore, to navigate relations with near-peer competitors on equal footing, the U.S. should establish formal mechanisms for conflict avoidance and collaboration where it is mutually beneficial. Partnership, diplomacy, and de-escalation will be pivotal to harnessing the potential of the present and safeguarding space as a realm of collective exploration and discovery for future generations.

### ***Collaborate with New and Existing Space Partners***

#### **Artemis Accords: Clearer Mandates, Broader Representation, and Regular Collaboration**

While the U.S. introduction of the Artemis Accords in 2020 was a significant step forward for international cooperation in lunar exploration, many space-faring nations are notably absent. The non-binding, voluntary framework could be enhanced to ensure American leadership in space.<sup>5</sup> The National Aeronautics and Space Administration (NASA) Office of Inspector General offers several tangible proposals for strengthening the Artemis Accords to advance U.S. space interests, including facilitating regular meetings of Artemis Accords nations and establishing working groups with clear mandates and representation from international partner space nations.<sup>6</sup> Creating forums for collaboration will simultaneously advance concrete U.S. objectives such as the planned Artemis III mission to the moon in 2025, and facilitate deeper integration between U.S. and international space agencies more broadly.

#### **ITAR Overhaul: Diversify Export Categorization for Improved Competitiveness**

International Traffic in Arms Regulations (ITAR) governs the export of defense-related technologies and services, including the transfer of space technology. Launch vehicles have long been classified as munitions due

to their connection with missile technology, but commercial satellites were only added to the U.S. Munitions List (USML) by Congress in 1998.<sup>7</sup> As a result, the U.S. State Department reviews the export of most space technology under ITAR.<sup>8</sup> In practice, this means friendly partner nations such as the United Kingdom or France are incentivized to seek alternatives to U.S. companies to avoid ITAR.<sup>9</sup> Some even advertise their programs as “ITAR-Free” in contrast to the U.S. system.<sup>10</sup> In today’s vibrant commercial ecosystem, foreign governments have multiple viable options for space programming technology and services, making it harder for American space companies to compete. One proposal to change this system would be to categorize exports to allied nations differently from other nations to expedite exports to trusted partners. Additionally, NASA should assign export control experts to specific international cooperation programs, to ensure the technology needed can be transferred expeditiously.

### **Diplomacy: Lead by Example to Establish Global Norms of Behavior**

In 2021, Russia launched a direct ascent anti-satellite (ASAT) missile destroying its own satellite and creating dangerous debris in orbit.<sup>11</sup> This action was criticized as irresponsible and highlighted the need for international consensus on tenets of acceptable behavior in space. The United Nations (UN) working group leading this charge has seen its efforts stymied by Russia, making U.S. leadership especially vital.<sup>12</sup> In 2022, the U.S. declared a domestic ban on ASAT weapons testing, galvanizing others, including the European Union, to follow suit.<sup>13</sup> Such leadership by example is both effective and important and should inspire U.S. confidence to go further in establishing orbital “rules of the road.”

### **Legislation: Advancing Technological Leadership via Space Debris Mitigation**

Technological leadership in space is a matter of both safety and sustainability, and the U.S. should continue engaging with governments and private actors to develop best practices and international regulatory standards for responsible behavior. A World Economic Forum industry paper on space debris mitigation promulgates several additional recommendations for governments, which the U.S. would be well served to adopt.<sup>14</sup> The U.S. should continue to promote and advance increased information sharing among operators of spacecraft across all orbital regimes (Low Earth Orbit, Medium Earth Orbit, and Geostationary Earth Orbit).<sup>15</sup> Congress should also incentivize the development of orbital debris mitigation technology, such as through the establishment of a technology prize program created by the ORBITS Act, as well as identify places where legislative action can increase the competitiveness of American companies seeking to work with U.S. partners abroad.<sup>16</sup>

### ***Engage with China, a Near-Peer Space Competitor***

#### **Restart Bilateral Talks**

The People’s Republic of China is currently the leading threat to U.S. interests in space.<sup>17</sup> Both countries are aggressively developing military capabilities to protect and defend space-based equities, with limited channels through which to clarify actions or minimize misunderstanding. The five treaties that currently guide international behavior in space are the result of direct engagement between the U.S. and former Soviet Union, but have not kept pace with technological or geopolitical developments. As the U.S. and China pursue dialogue around “guardrails” for advanced technologies such as Artificial Intelligence (AI), responsible behavior in space should be part of this diplomatic engagement.<sup>18</sup>

There is some indication that China would be receptive to such outreach. The country has expressed interest in preserving space as the “common heritage of mankind” and cites international cooperation as a means of doing so.<sup>19</sup> Between 2015 and 2017, the U.S. and China held at least three publicly recorded space dialogues where civil and security-related space issues were discussed.<sup>20, 21, 22, 23</sup> Co-chaired by the State Department and the China National Space Administration, the talks appeared to be an effective workaround to the Wolf Amendment, which prohibits direct bilateral engagement between NASA and their Chinese counterparts. The U.S. should resume these talks with a focus on shared priorities such as space traffic management, environmental remediation, arms control, and scientific research. As China plans to rapidly expand its presence

in space, including the launch of a national satellite broadband megaconstellation, restarting dialogue will be important to avoid misunderstandings and support debris mitigation efforts.<sup>24</sup>

### **Use Track II Dialogues for Communication, Insight, and Signaling**

The least politically fraught method to reinvigorate near-peer dialogue in space is the use of Track II dialogues and conferences. Track II dialogues, which bring together representatives from academia and the private sector, facilitate nongovernmental channels of communication. These unofficial forums can provide strategic insight into China's interests while signaling U.S. priorities, helping diffuse tension, and providing strategic deterrence.<sup>25</sup>

### **Relax Restrictions Associated with the 2011 Wolf Amendment**

More ambitiously, the U.S. could consider relaxing the Wolf Amendment. The provision has been ineffective in achieving its goal of curbing China's human rights abuses or slowing its space program.<sup>26, 27, 28</sup> While the amendment has not banned U.S.-China space engagement outright, it deters U.S. decision-makers from pursuing any discourse with China on space. Given China's plans to considerably expand its national and commercial presence in space,<sup>29</sup> it is in the U.S. interest to seek avenues to communicate with and gain insight into their opaque space architecture, plans, and ambitions in orbit.<sup>30, 31</sup> Continued disengagement on space issues may incentivize China to establish global coalitions that undermine U.S. leadership in this domain.<sup>32</sup> Relaxation of restrictions on NASA's engagement with China's civil and commercial space entities, meanwhile, could provide the U.S. more flexibility when considering channels of communication to minimize misunderstandings in the shared domain, similar to those established during the Cold War.

### **Conclusion**

The U.S. has a proud history of innovation and achievement in space. From sending the first people to the moon, to exploring the deepest depths of space ever probed by humanity, Americans have consistently defined success in the domain. This superiority that many take for granted is no longer assured. Expanding economic and security partnerships with traditional allies and nascent space powers will be critical for success in the modern era. Facilitating channels of communication with China for de-escalation and even shared discovery will also be critical. Individually, each action may be just one small step. But taken together—to paraphrase a quote that electrified the world—could be a giant leap for humankind in defining the future of space.

*Disclaimer: The views expressed are those of the authors and do not reflect the official guidance or position of the United States Government, Department of Defense, or United States Space Force.*

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