



SPACE PLATFORM PAPER

The importance of U.S. space activities to the modern economy, the American way of life, and our global stature cannot be overstated. U.S. space preeminence – a singular source of national pride and leadership – was established and must be preserved through bold, fast-paced, exciting missions; international partnerships in civil space exploration; an efficient and sustainable commercial industry; essential military capabilities for navigation, surveillance, and communications; and setting and embodying the norms of behavior and operations in space. However, there is still much to be done from a policy and regulatory perspective to address remaining issues that hinder this vision for U.S. space preeminence.

KEY POINTS

MAINTAIN U.S. LEADERSHIP IN SPACE

The United States must continue to be the leader in space featuring our advanced and rapidly growing commercial space economy enabled by key policies, programs, and investment – and through collaboration among government, academia, and industry. Space has historically been a unifying domain and there is strong support in the country for **bold, exciting, and new national space programs with their associated achievements** and resulting national pride on the international stage. The United States must balance coalitions and partnerships with our allies to promote our values, share costs for ambitious missions, and still ensure U.S. spacecraft have the freedom to operate in and navigate through space – key tenets of our civil and national security space strategies.

Maintaining U.S. leadership in space will require **the government to act deliberately** to leverage the innovations of industry and establish international partnerships, while also maintaining robust and stable support for government programs that are adding value to the nation's technological and scientific advancement and strategic security. Robust government support of basic and applied research is imperative to foster new technologies and expand frontiers in science and engineering. In turn, the U.S. government should efficiently transition research discoveries into technologies and capabilities to private industry for commercialization that fuels the American engine of innovation.

A whole-of-government approach, with industry partnership, based on transparent and open dialogue, expectations, and needs is essential to **build upon our rich history in space, create efficiencies across the government, expand into new markets, and facilitate new missions and technologies**. Programs of record, new and current government investments, and the transfer of derived technology to industry needs to be more efficient and agile to react to current adversaries and geopolitical competitors.

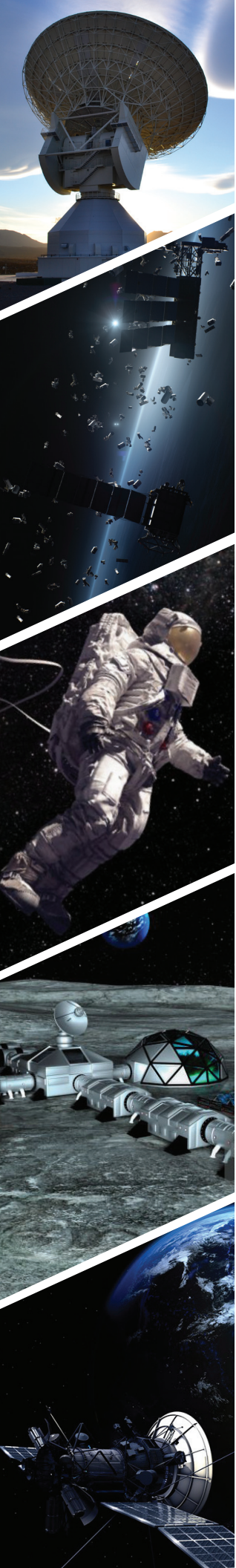
FREEDOM TO EXPLORE SPACE

The **potential for international space conflicts** is real and must be deterred. The United States has invested in and continues to operate assets that are critical to national security and the global economy, but they are vulnerable to attack by belligerent actors. As the space economy grows and international operations increase, geopolitical competition for valuable “real estate” in space, including special orbits, Lagrange points, and locations (not yet validated) on the lunar surface, suggests that there will be competition for multiple frontiers simultaneously. We must set and enforce norms of behavior.

Continued balanced investment in human space exploration, scientific research, and space technology development is essential to increase our understanding of both the Earth and the universe. The creation of new space technologies that enable sustained economic growth and increase value to society are imperative through collaboration between government, industry, and academia. Bold missions inspire. Bold missions attract. Bold missions create intangibles and sustain our desire for progress and innovation. Above all, space

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technology and space missions transcend today's operational needs and engage our workforce. Generations of students to come are attracted to new missions in space. By maintaining a constancy of purpose in human and robotic exploration the United States can continue to attract students into STEM careers. Past and current space programs have inspired many of our generation to retain the intangible effects of our most visible programs in ways that sustain our inimitable spirit of progress.

KEY POLICY ISSUES

- A. **Mission Authorization.** The U.S. government urgently needs a policy that will end regulatory uncertainty and provide open, transparent processes regarding the use of and operation in space by private industry. Providing clarity to a currently fractured regulatory framework will enable companies to fulfill their fiduciary responsibilities to their investors to conduct due diligence in all aspects of the system development as it relates to domestic and international practices, regulations, and law. The United States can set the standards and norms of operations through open dialogue with the private sector that facilitate commercialization of space enabled by transparency in authorization, control, jurisdiction, and supervision.
- B. **Growing a Self-Sustaining Space Ecosystem.** The goal of a space ecosystem that continues to grow based on private capital, without increased or sustained government subsidies, is only feasible when industry commercializes technologies and applications that capture and maintain commercial customers. Commercially viable markets should have both government and commercial customers. Agreements for government utilization should reflect market-driven agreements rather than reliance on standard government acquisition. This principle applies in low Earth orbit (LEO) for industrial research and tourism at commercial orbiting destinations, geosynchronous Earth orbit (GEO) for industrial development of space-based solar power, and lunar surface and cislunar space for the extraction of Helium-3 (3He) for terrestrial use and volatiles for space transportation propellant. Therefore, the U.S. strategy and policy should aim directly at proving, validating, and facilitating the demonstration and industrial scale-up of these applications to position the United States for sustained, long-term economic growth.
- C. **Expanding into Cislunar Space and onto the Lunar Surface.** In today's world, the moon and cislunar space is the ultimate high ground for national security and technological leadership on the world stage. The United States and its geopolitical competitors are prioritizing plans for permanent human and robotic presence on the moon with the goal of identifying critical resources for power, propulsion, and living and working on the lunar surface. This cislunar focus of NASA and our international partners should focus on execution of specific, substantive, exciting missions that demonstrate the presence of and practical usability of these resources in a safe, sustainable way that also sets norms of behavior for extraterrestrial operations.
- D. **Space Navigation.** Civil space situational awareness and space traffic management capabilities are fundamental to safety of operations, attribution of space events, and sustainable, industry-friendly space practices. These practices should be based on shared values of open access for people and markets for peaceful purposes. Several operationally important LEO bands (600-1100 km and 1300-1550 km altitude) are currently susceptible to the Kessler Syndrome (i.e., cascading collisions caused by cluttering of hazardous debris resulting from orbital collisions), which threatens the ability of the U.S. government and commercial industry to operate continuously in those orbits and to launch spacecraft through them. Policies directed at orbital debris mitigation and prevention will increase our security and ensure that there is an orbital sector within which commercial industry can safely operate including prioritization of strategic In-Space Assembly and Manufacturing (ISAM) for large debris removal.
- E. **The Role of Efficient Government Programs.** The ability of the U.S. government-funded space programs to operate in an agile and efficient manner is hampered, in part, by historical, political, and "work distribution" constructs. Current contracting mechanisms and constraints have hampered the government's ability to enable many of private industry's bold, fast-paced, and exciting missions. Policies and associated funding authorization are needed to enable the identification and assignment of missions to public-private partnerships that can be accomplished best by those means. Where these agreements fit in the procurement system should be updated to protect the interests of all parties while being efficiently administered. This would enable the government to prioritize its efforts on activities that serve the national interest but do not have a commercial marketplace or serve a noncommercial public interest.

Thank you for the opportunity to share some considerations from AIAA. Our network of professionals is on standby to offer expert support to further the U.S. interests in aerospace.



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