PRESIDENTIAL TRANSITION: PRIORITY TOPIC MEMO
OCTOBER 2024

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MAKING SPACE VIBRANT AND RESILIENT
THE CRITICAL LINK BETWEEN ECONOMIC AND NATIONAL SECURITY

Catalyzing vibrant and resilient space capabilities will drive significant economic growth, enhance national security, and ensure America's leadership in the global space economy.

The Case for Action

The U.S. commercial space industry is a cornerstone for economic growth, technological innovation, and national security. Currently, the U.S. space economy generates over $211 billion in gross output and employs 360,000 Americans. Deliberate investment in commercial space activities has driven down launch costs, making space accessible to a diverse range of users and sparking innovation. U.S. satellite manufacturing leads the global market and is projected to grow at a Compound Annual Growth Rate of over 13% through 2030. However, this success also brings new actors, technologies, competition, and risks, making the space environment increasingly complex.

The United States' reliance on space-based systems is a double-edged sword. While these systems fuel our economy, security, and lifestyle, they also create vulnerabilities to malicious attacks, natural phenomena, and routine failures. Adversaries like Russia and China have developed advanced counter-space weapons, viewing U.S. assets as vulnerable targets. A resilient approach, leveraging both public and commercial resources, is essential to mitigate these threats and ensure diverse, redundant, and resilient space capabilities. The line between government and commercial capabilities has blurred, with each increasingly dependent on the other.

To maintain leadership in the global space economy and safeguard national security, the incoming administration must focus on enhancing and securing vibrant, resilient space capabilities. This requires public-private cooperation and international collaboration. The actions proposed in this paper provide a strategic roadmap for the administration's first 100 days, emphasizing the intertwined nature of economic and national security.

Key Challenges and Opportunities

Commercial industry has developed and fielded advanced space capabilities, presenting the United States with significant challenges and opportunities. One major challenge is the increasing complexity of the space environment, with new actors, technologies, and competition introducing risks that must be managed. Political and legislative barriers, such as regulatory hurdles and international competition, could

U.S. reliance on space-based systems is a double-edged sword: It fuels our economy and security, but also creates critical vulnerabilities.

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impede progress. Operational challenges include ensuring the security and resilience of space assets against threats like cyber attacks, physical attacks, and natural phenomena.

Despite these challenges, there are substantial opportunities to foster a vibrant and resilient space network. The growing space sector significantly benefits the U.S. economy by creating high-paying jobs and developing advanced capabilities. The American-led ban on Direct Ascent Anti-Satellite Testing in April 2022 exemplifies U.S. leadership in establishing norms of behavior that promote stability in the space environment. This leadership can be extended by declaring more proactive measures to promote responsible space operations, ensuring the sustainability and safety of space activities.

The United States can address these challenges by seizing these opportunities to drive meaningful change and progress in the space sector. Promoting responsible space operations and fostering innovation will not only enhance national security but also stimulate economic expansion, ensuring that the United States remains a leader in the global space economy.

Data-Driven Recommendations

1. COMMIT TO SECURING THE SPACE INDUSTRIAL BASE AND SUPPLY CHAIN

Collaborate with Congress and the Defense Counterintelligence and Security Agency (DCSA) to define and mitigate foreign ownership, control, and investment (FOCI) concerns. This will help ensure the security and integrity of U.S. supply chains, protecting critical space infrastructure from potential vulnerabilities. Incentivize markets to follow through on the Bureau of Industry and Security (BIS) civil supply chain studies, focusing specifically on national security.

2. SPONSOR KEY DOMESTIC SPACE CAPABILITIES

Support space capabilities through research and development grants, tax incentives, and subsidies. Focus on promising technologies such as space launch, communication systems, debris mitigation, and imaging. Special attention should be given to fostering novel space capabilities like In-Space Servicing, Assembly, and Manufacturing (ISAM) and developing space governance designs that promote international transparency and confidence building such as Space Information Sharing Ecosystems.

3. SUPPORT DEVELOPMENT OF THE TRAFFIC COORDINATION SYSTEM FOR SPACE AND THE NATIONAL SPACE PRIORITIES FRAMEWORK

Ensure continued support for the National Oceanic and Atmospheric Administration's (NOAA's) Office of Space Commerce as it deploys its space situational awareness (SSA) data and services program. This pivotal program is crucial for civil and private space operators, supporting spaceflight safety, sustainability, and international coordination. Continued support will help realize the vision of the U.S. National Space Priorities Framework and the three pillars of the National Orbital Debris Mitigation Plan: Debris Mitigation, Tracking and Characterization, and Remediation of Debris.

4. REAFFIRM SUPPORT FOR THE ARTEMIS ACCORDS AND LUNANET

Establish U.S. leadership in lunar infrastructure development by supporting the Artemis Accords and LunaNet. This will position the United States at the forefront of position, navigation, and timing (PNT) and networking, systems, and standards—similar to the role that the Global Positioning System (GPS) and the internet play on Earth.

5. PROMOTE ECONOMIC VIBRANCY, RESILIENCE, AND COLLABORATION IN THE SPACE SECTOR

Recognize that economic and national security are interconnected. Focus on initiatives that enhance economic vibrancy, resilience, deterrence and assurance, safety, and collaboration within the space sector. This includes bolstering the defense industrial base, maintaining strategic advantages in space, and unleashing American enterprise to evolve space-based innovations, infrastructure, and self-sustaining markets.

Implementation Considerations

Implementing these proposed recommendations requires coordination across government, industry, and international partners. This involves integrating expertise, collaboration, funding, infrastructure upgrades, and continuous learning to ensure flexibility and adaptability in space governance. The following timeline and milestones are suggested to guide the process.

FIRST 100 DAYS:

Establish and Strengthen Public-Private Space Collaboration

Create a dedicated Public-Private Space Collaboration Forum that includes representatives from government agencies, commercial space companies, academia, and regulatory bodies. This forum will facilitate direct communication and collaboration, ensuring that the evolving needs of the space sector are addressed comprehensively. Develop quantifiable strategies within this forum to ensure that the commercial space industry actively engages in initiatives to enhance resilience, security, and economic growth. This metrics-informed approach will bridge the gap between commercial space commerce and space policy formulation and implementation, aligning efforts with the evolving needs of the space sector.

Integrate Insights and Place a Priority on Cross-Governmental Planning

Reevaluate existing cross-governmental committees to establish administrative mechanisms to enhance their roles in supporting the public-private collaboration forums. Ensure that these committees are informed by the insights and needs identified through the forum, aligning efforts with the evolving needs of the space sector and coordinating both government and commercial activities effectively.

Support Key Domestic Space Capabilities

The National Science & Technology Council (NSTC) should lead the initiative to establish quantifiable impactful research and development grants, tax incentives, and subsidies for promising space technologies, including launch services, communication systems, debris mitigation, and imaging. This metrics-informed approach will lay the groundwork for long-term U.S. leadership in the global space economy.

FIRST SIX MONTHS:

SSA and Space Environment Suitability Enhancement

Monitor the initial deployment of NOAA's Office of Space Commerce's SSA data and services program. Ensure that it supports civil and private space operators effectively, contributing to spaceflight safety, sustainability, and international coordination, as envisioned in Space Policy Directive-3 and the U.S. Space Priorities Framework. OSC codification of "rules of the road" at this stage will be of tremendous value to the commercial space sector, helping to establish good normative behaviors and laying the foundation for long-term sustainability. Uphold the principles set by the three pillars of the National Orbital Debris Mitigation Plan.

Comprehensive Space Security and Resilience Directive

Issue an executive order that includes measures to secure the space industrial base and supply chain by addressing FOCI concerns. This order should also reinforce the commitment to space security and resilience by protecting critical space assets from intentional interference, promoting space sustainability, and fostering a secure environment for commercial space operations. Collaborate with Congress and DCSA to ensure the security and integrity of U.S. space supply chains. Additionally, establish "Declarative Norms of Space Behavior" to guide responsible space operations and promote international transparency and confidence.

FIRST YEAR:

Enhance Space Administrative Mechanisms and Prioritize Initiatives

The National Space Council should lead the effort to identify and prioritize key initiatives for critical infrastructure upgrades and the development of space capabilities. Focus on initiatives that support the needs of commerce, civil, and military sectors, ensuring that the United States maintains its leadership in space. Establish a National Coordination Office to support the National Space Council in carrying out its administrative tasks, continuously monitoring the development and implementation of space policies. This office should coordinate efforts across government agencies, ensure alignment with national security and economic objectives, and use impact assessment methods for continuous improvement. Coordinate with the NSTC to align research and development efforts with these priorities. Conduct a thorough analysis to determine the most impactful projects and allocate resources to maximize their effectiveness and benefits.

Lunar Infrastructure Leadership

In accordance with the U.S. Cislunar Strategy, reaffirm U.S. leadership in lunar infrastructure development through continued support for the Artemis Accords and LunaNet. This will foster international constructive engagement in space exploration and establish standards and interoperability for cislunar SSA. Establishing a leading role in lunar position, navigation, timing, and networking will ensure that the United States remains at the forefront of space innovation.

ONGOING:

Continuous Monitoring and Regulatory Updates

Establish a framework within the National Coordination Office to continuously monitor the development and use of space systems. This framework should involve collaboration with

industry experts, academia, and international partners to ensure comprehensive oversight. Propose regulatory updates based on the effectiveness of implemented measures, ensuring that regulations remain adaptive to evolving technologies and threats. This ongoing process will support the priorities identified by the National Security Council and the NSTC, ensuring alignment with national security and economic objectives.

Promote Space Sustainability and Innovation

Promote responsible space operations and sustainability, ensuring that space activities remain safe, stable, and conducive to economic growth. This effort should include fostering innovation and maintaining the vibrancy of the space sector through proactive measures and international collaboration. Establish a Minimum Viable Information set within a Space Information Sharing Ecosystem to improve international space traffic coordination and governance of normative behaviors that preserve the space environment for sustainability and spaceflight safety. Support the National Space Council's legislative proposal for U.S. Novel Space Activities Authorization and SSA.

Foster Strong Relationships and Continuous Learning

Maintain strong relationships with stakeholders, ensuring that resources for continuous learning are available to government and commercial entities. Regularly assess the effectiveness of implemented measures, adjusting as necessary to adapt to the evolving space environment. Establish a repeatable space policy impact assessment methodology to inform this continuous improvement lifecycle.

MITRE Resources and Support

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