National Security And The Commercial Space Sector: Part 1

By **Jeff Chiow and Skip Smith** (May 30, 2024)

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The U.S. Department of Defense and its newest service branch, the U.S. Space Force, have published their strategies to integrate commercial space companies' innovative technologies and capabilities into national security plans, including through hybrid government, commercial and allied space architectures.

The DOD published its "Commercial Space Integration Strategy" on April 2.

A week later, the U.S. Space Force released its complementary "Commercial Space Strategy: Accelerating the Purposeful Pursuit of Hybrid Space Architectures."

Beyond the strategic guidance they offer, these documents confirm that space is critically important to U.S. national and economic security and that a robust commercial space sector is essential to both.

Part one of this two-part article discusses the rise of the commercial space sector and the DOD's intentions to leverage commercial innovation and production capabilities. Part two will detail the Space Force's implementing strategy.

We highlight the Space Force's so-called demand signal, which communicates its prioritized needs to industry, and elaborate on some of the legal, regulatory, and practical barriers the DOD must address to meet its strategic objective of leveraging commercial space innovations in this era of competition sometimes referred to as Space Race 2.0.

The need for a more focused approach to the integration of national security space endeavors with commercial space endeavors has evolved over many years, but has accelerated in the last decade.

The potential for integration has been fueled by significant strides in the commercial space industry enabled by the miniaturization of components, greatly reduced launch costs, enhanced developments in artificial intelligence, additive manufacturing, robotics, propulsion, energy and other technologies.

Until recently, the government tightly controlled the process of identifying military needs, and developing and deploying bespoke space capabilities. By the time large, costly satellites were deployed, however, their technology could be as much as 10 years old. The innovation cycle was long, and the implementation process longer.

As anti-satellite capabilities matured, exquisite and expensive satellites in stable geostationary orbits became targets for any adversary interested in disrupting the space architecture upon which many military and civilian technologies rely.

In 2019, the Space Development Agency, now part of the Space Force, set out to establish the Proliferated Warfighter Space Architecture, a resilient network of hundreds of satellites

in low Earth orbit connected to dozens of satellites in other orbits to mitigate the risk of a single point failure.[1]

The Space Force Strategy says that the "legacy space enterprise believed it could best manage risk by the government owning and operating most of the U.S. military's space capabilities. [T]hat mindset is no longer valid."

The need for commercial integration has been prompted by increasing threats to U.S. and allied space assets posed by China and Russia. Those competing space powers have developed tools and weapons that can disrupt or destroy U.S. and allied space systems in any orbit.

The ecosystem of commercial companies developing and advancing commercial space technologies has flourished. Indeed, the Space Force strategy says, we are experiencing "unprecedented innovation emerging in commercial and allied space systems in the past decade." We did not, however, get to this point in one giant leap.

Over the past 20 years, NASA helped pave the way by seeking to buy rather than build, investing in the development of commercial capabilities through Space Act agreements and other cooperative technology investments to help stimulate commercial activity in space.

In the last decade the DOD, U.S. Air Force and other services have used their other transaction authority for similar advancements. This public-private partnership has fostered substantial growth in civil, national security and commercial space.

Ultimately, commercial space companies' success in delivering launch services, space transport, Earth imaging and telecommunications attracted more investment in the sector by nongovernmental customers looking to access lower-cost, space-based services.

Today, commercial companies offer solutions with greater agility and speed than was possible when the government was the only customer.

The DOD and Space Force strategy documents speak not just to the commercial space industry, but also provide internal guidance for the Space Force and other military services working toward eliminating structural, procedural and cultural barriers to collaborating with the commercial sector.

The Space Force strategy says the success of that mission hinges on adapting the agency's culture, where possible, to buy-and-exploit rather than build.

This approach is consistent with U.S. procurement law and regulation dating back three decades to the 1994 Federal Acquisition Streamlining Act.[2] The Streamlining Act requires every federal agency, including the DOD, to define their requirements and conduct procurements by using commercial services and supplies "to the maximum extent practicable."

DOD's Commercial Space Integration Strategy

The DOD strategy acknowledges there is risk in commercial space integration, but notes there is also risk in "failing to capitalize on the commercial sector's technological innovation and speed." The commercial sector, the DOD expects, will bear a significant portion of the investment risk and responsibility, and will be guided by commercial market incentives to control costs and optimize returns.

The DOD strategy discusses four foundational principles and four key priorities.

Foundational Principles

The DOD's first foundational principle is to seek balance between government and commercial solutions within each mission area, e.g., space domain awareness, satellite communications, Earth observation, etc. The goal is to avoid overreliance on any single provider or solution.

The second foundational principle is interoperability, using military standards and procedures without stifling commercial innovation, speed or scale, and adopting commercial standards and interfaces wherever appropriate going forward.

The DOD's third principle is resilience, which the strategy says will be enhanced by increasing the number of commercial providers, diversifying supply chains and expanding the solutions available to the DOD. The DOD expects that commercial solutions will themselves be resilient, particularly against cyber threats.

The DOD's fourth principle, responsible conduct, is its commitment to observe international norms, obey the agency's 2021 memorandum on the tenets of responsible behavior in space and be ethical in its conduct with the commercial sector.[3]

Key Priorities

Priority 1: Ensure access to commercial solutions across the spectrum of conflict.

The DOD wants to be able to surge commercial capacity to meet a range of potential military needs. It proposes to sign contracts and other agreements in advance of need to ensure access to commercial solutions.

The DOD strategy specifically mentions the cyber, data and supply chain security requirements that commercial entities need to meet in order to work with the DOD. In some scenarios, contracts will require commercial providers to prioritize DOD requirements and needs over commercial clients.

Priority 2: Achieve integration prior to crisis.

A U.S. Marine might summarize this priority as "Train like we fight." The DOD intends to integrate solutions during peacetime in planning and training activities, and in day-to-day operations. With the intelligence community, allies and partners, the DOD will integrate commercial solutions into shared architectures. This will involve commercial solutions in war games, training and tabletop exercises.

Through this interchange, the DOD and commercial entities each will better understand the other's interests, intentions and solutions, and the DOD will facilitate information sharing and assistance in cyber, data, and supply chain risk mitigation.

Priority 3: Establish the security conditions to integrate commercial solutions.

The DOD's third priority is perhaps its most newsworthy. The DOD strategy says it will promote a safe and secure space domain and, "as appropriate, mitigate risks to commercial space actors inherent in supporting national security space operations." This risk mitigation

is likely the most important issue for commercial space companies engaging in national security operations and for the lawyers representing them.

The DOD says it may use military force to protect and defend commercial assets. The agency then explains how it will use three lines of effort — norms and standards, threat information sharing, and financial protection mechanisms — to promote the security of commercial solutions.

Regarding norms and standards, The DOD will promote internationally agreed norms and standards using its own tenets of responsible behavior in space as a baseline, and support efforts by the U.S. Department of State to develop best practices, standards and norms of behavior.

Timely threat information sharing, the DOD strategy says, is "foundational to successful integration of commercial space solutions." The DOD plans to share space domain awareness and cybersecurity threat information at multiple classification levels.

The DOD also commits to mitigate barriers to sharing, such as overclassification and clearance processes, and to create scalable procedures for unclassified communications with the commercial space sector.

Financial protection facilitates both financing and operations, so it is of crucial importance to commercial space companies. The DOD strategy reviews various financial protection tools, defined in Annex A to the strategy. These include:

- Commercial insurance, which typically excludes war-risk coverage;
- Commercial war-risk insurance, which requires a supplemental clause generally limited in scope;
- U.S. government-provided insurance, which is not yet statutorily available for space as it is for the air and maritime domains; and
- Indemnification.

The importance of financial protection is apparent as this is the only annex to the DOD strategy.

U.S. government-provided insurance would go a long way toward mitigating risks incurred by commercial space companies that are integrated into national security functions.

While indemnification under Public Law 85-804 is theoretically available, to qualify for coverage, damage must be caused by "unusually hazardous or nuclear risks." Further, coverage is approved only on a case-by-case basis. There is no blanket coverage under P.L. 85-804, and this indemnification has not yet been extended to the space industry

except for space launch activities.

Priority 4: Support the development of new commercial space solutions for use by the joint force.

In its strategy, the agency commits to using the full range of available financial, contractual and policy tools to (1) rapidly field and scale commercial technology, (2) attract private investment and commercial lenders, (3) assist in clearing regulatory hurdles where national security imperatives are present, and (4) deliver commercial solutions to the Warfighter network at speed.

The DOD says it will leverage its technical expertise, and research and development efforts, while working "to protect the intellectual property of integrated commercial solutions."

Conclusion

The DOD strategy acknowledges the great technological and productive capacity of commercial space companies, and proclaims the DOD's desire to integrate those capabilities in service of national defense. Yet even those companies whose businesses are fully dedicated to serving the DOD and other federal customers struggle with the complexities and potential compliance risks of government contracting, including the restrictions on the export of space technologies, and the limitations on foreign ownership, control or influence over companies and their intellectual property deemed critical to national security.

Some commercial companies go to great lengths to avoid government business. At the same time, the list of successful commercial space companies with no government business is short. In response to these dynamics, the DOD published its strategy to recalibrate thinking within the DOD about how to integrate and leverage commercial capabilities.

The strategy also makes commitments to industry about how the DOD will seek to remove barriers and otherwise support the growth, development and integration of commercial space companies in national defense.

The DOD has concluded that it really has no choice: The risks of failing to incorporate commercial space capabilities to support national security outweigh the risks inherent in the effort. The devil, as always, will be in the details.

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[1]https://www.sda.mil/the-national-defense-space-architecture-ndsa-an-explainer/; see also https://www.sda.mil/SCADA-layered-network-of-military-satellites-now-known-as-

proliferated-warfighter-space-architecture/.

[2] Pub. L. 103-355 (codified as amended at 10 U.S.C. § 3453; 41 U.S.C. 3307)

[3] https://media.defense.gov/2021/Jul/23/2002809598/-1/-1/0/TENETS-OF-RESPONSIBLE-BEHAVIOR-IN-SPACE.PDF.