



ISSUE:

Increasingly, national security space leaders recognize the need and value of incorporating new space smallsat capabilities into future architectures. Unfortunately, the COVID-19 pandemic is disrupting the commercial supplier, customer, and investor markets putting these future architecture visions at risk. To counter potential loss of a critical US industry, the US National Security Space Community should accelerate efforts to engage the US new space industry as a strong and robust customer.

DISCUSSION:

U.S. Government and commercial space capabilities are vital to our national and economic security. These capabilities are increasingly threatened militarily by potential adversaries and commercially by foreign government-backed competition. The COVID-19 crisis is creating new, profound market challenges, potentially driving US new space companies into bankruptcy or into the hands of predatory foreign government backed investors. To preserve this vital component of America's innovation base, the United States must:

1. Protect critical technology and intellectual property, especially in the hyper-competitive space domain; and
2. Accelerate investment to thwart adversarial capital and efforts by great power rivals to capture critical space technology; and
3. Drive new space products and services into operational use.

In keeping with these objectives, the U.S. Government should accelerate its nascent plans to combine commercial new space smallsat capabilities with traditional government systems in a new "Hybrid Space Architecture." The Hybrid Space Architecture integrates US Government, commercial, and allied satellites, both large and small, in diverse orbits.

This vision, anticipated in the most recent Space Force Architecture OV-1, improves space resilience and deterrence and better serves the tactical warfighter with low latency, high bandwidth communications and low latency Intelligence, Surveillance and Reconnaissance (ISR) capabilities.

Modern smallsats can be developed in months rather than decades, and therefore allow for more rapid technology insertion and the opportunity to quickly respond to new national security space needs. Also, the Hybrid Space Architecture leverages the private investment currently applied to the new space industry (some \$25.7B over the last decade), resulting in lower costs for U.S. taxpayers.

The US Government should accelerate development of commercial/government integrating capabilities such as information exchange frameworks, automated “tip and cue,” and data fusion systems while simultaneously ramping up acquisition of commercial new space products and services.

Implementing the recommendations below will not only enhance national security, but will also protect thousands of US jobs and a segment of the economy projected to produce a trillion dollars of future growth.

RECOMMENDATION:

- **\$150M Air Force Research Lab Space Vehicles Directorate Accelerate development of the Hybrid Space Architecture**

These funds provide critical technology infrastructure to support the Hybrid Space Architecture. Funds would be executed by the Air Force Research Lab Space Vehicles Directorate in cooperation with SMC, SpaceRCO, SDA, Space Force SSDP, NRO, and other space agencies. Critical efforts include: develop secure multi-path communications across government and commercial assets in space and on the ground; develop automated “tip and cue” capabilities across government and commercial space assets (both large and small); develop affordable technologies that improve smallsat resilience; leverage commercial smallsat data, including EO, SAR, HSI, and RF Geolocation, for military exercises and operations; leverage the U.S. commercial smallsat industry to develop and launch dedicated smallsats that fill tactical military gaps and increase resiliency.

- **\$125M Military Intelligence Program (MIP) NRO Commercial Systems Program Office**

Funds would support DoD requirements for shareable commercial smallsat remote sensing data including EO, SAR, HSI, RF Geolocation, and other data types.

- **\$40M MIP NGA Source**
Funds would support DoD requirements for shareable commercial analytic products.
- **\$500M new space products and services**
Further engage the new space smallsat ecosystem with advanced low cost components and payloads; small responsive launch services; commercial space domain awareness; special communications; advanced materials; commercial smallsats in military significant orbits; hybrid satellite control network; in space smallsat transport services; in space robotics and servicing; commercial data analytics, and other investments. Funds should be executed within weeks if possible, using new rapid acquisition approaches.
- **Request appropriation for National Security Innovation Capital (NSIC)**
Authorized in the FY19 National Defense Authorization Act, NSIC incentivizes private co-investment in early stage technologies deemed critical to national security and defense. NSIC is an effective tool to seed early stage technology of interest to DoD, and a countermeasure to thwart predatory foreign investments and acquisitions.