

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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A TRANSFORMATIONAL NATIONAL SECURITY SPACE LAUNCH STRATEGY FOR
ONBOARDING NEW COMMERCIAL LAUNCH SYSTEMS

Abstract

Boosted by private and Government individual investments and public-private partnerships, the commercial space market has grown considerably. Commercial space companies are pushing the envelope by developing space capabilities that could potentially add flexibility, resiliency, and reduction in costs to United States (U.S.) space programs. The Government invested in launch technology and fostered the creation of this industry; now, investments from private entities supplemented by Government space and launch programs are driving rapid innovation and speedy delivery of space assets. The rapidly growing U.S. commercial launch market led to a record of 100+ orbital launches in 2023 but also resulted in a string of commercial launch mishaps in the past two years. At the same time, the space architecture is now including and accommodating a constellation of satellites that work as a system, thus providing redundancy, resiliency, and global coverage. The spectrum of space architectures from single high-valued satellites to resilient constellations is required to enable a range of capabilities with varying risk postures. The USG requires low risk for irreplaceable multibillion-dollar non-redundant satellites but can accommodate more risk for mesh-like resilient satellite networks. Despite the string of failures by new commercial launch players, this new market offers a perfect opportunity to enable National Security Space Launch (NSSL) missions that can be more risk tolerant. A transformative dual-lane acquisition strategy was developed by the Space Systems Command, Assured Access to Space to provide the ability to onboard new commercial launch systems annually, provide the capabilities for higher energy missions, accommodate multi-manifested missions, incorporate new orbits, increase the number of launch systems, increase the number of launch sites and their geographic location, and enable rapid payload integration; all while supporting an anticipated launch tempo increase. Lane 1 fosters the on-ramping of new and emerging launch systems that are compatible with more risk tolerant missions, while it also provides annual opportunities so systems in development can on-ramp when ready. Lane 2 will launch high value assets and leverage full mission assurance principles. This paper discusses the Lane 1 Commercial framework that includes early technical insight activities, a revamped space flightworthiness certification approach, which was built on

the foundation that led to the success achieved by the NSSL program over the span of nearly 20 years, and a tiered-mission assurance that allows for throttling efforts commensurate to acceptable risk posture.