

Aligning with the Space Enterprise Vision

Overcoming the Threat to Space Systems

GPS satellites help target enemies while minimizing collateral damage. They help troops navigate and avoid fratricide. Their timing signal helps synchronize cellular networks, gas pumps, and cash machines, stabilizing our economy. Such a space-based capability is eyed by countries like China as an inviting—and highly vulnerable—target. Air Force Space Command (AFSPC) and the National Reconnaissance Office (NRO) have developed a Space Enterprise Vision that aims to ensure an affordable, resilient space architecture that can overcome threats and protect our edge in space-based capabilities.

A Case for Action

The United States and our allies remain far more dependent on space for military and economic success than our likely adversaries. We have yet to find alternatives to space that enable sufficient speed, accuracy, efficiency, and discretion in warfighting. Potential adversaries have noticed, and are developing capabilities intended to deny our use of space.

Almost 20 years ago, Chinese strategists began writing about targeting U.S. space assets as a “tempting and most irresistible choice.” In 2007, China successfully tested an anti-satellite (ASAT) missile. Since then, their arsenals have been developing more quickly, deeply, and in a more diversified way than we anticipated.

Responding to this new strategic environment, the DoD and the Director of National Intelligence (DNI) released the first-ever National Security Space Strategy in 2011. But the strategy stopped short of detailing the means to address the threat. It took another Chinese ASAT test in 2012 for the DoD to work through the grieving process—denial, anger, bargaining, depression—to accept that our space systems are at risk and that funding plans must change.

But accepting that change is needed does not mean the DoD and DNI have reached consensus on how

to respond. For instance, evolutionary changes in our procurements that may be easier to make than revolutionary changes are not sufficient to outpace the threat.

“The U.S. has a cohesive strategy to defeat the challenge from potential adversaries. It is essential that defense officials move faster to implement the strategy.”

—GENERAL JOHN E. HYTEN, USAF COMMANDER,
UNITED STATES STRATEGIC COMMAND, SEPTEMBER 2016

Understanding the Problem

Since 2015, the AFSPC and the NRO have been developing the “Space Enterprise Vision” (SEV). This shared vision provides the missing “means” to the National Security Space Strategy.

The vision no longer views space as a set of stove-piped activities. Instead, it treats space as an enterprise where high-value assets are defended as they are in other domains; where ground, space, and user segments must fight together; where we must proliferate and distribute space segments to attain resilience; and where military and intelligence space

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forces integrate assets and operations. Leadership at the U.S. Strategic Command, AFSPC, NRO, and the Space Security and Defense Program support the SEV. They are committed to act with urgency.

Defeating the vast array of threats requires nearly every aspect of the enterprise to change within ten years. Satellite control systems, transport layers, transmit/receive antennas, satellites, and user equipment must be reconceived, redesigned, prototyped, and fielded affordably to enable a resilient enterprise. And this must be done on timelines and at cost that apply the tenets of the “should schedule” and “should cost” acquisition movements that the Pentagon has developed to address the speed and expense of its acquisition work.

Challenges to protecting our space-based capabilities can be overcome through changes to defense acquisitions approaches.

The first is determining the cost. Adding defenses will cost more and requirements discipline will be critical. However, initial cost estimates for adding resilience were unrealistically high. Air Force Space Command will develop more realistic estimates to support this year’s budgeting and programming decision cycle.

The second will be gaining Joint acceptance for the SEV’s approach to validating warfighter-essential requirements. SEV uses a novel approach to understanding and delivering those requirements based on identifying the needs of each Service’s basic warfighting and sustainment elements and then determining how they will be employed during operations.

The third will be the Pentagon’s holding acquisition program managers accountable for their actions, but not making decisions for them. Further, the Air

Force Space and Missile Systems Center will need to realign processes and reorganize to agilely procure all the elements of this vision.

Areas of Opportunity for New Agency Leaders

While Pentagon staffs continue to study and debate implementation, our adversaries are developing, testing, and fielding highly capable ASAT systems. To ensure an affordable, resilient space architecture that can overcome emerging threats, new defense and intelligence leaders should consider such options as:

- Requesting briefings within the first 100 days on current Space National Intelligence Estimates and the AFSPC/NRO Shared Space Enterprise Vision and Strategy.
- Streamlining space authorities to ensure that requirements, resourcing, acquisition, and operational decisions can be made on a timeline that outpaces the growing threat.
- Guiding all future DoD and DNI space architectures, requirements, budgeting, prototyping, procurement, and planning decisions using a total enterprise perspective and the space resilience characteristics—protection, disaggregation, distribution, proliferation, diversification, and deception.
- Redirecting actions not already aligned with the future vision and strategy toward implementation of a resilient, affordable space enterprise that outpaces the threat.

For further ideas about applying the guidance in this paper to your agency’s particular needs, contact federaltransition@mitre.org.