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The Planetary Frontier:

Assessing Conditions for a Space Force

FEDERAL ISSUE BRIEF

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THE BIG ISSUE:

The past several months have been dominated by discussions of the practicality and political viability of a dedicated, space-centered combatant command and a Space Force as a separate standalone Service / subsidiary entity within the Air Force.

Included in these conversations is the 'standing up' of a warfighting Command (USSPACECOM) and a space-dedicated acquisition organization, the Space Development Agency (SDA). The pathways for implementation create distinct challenges: While crafting a separate service requires Congressional approval, standing up entities akin to USSPACECOM and the SDA is within the purview of the Department of Defense (DoD). Indeed, the DoD is already on pace to meet the timing goals of both USSPACECOM and SDA.

It appears the administration has focused its near-term goal with Congress to establish Space Force as a part of the Air Force on the model of the Marine Corps, albeit with a reduced overhead footprint.¹ Still, given the rejection of a 'Space Corps' by the 115th Congress, the political future of this command – and the potential future implementation of a full Space Force – remains an important discussion.²

PLAYERS AND POLICIES TO KNOW:

U.S. Space Command (USSPACECOM). USSPACECOM was a unified combatant command that existed to execute "support, enhancement, application, and control" via "joint space operations" between 1985 and 2002. USSPACECOM was also responsible for "planning and executing ballistic missile defense of North America operations" in the "operational medium of space." It was disbanded to resource the standup of U.S. Northern Command (USNORTHCOM) and its missions were transferred to U.S. Strategic Command (USSTRATCOM).

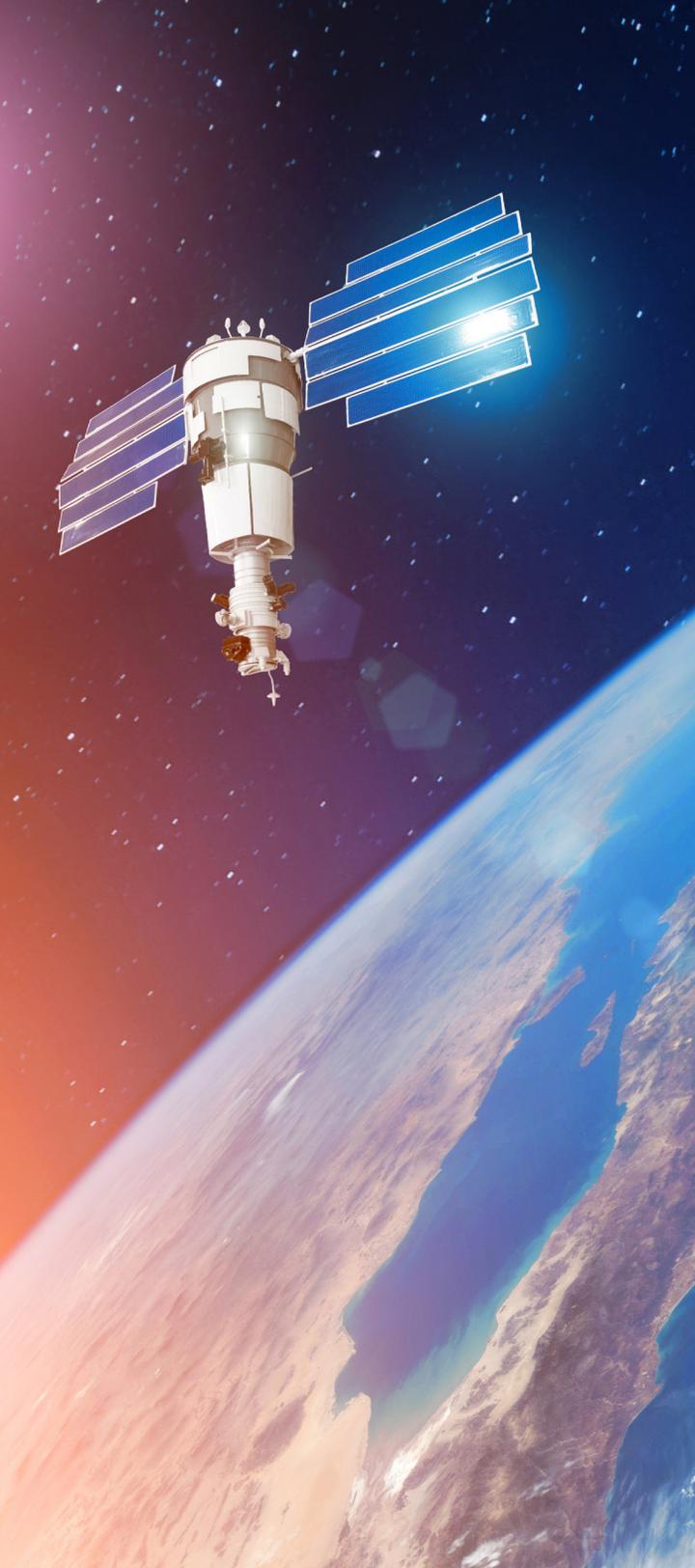
U.S. Army Space and Missile Defense Command / Army Forces Strategic Command (USASMDC / ARSTRAT). USASMDC/ARSTRAT conducts space and missile defense operations and provides planning, integration, control, and coordination of Army forces and capabilities in support of USSTRATCOM missions. It also serves as the Army force modernization proponent for space, high altitude, and global missile defense and the Army operational integrator for global missile defense. USSTRATCOM conducts mission-related research and development in support of Army Title 10 responsibilities.¹¹

Air Force Space Command (AFSPC), U.S. Air Force. AFSPC provides "resilient, defendable and affordable Space capabilities."¹² AFSPC Space and Missile

Systems Center designs, acquires and sustains space systems while the 14th Air Force organizes, equips and controls the employment of space forces to provide strategic missile warning, nuclear command, control and communication, position, navigation and timing, space situational awareness, satellite operations, and space launch and range operations.¹³

Space and Naval Warfare Systems Command (SPAWAR), U.S. Navy. The mission of SPAWAR is to "develop, deliver, and sustain advanced warfighter capabilities" for U.S. warfighters, with a particular focus on "research, engineering, and acquisition" of the hardware and software solutions required for maintaining connected international forces. SPAWAR works in several space-related capacities, including cyberspace functions, enterprise systems engineering, and procuring/managing "narrowband communication satellites" for space-specific systems.

Space Development Agency (SDA), U.S. Space Force [proposed]. The SDA is a proposed entity that would operate within several formulations of a U.S. Space Force under the control of a Secretary of the Space Force. While other entities would share some responsibilities in procurement, organization, and distribution of resources, SDA would be primarily tasked with taking over next-generation space programs and "[transforming] how the military acquires space technologies."¹⁴



WHY THAT MATTERS:

Over the past few years, America's adversaries have expanded space-based military capabilities and developed threats to U.S. space systems, encroaching on U.S. dominance in this frontier.

The space domain presents opportunities for asymmetric non-state actor attacks, and the United States' commercial and government space infrastructure is especially susceptible to the growing array of offensive space superiority threats and cyber threat vectors.³ As the Trump administration outlined in "President Donald J. Trump is Unveiling an America First National Space Strategy," the U.S. will "accelerate the transformation of our space architecture to enhance resiliency, defenses, and our ability to reconstitute impaired capabilities" – a prescient commitment given early indicators of vulnerabilities in international GPS functions.^{4,5}

To implement either a new Service or Corps-level entity, some predict significant increases in costs and personnel, a multi-billion dollar budgetary investment, and an injection of leading technical personnel – this when U.S. armed forces struggle with personnel issues for manning similar technical functions.⁶ These are not new points of discussion: A report produced by the Rumsfeld Commission in 2001 ("Report of the Commission to Assess United States National Security Space Management and Organization") addressed a number of potential roadblocks, stating that "...leaders in the space industry are unanimous in identifying recruiting and retention of qualified people as their number one problem."⁷ However, recent estimates show the administration's approach to the Space Force will involve much lower investment requirements. Likely trending closer to hundreds of millions of dollars rather than billions, this recalibrated expenditure will be a central point in future discussions.⁸

So as the U.S. enters a period of increasingly difficult financial, organizational, and human capital management within its national security space domain, its adversaries are ramping up their ability to target our largest space vulnerabilities. Manifest in the operationalization of Russian and Chinese anti-satellite (ASAT) and counter-space programs as well as

past attempts at electronic manipulation of satellite assets, these threats plus the elevation of space-centric operations under the Trump administration point to opportunities for comprehensive restructuring in the U.S. space defense apparatus.^{9,10}

THE STATUS QUO IS OBSOLETE

Numerous credible reports have pointed out that the United States' military competitive advantage in space is under threat – Glenn Gaffney, former head of the CIA's Science and Technology Directorate has described the United States' space capabilities as "atrophied."¹⁵

And while the details are contentious – numerous White House and senior Pentagon officials have come out in favor of a full, self-sufficient, budget-equipped branch to advance the military's burgeoning space needs while others have proposed more modest approaches – many of the conclusions are similar.^{16,17} Space features prominently in most future combat scenarios, and the current structure of delivering capabilities has not yet shown an ability to deliver victory over our adversaries.

WHAT'S WORKING:

All signs point to excellent mission-level readiness among the existing U.S. space units – our baseline is above those of America's key foes and rivals.¹⁸ According to senior Defense and civilian leaders, lawmakers, and independent analysts, the main shortcoming is not technical or intellectual – it is a matter of proper assembly.

- **The U.S. is a global leader in technological research and development (R&D) for space-related weapons and accompanying technology, including leading IT for earth- and space-based applications, missile defense and adjacent technology, and a number of key software applications including those used in GPS tools.**¹⁹ As such, the elements contributing to these technologies can be used to accelerate innovation and development under a streamlined organizational structure.

- **Gaps in military readiness are amenable to remediation—a testament to the legacy of past maintenance efforts.** Because of careful stewardship in developing space capabilities, the multi-Service landscape of warfighters, technological assets, and existing organizational fragments are in manageable states. This increases the likelihood of successful integration.
- **A number of pilot-style programs have adequately probed and identified opportunities for the U.S. military to build out its space readiness.** Between the efforts in USSPACECOM, the isolated pilot programs testing features like ballistic technology and the X-37B program across Services in the military, and exploratory briefs and reports, the military is well-positioned to transition to a centralized space-based national security apparatus.²⁰

WHAT ISN'T:

- **The U.S. is probably not positioned to produce, train, and maintain the level and quantity of space-specific professionals needed to maintain an advantage over our adversaries.** Expert consensus points to the need for a larger, well-trained, and professionally motivated cadre of military personnel with space-specific expertise. With branches currently offering competing visions of space-native service and a lack of a

reliable career pathway that rewards space warfighting and acquisition professionals, this challenge will likely grow over time unless addressed.

- **U.S. space systems provide effective capability but are made vulnerable by high acquisition-related expenses.** A determined adversary currently has the ability to significantly undermine space 'nodes' (e.g., satellites). The DoD must move to resilient space 'architectures' in which the mission survives in the event of node removal or negation. This will likely require conceptualizing resilient space systems as including ground and on-orbit spares, the ability to rapidly reconstitute, and increasing the pace and affordability of systems development.^{21 22}
- **Acquisition and procurement for space-related operations in the DoD and the Intelligence Community (IC) are harmfully disparate and disjointed.** There is no single pipeline for developing, acquiring, and implementing the various components of necessary space security. According to Todd Harrison of the Center for Strategic and International Studies, "This lack of centralized leadership leads to slow decision making, disunity of effort in building new space capabilities, and a lack of accountability when space programs go over budget or fall far behind schedule."²³



THE BOTTOM LINE:

The future of America's national security posture in space is being decided precisely in this moment, and the contention is palpable – learning from past efforts will hold the key for steering clear of failure while simultaneously propelling the U.S. past its adversaries.

ACTION ITEMS:

- **Seize the current opportunity presented by national visibility of the space mission and reviews of the broader space enterprise.** The Rumsfeld Commission Report, numerous National Security Strategy reports, countless third-party analyses, and other expert analyses have built a robust platform from which to launch a Space Force or comparable organization. These lessons should be utilized to their fullest potential.
- **Prioritize the human capital / personnel component of space readiness.** Whichever form the expansion of U.S. space-based military capabilities takes, it will undoubtedly center on an adequate, space-ready workforce. As with cybersecurity and other digital warfare specialties, a highly technical space workforce will be subject to talent constraints, private sector competition, and other factors that affect defense organizations' ability to accrue individuals with the appropriate skills. Preemptively educating, training, and recruiting these individuals can allow a space-focused entity to avoid costly shortages.
- **Change current acquisition policies with impact on what is purchased as well as how it is purchased.** Build resilient mission constellations that can endure losses and still perform. Use modern automation to decrease costly, time-consuming reviews and decisions and build shorter, more affordable life systems.

RISK OF INACTION:

America's adversaries are expanding their technological and organizational space prowess. The U.S. edge in overall space capability is undermined by the disorganization of existing assets; inaction risks range as high as the loss of our national security advantage in space and the subsequent loss of land, sea, and air advantage.

WORKING WITH LEIDOS:

Now is the time to pull the best ideas, practices, and processes from industry and the public sector to push for shorter timelines and acceptable risks. This will require combining the long, rich history of our nation's military with the best systems across government, the private sector, and academia to meet a truly unique challenge with a truly unique Service.

"Threats in space are evolving at the same break-neck speed as other domains, and we cannot risk losing our technological edge," said Tim Coffin, Retired Army Brigadier General and Consultant at Leidos. "This is a sophisticated, complicated, and imperative challenge – decision makers must evaluate capabilities, costs, and risks to ensure the U.S. doesn't lose its preeminence in space. It's timely acquisition, integration of Agile DevOps and other technology with critical decision making, and an integrated, enterprise approach. Knowing where to align talent and where to take calculated risks, and understanding how to harness and apply machine learning and AI in a meaningful way so we're empowering the DoD and the men and women operating in this very complex, multidimensional environment."



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