Opportunity Realized

Review of "Ten Propositions Regarding Space Power: The Dawn of a Space Force"

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"A space service? Someday . . . but not in my career." So thought this writer as a young lieutenant some 20-plus years ago. Yet only a few years later, Lieutenant Colonel Mark E. Harter, USAF, weaved together an Air War College thesis from the thoughts of almost 100 senior space professionals and 50 various writings to formulate "Ten Propositions Regarding Space Power: The Dawn of a Space Force."

Harter, now retired, explained in a recent conversation that his thesis-turned-article was the career space professional's answer to Phillip Meilinger's 1995 "10 Propositions Regarding Air Power."[1] There are fleeting similarities, as tenets of position, and command and control are timeless. But the reader quickly becomes aware that the space domain has unique characteristics requiring a different way of thinking in pursuit of space superiority. Not just a collection of others' thoughts, Harter's "Ten Propositions" is honed by his own experiences integrating space within air operations centers, across space operations, and into fielded systems.

In hindsight, the general accuracy of the propositions is telling considering the article precedes the 2007 and 2013 Chinese antisatellite tests that launched scores of alarmist writings. It also precedes the rapid commercialization and doubling of space-economy participating nations. Within a context of what would later be called a congested, contested, and competitive environment, Harter identified five characteristics and five challenges that identify spacepower as unique from air-

power. From this uniqueness, he made a case for a dedicated professional service to master the domain's potential.

Today, two years into US Space Command's (USSPACECOM) reactivation and the initiation of the new US Space Force (USSF), Harter's article bears reflection. Did theory match reality? Did our nation miss something? As a nation, are we making the required progress? In short, yes, to all three questions. The subsequent reality shaped up as predicted, though faster than expected. Some future realities were missed but not many. Harter did not specifically endorse reactivating USSPACECOM, but he saw the need for dedicated Joint space operational command and control. Additionally, few foresaw the rapid pace of international partner integration and commercial human expansion in space. Meaningful progress is being made, despite a growing to-do list. US space acquisitions are slowly consolidating, but a whole-of-government unity of effort remains unfulfilled. Still, a retrospective look at each proposition is the tale of an opportunity realized.

The Ultimate High Ground

Drawing a loose correlation to the long-held military axiom that holding the high-ground provides advantages, Harter focused on how certain physical geocentric operational locations within space provide information-in-war advantages. This remains true today. Though space offensive and defensive "fires" for combat in, from, and to space are a growing operational discipline, most space-related operations still create and transport information within 22,236 miles of Earth. Despite most activity occurring within Earth's geocentric regime, the area of responsibility, the high ground, grows as nations express a new manifest destiny within the cislunar regime and greater solar system.

A Distinct Medium

Space professionals have experienced collective frustration over the fact that innovative space doctrine was beholden to the airpower halls of Air Combat Command, Global Strike Command, and others.[2] Preceding the reestablishment of USSPACECOM and establishment of USSF, external flag officer feedback invariably kept doctrine focused on how space supports the terrestrial-bound operational theaters.

As Harter points out, the ruling laws of physics differ between the space professional and aviator. Fifteen years later, we added the "three-body (Earth-Sun-Moon) problem" to our professional physics toolbox as China established itself on the moon, and the United States plans its return. Within this context, Douhet gives way in relevance to Mahan and Corbett in the realm of strategic space do-

main thought.[3] Now free of the transient nature of air operations and with an eye to cislunar operations, space professionals are expressing operations in terms of Blue and Black Space, terms more akin to naval brown-water near-shore and blue-water afar operations.[4]

Force Multiplier

True then and today, space is a force multiplier for the United States and its Allies and partners. Our strategic competitors purposely target our systems to deny us proven advantages. Ironically, as our competitors target our weaknesses, they themselves are becoming more reliant on space, opening themselves to the same vulnerabilities as they move beyond their borders.

All Levels of War

As an extension to his first proposition, Harter emphasizes how space operations support information warfare across the tactical, operational, and strategic levels of war. This approach to information warfare encompasses what is now described as the network and cognitive dimensions. How the physical dimension expands operational and strategic impact beyond terrestrial bounds is expounded upon in later propositions.

Leveraging Centers of Gravity

Harter details how achieving military space superiority relates to national economic and commercial space sector vigor. In 2006, the global space industry was valued at $209 billion ($284 billion adjusted).[5] Even with a 2020 pandemic-induced government spending decrease, the global space industry saw an overall 6.6 percent gain to almost $357 billion, with the Space Foundation estimating a value of $447 billion by the end of 2021.[6]

Yet many countries are contravening Harter's predicted outsourcing strategies for purchased space services. Even small nations now desire to attain a level of national capability to achieve some sovereignty over space-derived capabilities. Though not overtly favorable for US businesses, this trend has led to unforeseen intergovernmental strategic partnership opportunities with like-minded nations, wherein the United States has gained strategic advantages, improved long-term affordability, and established norms.

In 2006, US military space was predominantly the purview of the United States alone. Today, the *US Space Force Campaign Support Plan* uses the term "allies" 17 times and the phrase "partners or partnerships" in relationship to international partners, 39 times across the short, 20-page document.[7] In August 2021, strategic

vision met reality as military space chiefs from 24 nations participated with General John W. Raymond during the August 2021 Space Chief's Conference in Colorado Springs, Colorado.

Despite this trend, the global space industry has experienced significant commercial growth, which Harter foresaw would blur the lines between hostile (red), friendly (blue), and neutral (gray) actors.[8] Any action in space impacts all nations. Space has no physical borders, and every nation benefits; consequently space policy is of interest to all with little opportunity for geopolitical fence-sitting.

Assured Access

Starting with a holistic view that space superiority is achieved and sustained by a triad of responsive space lift, space command and control, and counterspace operations, Harter proposes that "reliable, responsive, affordable space lift" is foundational.[9] Spaceport diversification has progressed beyond two choke points. US payloads have launched from the Pacific Spaceport Complex in Alaska, National Aeronautics and Space Administration Wallops Flight Facility in Virginia, and Rocket Labs facilities in New Zealand and Virginia. Operational since 1990, the Pegasus horizontal launch program continues to provide flexible launch with 40 successful launches, and Virgin Orbit joined the ranks of flexible airborne launch in 2021. Unfortunately, despite numerous US government references to "responsiveness," formal responsive space requirements remain elusive. Herein lies a strategic disconnect that leaves current and emerging commercial and international partners guessing as to US government intentions and market demand.

Eyes, Ears, Shields, and Swords

"Controlling space requires eyes, ears, shields, and swords."[10] It seems as if Harter yearns to add, "in a war-fighting domain." Eyes and ears are space situational awareness. Shields involve defensive counterspace, and the swords refer to offensive counterspace. This now seems obvious, but in 2006, classification guides restricted openly discussing space as a war-fighting domain. This restriction continued through China's antisatellite missiles tests into low Earth and geosynchronous orbits. Even by 2015, when General John E. Hyten began the cultural shift from a space operator ethos to that of a war fighter, the United States military could not say space was a war-fighting domain.

Now free of many restrictions, space professionals can discuss space domain war-fighting strategy, doctrine, requirements, and options. This openness to discussing reality outside a classified facility helps address one of Michael Martindale

and David Deptula's 2018 "Conditions for Creating a U.S. Space Force," which equates war fighting to physical kinetic combat.[11]

Centralized Command and Control

Though access to space is foundational, Harter considers effective command and control necessary to orchestrate space superiority. Here he made some of his most profound statements. Though he conflated commanding operations and organizing, training, and equipping, he presaged the need for global and theater space-related operations to be led and fought by space professionals.

Cognizant of the first director of space forces being fielded that year, he considered the role to be insufficient. This position was limited to providing space advice to an air professional. Here he called for a dedicated Joint Force space component commander to "lead and integrate theater space operations at a level equivalent with the other Services."[12]

In early 2021, the Secretary of the Air Force directed the USSF to establish Space Force service components for each combatant command. This partially satisfied Harter's proposition in that this action created a service component. US Space Command is concurrently considering designating their new space service component commander as the space theater Joint Force space component commander (JFSCC) as well. But this JFSCC has global space theater responsibilities.

This begs a question: Just how far should global space command and control extend into terrestrial theaters? As Harter delineates global and theater responsibilities, should there be both global and theater space component commanders with different, yet contiguous spans of authority? While not specifically labeling them, Harter points out that each JFSCC is unique, interdependent, and must be mutually responsive to the theater commander, be it a terrestrial and/or global combatant commander.

Space Unity of Effort

Hereto, Harter's propositions have been chiefly realized. Yet achieving intra-US government unity of effort remains elusive. Current efforts between departments, agencies, services, and organizations provide, at best, increased coordination between organizational stovepipes.

Harter mentions with hope the 2004 establishment of the National Security Space Office, which was to unite disparate efforts of military and civil entities, industry, and academia. But lacking authorities, this office failed. Even the USSPACECOM National Space Defense Center can only direct decisive action for the services while mustering a coalition-of-the-willing approach with the Na-

tional Reconnaissance Office. During times of conflict, the United States lacks a unified national space command structure.

Industry and international partners are frustrated. "Which US government (entity) am I working with?" "How many four-star generals must my general meet with?" These are common exasperations voiced during space security cooperation and startup companies' talks. As an attempt to provide clarity, nearly one-third of the 31-page 2020 *National Space Policy* is dedicated to outlining which department, agency, organization, or service handles which mission slice (fig. 1). At best, "in coordination with" describes how organizations should work together.

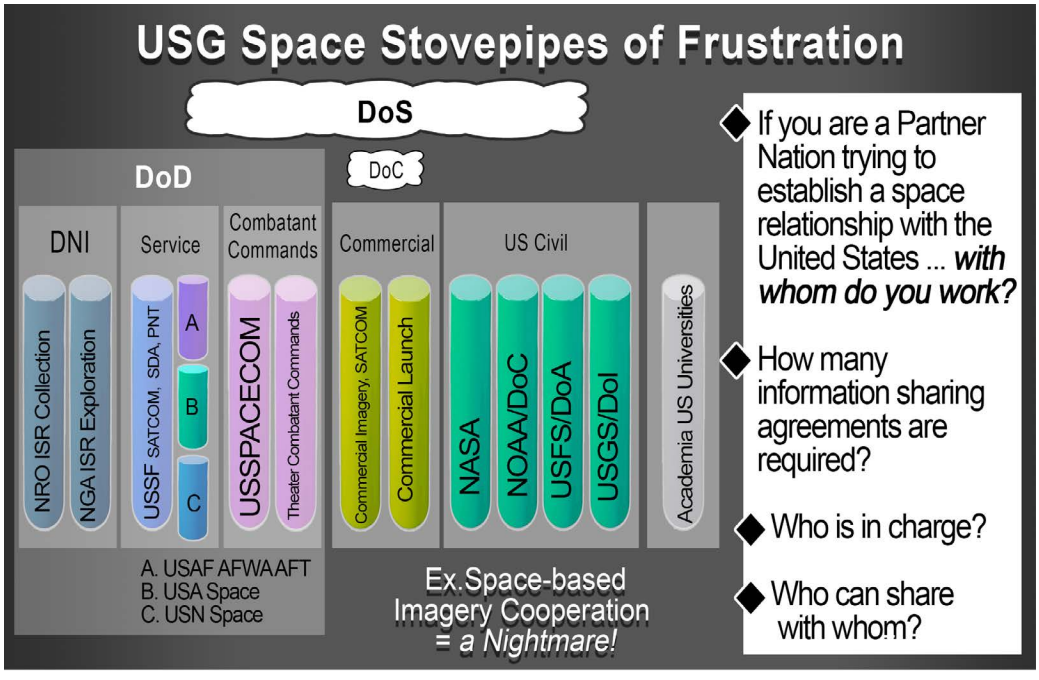

Figure 1. US government space stovepipes of frustration

For many international partners, a single orbital imagery collection pass or even a single image may be used for agricultural yield prediction, geological survey, law enforcement, infrastructure assessment, forest fire management, climate studies, and military surveillance. But collaboration with the United States in any of these specialized space applications requires independent formal agreements with each separate responsible department, service, agency, and organization.

Meaningful strategic-level unified direction was established when the Trump administration reactivated the National Space Council in June 2017. Council Chair Vice President Mike Pence drove a hard, principals-only stance that placed decision-making leaders together. This whole-of-government leadership assess-

ment and precoordination informed seven presidential space policy directives. Unfortunately, just as this focus enabled US, Ally, and partner talent to accelerate efforts, the United States is again losing unified strategic direction. In February 2021, the Biden administration announced that space policy directives would be replaced with national security memorandums.[13]

Separate, Independent Space Force

If progress in Harter's ninth proposition provides any indication, reaching our full national spacepower potential remains a work in progress. But the activation of the USSF on December 20, 2019, marked a significant milestone. Working across the US government, the National Space Council determined the need for a space force was evident. How quickly a space force was needed remained the question. A "Space Pearl Harbor" remains possible. But the situation requires a mindset akin to preparing for a "Space Battle of Britain." The United Kingdom's Royal Air Force had 22 years to organize its command and control, intelligence, surveillance, and reconnaissance industry, training, and operations to avert national calamity in 1940. In a race between a threat and generating a sufficient response, lead-time counts.

2018 and 2019 were propitious years. The 2018 National Defense Authorization Act re-established USSPACECOM as a space theater combatant command to drive domain dominant requirements. This set the stage for President Donald Trump's February 19, 2018, Space Policy Directive-3 order establishing the USSF.

In the succeeding years, US military space has been more Joint. A distinct new culture and a vision are emerging from what feels like decades of pent-up energies and frustrations. In short order, the new service established SpaceWerks, *Spacepower*—a capstone doctrine, the campaign support plan, the new Guardian *Ideal*, and Space Force service components. Given recent developments, the formation of USSF may have hit the sweet spot between technology, need, and opportunity in time to compete within the space domain.

Conclusion

Though not a principal source for all the propositions, Harter's "Ten Propositions Regarding Space Power" provided a succinct holistic view of the domain's strategic value and the efforts required to achieve space superiority. As such, it should be considered an intellectual contribution that helped fuel an emerging independent US military space effort.

Fifteen years later, Harter's work remains useful as an intellectual strategic outline against which to assess how we are meeting the challenges and reaping the

benefits of the unique domain. Since 2006, we have become more Joint and are working closely with a growing number of like-minded Allies and international partners. The national unity of effort still falls short of establishing and orchestrating a grand space strategy, and the US government still lacks a clear responsive launch vision. But for a strategic moment in time, we as a nation mustered sufficient focus to cross a threshold from which generations will benefit. ✪

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Notes

1. Mark E. Harter, (MITRE Support to US Space Force chief scientist), author interview, October 7, 2021.
2. Based on author experience as the Headquarters Air Force Space Command chief of strategy, doctrine, and policy from 2013 to 2014.
3. Brad Townsend, "Space Power and the Foundations of an Independent Space Force," *Air & Space Power Journal* (*ASPJ*) 33, no. 4 (Winter 2019): 14–15, https://www.airuniversity.af.edu/.
4. Carl A. Poole and Robert A Bettinger, "Black Space versus Blue Space, A Proposed Dichotomy of Future Space Operations," *ASPJ* 35, no. 4 (Spring 2021): 9–10, https://www.airuniversity.af.edu/.
5. Mark E. Harter, "Ten Propositions Regarding Space Power: The Dawn of a Space Force," *ASPJ* (Summer 2006): 24, https://www.airuniversity.af.edu/.
6. "The Space Foundation's Space Report Reveals Five Years of Growth for the Global Space Economy - $447 Billion + Counting. . .," SATNEWS, July 15, 2021, https://news.satnews.com/.
7. Headquarters, United States Space Force (USSF), *US Space Force Campaign Support Plan* (Washington, DC: USSF, May 2021).
8. Harter, "Ten Propositions," 71.
9. Harter, "Ten Propositions," 71.
10. Harter, "Ten Propositions," 22.
11. Michael Martindale and David A. Deptula, "Organizing Spacepower: Conditions for Creating a US Space Force," Mitchell Institute Policy Paper 16 (Arlington, VA: Mitchell Institute for Aerospace Studies, August 8, 2018), https://mitchellaerospacepower.org/.
12. Harter, "Ten Propositions," 73.
13. Sandra Erwin, "White House to Realign Responsibilities for Space Policy Oversight," Spacenews, February 5, 2021, https://spacenews.com/.