National Power

The role of Space in economic and military instruments of power strategically places Space to leap forward

By COL Frank Todd

It is increasingly clear that Space is becoming critically important to how the United States employs several key instruments of national power. Prior to 1990 among the political, economic, military, and informational instruments of power, Space exerted its major influence in the economic arena. By the end of the decade, however, there was a dramatic shift in the way Space capabilities were used as instruments of national military power. Looking into the future, Space's role increases exponentially, especially when reviewing the role it is projected to play in the ongoing transformational efforts within the Department of Defense.

A decade ago Space was seen as a vital component in the nation's economic power. Global markets depended on satellites to link nations on every continent to the economic capitals of the world. As the global information age developed, Space provided the most efficient and fastest means to interconnect. To become competitive and stay competitive, corporations from around the world realized the necessity to participate in this global revolution. Throughout the decade this pressure intensified and drove an explosive growth of the Space industry to develop, build, and launch satellites that facilitated the gathering, transmission, and sharing of information. Space was looked upon as a growth industry with a wide range of countries expanding or entering the commercial marketplace (i.e., Russia, France, Japan, India, etc.). High expectations for growth ensued, driven by the Internet and telecommunications applications. Late in the decade, however, and quite unexpectedly, the high growth rate did not continue. Future projections of information-based companies fell far short of anticipated levels. Costs to do business in and through Space were much higher than projected. Risks to get satellites into orbit also grew, driven by several launch vehicle and satellite failures. Additionally, the proliferation and reduced cost of fiber optic cable put a major dent into the business model for the use of Space. Where fiber optics had once been extremely costly, it now came in line with the cost of laying copper and had the advantage of reduced requirements for fiber versus copper cabling because of fiber's much higher bandwidth capacity. These pressures led to the demise or significant reduction of several notable companies such as Iridium, Globalstar, Astrolink, ICO Global Communications, Orbcomm, Teledesic and numerous others.

While a viable argument could have been made 10 years ago that Space would become a key component for employing the nation's economic power — that is not the case today. Instead of becoming the backbone for the globe's information age, the Space industry has carved a niche for products and services that can be provided most efficiently from Space. The demand for Space-based products has affected the health and viability of several support industries as well. The infrastructure that supports launch is one of these. The number of launch pads worldwide has declined precipitously, which impacts quantity and frequency of launches. The decline of the U.S. Space industry has not gone unnoticed by DoD. Guidance from the Secretary of Defense on down has addressed the need for DoD to focus efforts and initiatives to ensure the entire industry remains viable to produce the systems needed for national defense.

During the same decade that Space declined as an economic element of national power, a significant rise in its importance to the military element took hold. From the Gulf War onward, its key roles in command and control, communications, intelligence, surveillance, and reconnaissance has dominated military commanders and planners in their preparation and conduct of operations. Whether it is linking commanders from the strategic to the tactical level, accurately maneuvering units on and over the battlespace, targeting enemy units or positions, analyzing environmental conditions in the area of opera-

tions, obtaining missile warning or receiving, seeing, and understanding the enemy's capabilities and intent, Space is bringing these capabilities to the fight today.

Could the nation prosecute today's wars without Space? The answer is arguably, "no," unless we accept increased friendly casualties, widespread infrastructure destruction and much higher civilian casualties. Space capabilities are what allow precision and that is the mandate and expectation of the American people, the government and international opinion on how the U.S. military is to fight. The preparation for future conflicts clearly establishes Space as the cornerstone of the U.S. military's ability to conduct operations. The Army's Objective Force vision demonstrates this reliance by adding information as a fifth component of combat power. Although the future potential of Space to do more is only limited by one's imagination, it is true that today its primary function is to collect and disseminate information. But information is what infocentric warfare is all about. It is a component that must be employed and integrated into mission operations starting at deployment, used in protecting the force, incorporated into precision maneuver and fires, and used as an enabler for situational understanding during all phases of an operation. {Once published, suggest reading TRADOC Pamphlet 525-3-14, The United States Army Concept for Space Operations in Support of the Objective Force.} Although not inclusive, that situational awareness requirement includes friendly force disposition, enemy force disposition, detailed targeting, terrestrial environmental analysis, ballistic missile threat warning, enemy capability and intent analysis, and commanding and controlling forces at all levels.

This is not to say that reliance on Space forces is not fraught with risks. Joint doctrine for Space operations recognizes that the increased dependence of the U.S. military on Space capabilities can be viewed as vulnerability. If we see that Space is becoming a center of gravity for how the United States uses its military, so can our enemies. In developing future operating concepts, vulnerabilities must be taken into consideration, both in the design and doctrinal employment of these assets.

Its role in both the economic and military instruments of national power has placed Space on the agenda for increased analysis and funding to maintain the Space industry's economic viability and to push for a significant leap in the technological capability of future programs. Although its importance has evolved from the economic to the military component, the strategic direction of the use of Space assets is clear. In every conceivable military scenario, Space plays a vital role in achieving the nation's objectives. This reliance is driving the Services to adjust their doctrine of how we fight and, more importantly, to adjust their vision of what may be possible in future warfare.

Space vital to achieving the nation's objective

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The transformation of the military will rely on the increased use of Space capabilities. When future conflicts take place in areas with little or no infrastructure or in areas with denied access, Space is the only means by which operations using transformational forces can be employed and pursued.

Some argue that nonSpace platforms can provide similar capabilities, but that does not take into consideration every level of conflict. In a forced entry scenario, air superiority cannot be assured, therefore, airborne platforms would be at too great a risk to be employed. Space platforms, however, are not affected by this limitation. To provide needed requirements to the warfighters, both air and Space capabilities would need to be integrated. Space forces allow commanders to consistently succeed in their ability to operate through every level of conflict — whether it's conducting humanitarian assistance, non-combatant operations, or the various levels of combat operations.

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