Army's Strategic Role in the Future Force

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The U.S. Army is in the midst of perhaps the most remarkable changes since World War II — changes affect the very way that we think about, prepare for and conduct war. What we are witnessing is a clear paradigm shift, and the pace of this change is being driven forward due in great part to the extraordinary capabilities provided by Space-based products and services.

The strategic role the Army has had with Space has evolved considerably since its involvement with the nation's first successful missile launch into Space in February 1949. Today, Space is an integral and essential element of joint warfighting. Advanced communications; position, navigation and timing data; weather, terrain and environmental data; intelligence, surveillance and ISR data; and missile early warning data are now available to our joint forces through the use of Space.

Secretary of Defense Donald Rumsfeld recently noted this increased importance of Space. In his remarks to attendees of an Association of the United States Army-sponsored Space and Missile Defense Symposium in El Paso, Texas, in December 2003, the Secretary noted, "Over the past few years we have recognized that Space and information are not only enablers, but core warfighting competencies."

The Army views Space as a vertical extension of the battlefield and an integral part of the battlespace, one that has been especially instrumental during the ongoing Global War on Terrorism. The Army's transformation also integrates Space as a core element of that process. The Army's future force, serving as part of the joint force, will be even more adaptable and lethal, leveraging the capabilities of the ultimate high ground. Clearly, the very nature of warfighting is changing rapidly, and the Army's strategic role in Space is evolving as a result.

Warfighter's Evolving View

Looking only as far back as the 1970s, Space efforts were primarily oriented to supporting the mission requirements related to the nuclear and conventional threats posed by the former Soviet Union. The focus for the military uses of Space was to support strategic nuclear forces, the president and secretary of defense, strategic communications, serve as a conduit for reporting warnings of attack and strategic nuclear targeting, and for arms control and verification.

Warfighters at the operational and tactical levels viewed Space as an "intelligence community domain" that provided little or no utility, primarily because applications and procedures had not yet been put in place to access available products. Unfortunately, the products, when available, far too often were untimely or not relevant to their needs.

Over the years, the role of Space has evolved toward real-time enhancement of operational and tactical military operations, due in great part to a myriad of technological advancements. The changes have been most significant in the areas of communications, sensors and information systems.

In the early 1990s, Operation Desert Storm, often called the "first Space war," demonstrated the extraordinary value of this new medium as a combat multiplier. Despite the relative inexperience in integrating Space into other military operations, several reports indicated nearly every aspect of military operations depended to some extent on support from Space-based systems.

In the decade since Desert Storm, "normalizing Space" took center stage along with providing Space-based products and services to warfighters. Military, civil and commercial operations have transformed. Today, Space enables virtually everything we do, from missile early warning to long-haul communications for command and control of military forces. Space support is particularly valuable in remote and austere areas with insufficient or unreliable infrastructure, as in Afghanistan.

The combined effect of human decision-making and 21st century technology helped U.S. forces and the coalition dominate the battlefield during the early phases of Operation Iraqi Freedom. Satellite communications, or SATCOM, relayed commands for Tomahawk missile launches, supported communications relays with unmanned

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aerial vehicles (Predator and Global Hawk) and provided expanded bandwidth for dramatically enhanced situational awareness. Of note, the SATCOM bandwidth during Operation Iraqi Freedom was approximately 42 times the capacity that was available during Operation Desert Storm, reaching up to 800 megabytes per second; and yet, although operationally significant, it just served to whet the appetite for the future.

Satellite communications have also been vital to the support of both major Blue Force Tracking systems used in support of ground forces: the COBRA waveform signal compatible with national support systems (Grenadier Beyond Line-of-Sight Reporting and Tracking and Mini-Transmitter) and the commercial L-Band system, the Force XXI Battle Command Brigade and Below. Although Blue Force Tracking received public accolades for its use during highly reported military operations, (including the capture of Saddam Hussein in December 2003) its worth gained broad endorsement at the tactical and individual Soldier level for its effectiveness in helping to prevent fratricide. Blue Force Tracking is a capability here to stay, and considerable effort is ongoing in the Army to enhance its current role in tracking friendly forces and combat identification.

Integrating the capabilities of the Space-based systems to develop a common operating picture falls to the responsibility of the SMDC Mission Management Center in Colorado Springs, Colo. It provides warfighting combatant commands with near-real time Blue Force Tracking data gathered by Space-based systems. It is a critical link between warfighters, national agencies and a variety of dissemination architectures. It is the "one-stop-shop" for Space-based Blue Force Tracking troubleshooting and coordination.

Missile early warning improved substantially between 1991 and 2003, enhanced greatly by Space-based capabilities. In Operation Desert Storm, the missile early warning system was quickly developed. However, by 2003, an integrated missile defense and warning system was in place to support joint warfighters in Operation Iraqi Freedom. Contributing to that capability were the joint tactical ground stations receiving event data directly from DSP satellites covering the area of responsibility, and then processing the information in theater to disseminate it within minutes to both theater and worldwide users.

Commercial satellite imagery provided valuable digital terrain data and planning information. In fact, more than 42,000 imagery products have been made available to joint planners and warfighters. Resolution of the imagery improved from 10 meters during Operation Desert Storm to approximately one meter during Operation Iraqi Freedom. Images that used to take days are now available in only a few hours. Army Space Support Teams, equipped with the Space Support Element Toolset – Light, have been instrumental in providing this capability directly to their supported units. The Army Space Support Teams are but one of the many innovative approaches taken by SMDC to ensure our capabilities are relevant and ready for joint warfighters.

Protecting and Controlling the High Ground

Security of our homeland, the Global War on Terrorism and sustained engagement in multiple locations define today's complex and uncertain world. Advances in technology and the changing nature of the threat have made the use of Space essential to our success. We can see and act much more quickly, and our responses to situations can occur more rapidly and decisively than ever before.

Just as we can do more than ever before with recent advances in technology, our adversaries have also demonstrated the capability to use new, more lethal forms of threats. Most adversaries study and understand U.S. capabilities and strive to adapt their techniques to overcome their disadvantages. The global proliferation of commercial Space systems provides products and services to adversaries that rival those of the United States. Once only available to senior leaders of technically advanced nations, all state and non-state actors now have access to wideband bandwidth communications and high-resolution imagery.

Protecting our assets and continuing unfettered access to Space while precluding the adversary's access to this high ground is our vital military mission. Space control operations ensure our freedom of action in Space and, when directed, deny it to an adversary. Ensuring all the various components (satellites, ground stations, data links between the satellites and ground stations, and data links between satellites) are adequately protected is equally important to the conduct of network-centric warfare and protection of our national interests.

Space control is a mission shared by all services. The Army

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conducts ground-based Space control, which provides the joint commander a responsive and tactically relevant capability. Actions are ongoing to develop new Army contributions to the Space surveillance and negation functions of Space control operations.

Restructuring for New Strategic Role

Significant organizational changes have occurred as the Army's — and the nation's — view of Space has evolved. Implementing recommendations from the Report of the Commission to Assess United States National Security Space Management and Organization, Secretary of Defense Donald Rumsfeld, in 2001, directed a number of organizational changes within the Department of Defense to consolidate and streamline Space operations. The functions of the U.S. Space Command were divided between the new U.S. Strategic Command and the U.S. Air Force Space Command. The Unified Command Plan was subsequently changed, and in October 2002, the U.S. Army Space and Missile Defense Command was designated as the Army Service Component Command to U.S. Strategic Command.

As such, SMDC/ARSTRAT conducts Space operations and provides planning, integration, control and coordination of Army forces and capabilities in support of U.S. Strategic Command missions: Space, global strike, integrated missile defense, information operations and command, control, communications, computers, intelligence, surveillance and reconnaissance, or C4ISR. Each of these missions depends heavily on the capabilities provided by Space-based products and services.

The Space Commission also emphasized the need to develop a cadre of well-trained Space professionals in order to encourage innovation and secure proper management of Space systems. The Commission recommended the military departments enhance Space professional military education at all levels to ensure increased integration of Space activities into all military operations.

The Army, in fact, recognized the value of a cadre of Space-qualified officers with the Office Personnel Management System XXI, which established the FA40 Space Operations Officer career field in December 1997. Since then, 149 Army officers have received the FA40 career field designation, contributing significantly to development of an Army Space cadre to enhance warfighting capabilities.

A robust Space professional military education program has also been incorporated into all Army service school curricula, providing a relevant, fundamental level of Space knowledge to officers, NCOs, Soldiers and civilians. As a result, Soldiers are increasingly knowledgeable, skilled and confident working with Space systems and products. Importantly, because of continuous review of the capabilities required to support combatant commanders and their staffs, a rigorous process has been put in place to update and assure relevance of the FA40 course program of instruction.

Future Force Transformation

"… a future force that is defined less by size and more by mobility and swiftness, one that is easier to deploy and sustain, one that relies more heavily on stealth, precision weaponry and information technologies."

President George Bush
25 May 2001

The Army's strategic role in Space, although significant over the past couple of decades, is but a glimpse of where we are going in the future. We see a future where the Army, seamlessly integrated into the joint force, will exploit the "new high ground." As the most technologically significant paradigm shift in the Army's 228-year history, the future force will be capable of operating on land around the globe, throughout the entire spectrum of conflict to achieve decision dominance and victory. According to Joint Vision 2010, the emerging synergy of Space, land, sea and air superiority will enable the Army "to dominate the full range of military operations from humanitarian assistance, through peace operations, up to and into the highest intensity conflict."

The Army is transforming its units to tailorable forces with improved deployability and increased lethality. The future force will consist of lighter but highly lethal, mobile and survivable modular formations that fight as self-contained units in non-linear, non-contiguous battlespace. These units will have the ability to arrive at multiple austere points of entry via air and sealift, and possess "off the ramp" capabilities to strike the enemy's centers of gravity simultaneously. The focus of warfighting will evolve to an effects-oriented operation. It will be delivered by joint platforms that enable creating an overmatching imbalance of synchronized combat power against the enemy.

Improved strategic responsiveness and seamless access to Space-based technology will be defining characteristics of the well-integrated Space and land force operation. This symbiotic relationship characterizes the concept of joint interdependence in support of combatant commanders' requirements.

The future force units will be equipped with the Future Combat System, comprising manned and unmanned platforms, and will be integrated into a global C4ISR network. Every platform will have integrated communications systems, making it both a network and communications device. Significantly, the Soldier, rather than the command center, will be the primary focus for the future force.

As a Space-empowered force, the future force will routinely exploit the overhead constellation of national, commercial and military Space platforms. The Internet-based global information grid, or GIG, a state-of-the-art global communications network designed to provide real-time information to joint warfighters, will provide intelligence, focused surveillance, area reconnaissance, long-haul communications, missile early warning, position, navigation and timing, as well as weather/terrain/environmental monitoring.

The GIG will provide situational awareness for all levels of forces so they can establish, maintain and distribute a relevant common operating picture to the joint warfighters. The GIG will have more than 100 satellite-supported worldwide communications sites to enable worldwide operations. This single information network will serve all users and uses. This means the Army will provide communications in conjunction with other joint components. Likewise, the GIG will be dependent on the Army's networks and communications being available and

operational, a great example of service interdependence.

Command and control, communications and ISR networks will significantly enhance the lethality, survivability, agility and versatility of the joint force. The layered redundancy and improved capabilities provided by Space-based assets will prove particularly valuable in immature theaters where existing communications infrastructure may be insufficient or unreliable.

Space operations, Space control and Space systems will be incorporated into all of the Army's future force land operations, and will focus on:

- Increased deployability, facilitation of immediate employment of forces arriving through austere entry points, reduced logistics structure and reduced footprint enabled through reach-back and distribution-based sustainment.
- Enhanced SU "Off the Ramp" during entry operations and local, robust, near-real-time interdependent networks integrated from Space-to-mud.
- Precision maneuver, fires, sustainment and information on a non-linear battlefield. Enemy centers of gravity will be attacked with overmatching effects and defeated through disintegration.
- Continuous information and decision superiority. Joint-integrated, network-centric battle command will enable decision superiority and synergy of integrated joint operations.

Parting Thoughts

Recent experience has clearly shown that combat power is rooted in capability, not quantity. Space has demonstrated it is a major component of that concept. However, while the integration of Space in ongoing operations in Afghanistan and Iraq has received wide accolades during lessons learned reviews, we must realize those scenarios will not likely serve as conditions for future combat.

Even as we rely on Space-based products and services to support ongoing combat operations, our strategic challenge now is to leverage Space during transformation to the future force. Technological advances have enabled the ability to strike, maneuver and generate effects in determining enemy composition and disposition. We can target and measure effects, but more information is not always better intelligence. Analysis and dissemination are currently the areas with the greatest shortfall. Efforts must focus on developing a global information architecture that is able to provide relevant and actionable intelligence to the planner and warfighter in a timely manner. Making the pieces fit within a joint context is an imperative.

The next few years will be an exciting time in the Space mission area. Key future force capabilities and technologies will see accelerated fielding to enhance the effectiveness of the current force and our joint forces engaged in the Global War on Terrorism. We will also see greater joint force interdependence as the Army gives up redundancies to gain other capabilities.

As you read the articles in this edition of *the Army Space Journal*, I hope you will think about what you can do to leverage what Space can provide for our joint warfighters. The Army is at an important strategic crossroads, and Space-smart professionals are vital to forging the way ahead. Secure the High Ground!

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Information Superiority Teams: The information superiority team is tasked with coordinating requirements and synchronizing activities for the operational net assessment, joint ISR and effects assessment. This team is responsible for the baseline operational net assessment and fusing information from various organizations into the updates.

Knowledge Management Teams: The knowledge management team is responsible for managing the knowledge and information management requirements for the SJFHQ. It provides communication and computer technical support and implements processes to meet essential information needs. Ensuring the effective functioning of the collaborative information environment platform is essential to SJFHQ operations and planning.

Transformational Change

The SJFHQ-IMD concept is about transformational thinking in how we approach and execute the challenge of global integrated missile defense. This innovative structure optimizes the planning, coordination and integration efforts of the regional combatant commands with U.S. Strategic Command's mission for integrated missile defense and SMDC/ARSTRAT's mission as the Army service component command to plan, coordinate and integrate Army missile defense forces. SJFHQ-IMD enhances the joint integration of missile defense and provides a transformational solution to achieve mission success — now and in the future.

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