TESTIMONY

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ARMED SERVICES STRATEGIC FORCES SUBCOMMITTEE

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Chairwoman Tauscher, Ranking Member Turner, and distinguished members of the subcommittee, it is both a pleasure and an honor to come back to the committee where I started my career on Capitol Hill. Thank you for the privilege of appearing before you today to discuss the state of space acquisition and the space industrial base.

We live in an increasingly complex world. The demands vary widely, so we need systems that enable speed and agility; these systems must ensure our Nation has response options today and for the future.

Past performance in the development of space and intelligence systems has not given us great confidence in meeting our future challenges in a timely or affordable manner. Today, in multiple mission areas we rely on systems that have lived long past their design lives. For tomorrow, we hope that systems designed with a Cold War mentality will be successfully delivered and able to meet the threats of the future environment.

Across the Department and as recently as the Secretary of Defense's public comments on the budget soon to come to the Congress, we recognize that in the past we have not been buying the right things or buying them in the right manner. However we have several initiatives underway to address this.

I would like to highlight some specific efforts that we are implementing that capture this philosophy and are fundamental to transforming the acquisition process and workforce. They are:

1) Program Manager Empowerment and Accountability

Program managers play a critical role in developing and fielding weapon systems. We have put in place a comprehensive strategy to improve the performance of program managers. Key to this are program manager tenure agreements for ACAT I and II programs. It is the expectation that tenure agreements should correspond to major milestones and last approximately 4 years. Another fundamental piece is Program Management Agreements—a contract between the program manager and the acquisition and requirements/resource officials—to ensure a common basis for understanding and accountability; that plans are fully resourced and realistically achievable; and that effective transparent communication takes place throughout the acquisition process.

2) Configuration Steering Boards (CSBs)

For all major defense programs including space, we have directed the establishment of CSBs. This provides the program manager a forum for socializing changes that are affordable and executable. Boards will be in place for every current and future ACAT I program prior to reaching Milestone (MS) B or its succeeding MS for those that have already received MSB approval. In the CSB, stakeholders will review all requirement changes and any significant technical configuration changes which potentially could result in cost and schedule changes. Boards are empowered to reject any changes and are expected to only approve those where the change is deemed critical, funds are identified, and schedule impacts are truly mitigated. We require every acquisition team member to fully engage the Planning, Programming, Budgeting, and Execution (PPBE) process, thus creating an avenue for program managers to ensure their

programs are either funded to execute their responsibilities or alternatively descoped to match reduced budget levels.

3) Defense Support Teams (DSTs) and Joint Assessment Teams (JATs)

To address the challenge of acquisition execution and assist both industry and Government program managers, we have expanded the use of these teams who consist of outside world-class technical experts and enterprise stakeholders to address our toughest programmatic, technical, architectural, and planning issues. We expect the teams to identify and resolve emergent problems and help the Department successfully execute difficult programs before problems develop while moving the community towards a common vision. DSTs have been successfully employed on the Space Based Infra-Red (SBIR) program to solve its flight software issues. JATs, used more widely in the space community, have been key in establishing an Infra-Red Roadmap for the space segment as well as the Tasking, Processing, Exploitation and Dissemination segment, developing an agreement on the Nation's Next Generation Electro-optical (NGEO) program, addressing Launch range and infrastructure issues, and managing the sensors acquisition and Tri-Agency relationship within the National Polar Orbiting Environmental Satellite System (NPOESS).

4) Prototyping and Competition

We have issued policy requiring competitive, technically mature prototyping. This is designed to rectify problems of inadequate technology maturity and lack of understanding of the critical program development path. Prototyping employed at the level that provides the best value to the taxpayer, component, subsystem, or system level.

In the space community this has been implemented in the Third Generation IR (3GIR) program, where we are scheduled to launch a quarter-earth demonstration on a hosted payload in May 2010, and full-earth competitive demonstrations in fiscal years 2012 and 2013.

5) Principle-based Acquisition

Similar to the blocking and tackling of football, through analysis we are capturing the fundamentals of space acquisition. From these fundamentals, we plan to institute a principle-based acquisition approach that maintains the flexibility necessary for specific systems, but ensures the fundamentals are in place from the very inception of a space or intelligence program. In our analysis to date, we have developed a preliminary list of those fundamentals and intend to integrate them into the space enclosure of 5000.02, Defense Acquisition Policy for application to space and intelligence systems. They include:

- Proper and Linked Acquisition Strategy, Contracting Strategy, and Incentive Strategy
- Stable Requirements
- Robust Systems Engineering Plan and Process
- Sufficient Analysis of Alternatives
- Complete Analysis of Cost Drivers and Major Trade-offs
- Independent Cost Estimate
- Proper Risk Management Strategy
- Support planning (e.g. training, logistics, and operations)

- Comprehensive Interface Definitions
- Effective Testing Approach
- Useful and Effective Integrated Master Schedule
- Proper and Competent Staffing
- Accurate and standardized Contractor Performance Measurement System

State of Space Acquisition and the Industrial Base

In your invitation to testify before the committee, you asked for me to specifically address the state of acquisition and the space industrial base

My assessment of the current execution of major systems acquisitions is that it requires continued improvement to serve the nation properly. In Space and Intelligence, there are mission areas where, as a whole, we can point to increasing levels of success and stability: Communications, Signals Intelligence (SIGINT), and Launch. However, these successes are overshadowed by a collection of overruns and schedule delays in Electro Optical (EO), Radar, Infrared (IR), weather, Precision Navigation and Timing, and Space Situational Awareness. Figure 1 shows the collective success of Air Force, Navy, National Reconnaissance Office, and Tri-Agency efforts. The results of these programs have been a delay of critical capabilities to intelligence customers and warfighters engaged in today's and tomorrow's conflicts.

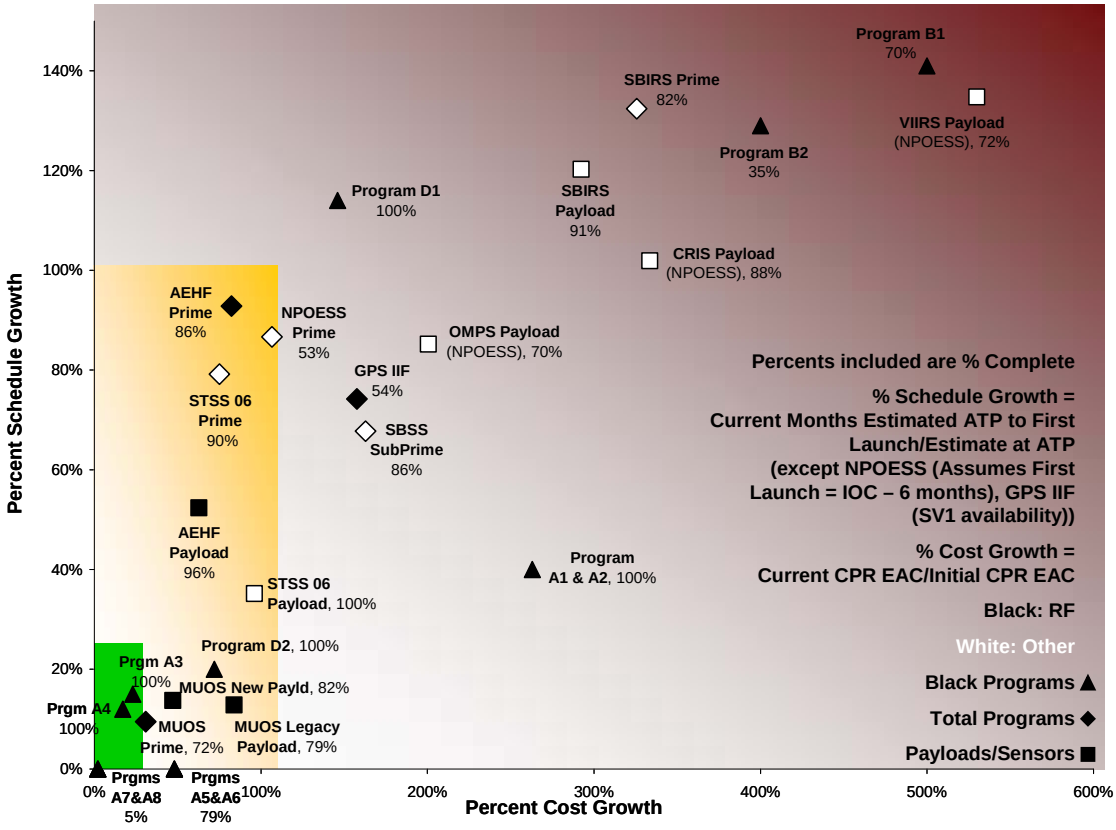

Figure 1. Recent Space and Intelligence Acquisition Performance

The Problems We Face

I believe the key acquisition problems facing the community can be summed up in two words: Accountability and Discipline. For almost two decades, we have lacked accountability and discipline in our acquisition programs.

To paint the picture, I want to quote from the Executive Summary of the OSD CAIG 2008 Space Industrial Base Assessment, "The recent focus on transformational systems has hampered the execution pace required to maintain legacy capabilities. Stability in the workforce and the Department's desires must be achieved. The

Department must re-examine its acquisition strategies to secure continued operational performance from these space domains. Successful programs are those that have realistic cost and schedule expectations, are well understood, have stable budgets, experienced and stable staffs, and have a spiral development acquisition strategy."

In the past, corporate level Office of the Secretary of Defense (OSD) oversight was inadequate or improperly focused. Our Space and Intelligence organizations operated autonomously. Despite the fact that OSD, currently and in the past, held Milestone Decision Authority (MDA) for all air, maritime, and ground Major Defense Acquisition Programs (MDAP), MDA for Space MDAPs has historically been delegated to the Air Force and the National Reconnaissance Office for Space and Intelligence programs. Additionally, non-acquisition personnel performed oversight on these programs. In the absence of accountable oversight, accountability was lost, creative practices stagnated, and discipline in the process disappeared.

To address this, OSD created an organization of certified space acquisition professionals within the Office of the Under Secretary of Defense for Acquisitions Technology and Logistics, called the Space and Intelligence Capabilities Office. This organization has established the previously absent necessary and proper checks and balances between capability advocates, requirements generators, and resource providers, resulting in much needed leadership within the community.

Over the last two decades, the critical skills of personnel in the areas of program management and engineering have atrophied. This can be attributed to training

deficiency, leadership shortfall, and unstable investment in the space industrial base. Today, the Space and Intelligence community face challenges with an aging workforce and low recruitment, resulting in inadequate junior and middle management for the future, as represented in Figure 2. Our programs need technically smart people and accountable, disciplined leaders who can execute them properly. Stable funding in the industrial base, grass roots technical education efforts, and changes to the space community that will make it a more enticing place to work will be necessary for any recovery.

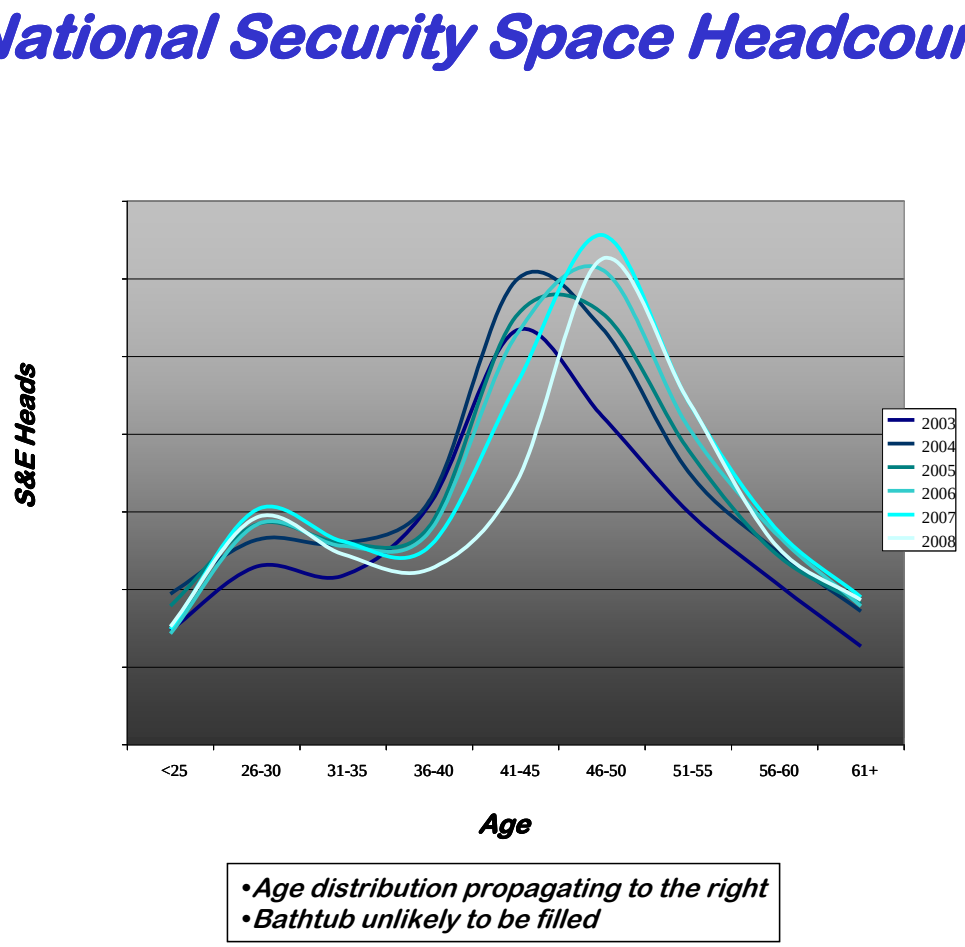

Figure 2. Age Distribution of Space Industry Manpower

Our most daunting problem is that across the Space and Intelligence community we have asked the industrial base to do things that are unwise, inefficient, and often physically impossible. We have attempted to buy large monolithic systems that produce a capability that is one size fits all, i.e. a single system that satisfies all customers, without evaluating the full set of alternatives. The philosophy of a "one-size-fits-all" is what has driven much of our acquisition strategies since 1970. Figure 3 indicates the move from multiple low cost systems to large mega-sensor acquisitions that have only become more complex and more unaffordable.

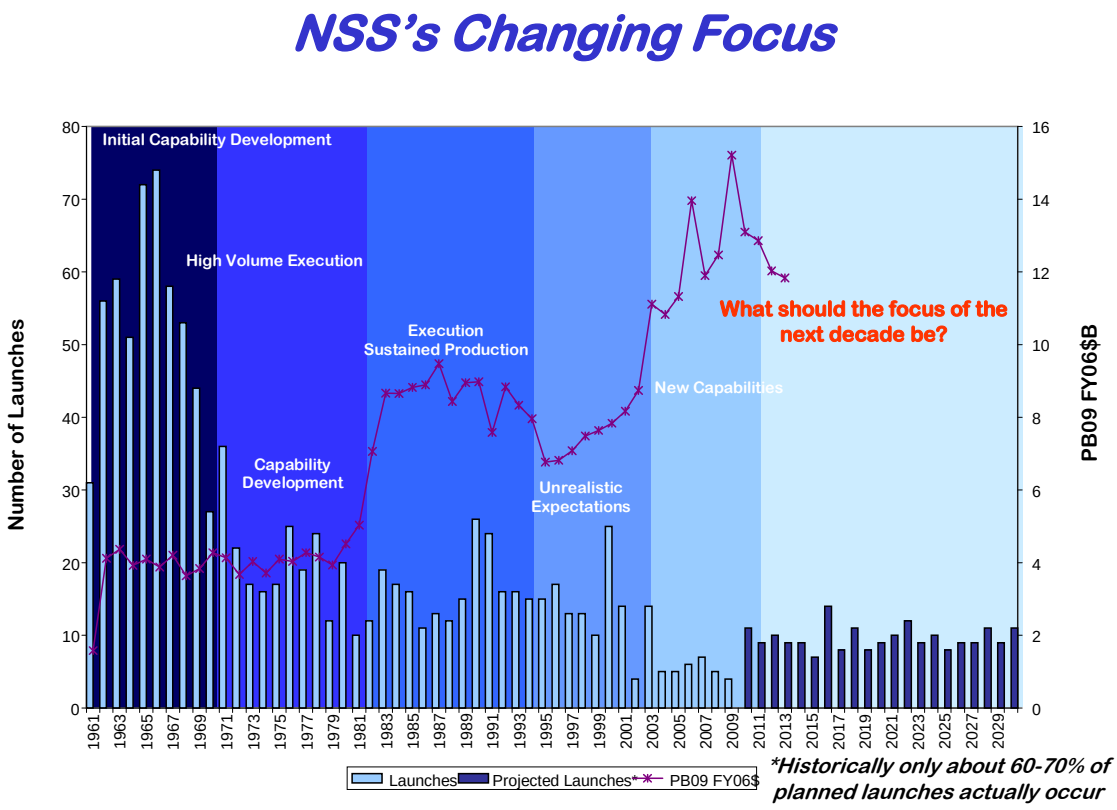

Figure 3. DoD Shift to Fewer and Costlier Space Systems

This model is a Cold War relic, when space systems were needed to satisfy only the strategic policy decision maker and events unfolded in a fairly static timeline. Today's reality is that one size does not fit all. We need to evaluate alternatives to the large complex systems, and use less complex systems when we can do so without compromising the missions our satellites need to perform. Our needs neither can, nor should they be satisfied from one orbit with single mega-sensor acquisition model. There are three main reasons for this.

First, instability in government demand caused by the mega-sensor model has evaporated much of the skills and workforce to meet National Security demands. Additionally, our business practices have provided insufficient volume for sub-tier component and technology providers to remain viable or stimulate benefits from innovation or competition.

Second, different users require different amounts and types of data at different times, from different sensors. Users in SOUTHCOM might require foliage penetrating radar or EO while that capability will largely go unused by CENTCOM. PACOM needs open ocean surveillance of ship tracking, while EUCOM might need to understand the pattern of low-level IR events. The operational tempos in all of the Areas of Responsibility (AOR) diverge greatly and require different timeliness of access, volume, or fidelity. Developing a system that can satisfy all users all of the time is unsustainable if not impossible.

Third, we must begin to consider the implications of a contested environment in space. There is no debate that protection, dissuasion, and deterrence must be a part of our National Security Space Strategy. Deploying architectures with constellations of just a few satellites leave the nation incredibly vulnerable and invites our adversaries to target our systems. The bang for the buck is too great for them to pass up. Survivability must be a consideration in our acquisition processes and our current acquisition model only reinforces this vulnerability.

The Solution

The solution is a change in our business model that will enable employment of an architecture distributed to multiple nodes and layered to provide right level of capability to the right geographic regions at the right times, while leveraging commercial systems and multiple sensors from different sizes of space craft and non-space platforms.

This model would provide for a balanced architecture where a foundational capability would be provided from medium or large systems. At the same time, small and agile, less complex systems would be "layered" to augment in optimized orbits, with additional capability in high demand areas, and niche capability for special operations, irregular needs or crisis situations. As recommended by the GAO, evolution of capability would be a hallmark and key tenet of this model. Systems would purposely be designed to live shorter lives to reduce the system complexity, synchronize on-orbit life with development time, increase industry volume, and take advantage of rapidly advancing technology.

The Effects

This new business model would have multiple beneficial effects on the industrial base, the government workforce, and the capability of our warfighters. First, it would shorten cycle times allowing quicker fielding of assets, larger volume purchases, greater technology refresh rate, and a more stable workforce flow due to the synchronization of development time and mean mission duration—this synchronization may be the most important effect and should not be lost in our discussion on its impact to the industrial base. Second, this new model would reduce overall program risk, raise confidence of delivery, and generate efficiencies that our current system does not produce. Third, due to shorter development schedules, it would create a continuity of expertise and a sense of ownership of individual systems thereby increasing morale and the attractiveness of the space field not experienced today by government or industry personnel. Fourth, the model would restructure competition and reinvigorate innovation through focus on new payload and sub-system developments. Last, it would architect survivability of space assets by design, making it more difficult and costly for and adversary to negate our space capability.

I believe all of these changes can be appropriately introduced and produce the desired results. However, many of the problems I talked about are enmeshed in our culture and this culture must change to see lasting effects. Congress can play has a significant role in helping the administration reinforce that cultural change. I look forward to working with you toward that end and answering any questions you might have today.