U.S. GOVERNMENT ACCOUNTABILITY OFFICE

441 G St. N.W.
Washington, DC 20548

Accessible Version

July 27, 2016

Congressional Committees

Defense Space Acquisitions: Too Early to Determine If Recent Changes Will Resolve Persistent Fragmentation in Management and Oversight

The Department of Defense (DOD) relies on space systems to provide critical capabilities that support military and other government operations, including but not limited to communications; missile warning; positioning, navigation, and timing; and intelligence information. The Air Force, specifically, the Space and Missile Systems Center (SMC), develops and acquires most military space systems, and the National Reconnaissance Office (NRO) develops Intelligence Community (IC) space systems. These systems can be very challenging to develop and expensive to acquire and field.

We and others have reported for over two decades that fragmentation and overlap in DOD space acquisition management and oversight have contributed to program delays and cancellations, cost increases, and inefficient operations. For example, in 2012 we found that fragmented leadership contributed to a 10-year gap between the delivery of GPS satellites and user equipment. We also found that a lack of a government-wide authority hindered space situational awareness acquisition efforts.[1] Similarly, last year, we testified that DOD continues to face challenges in aligning the delivery of space system segments, in part, because budgeting authority for the segments is spread across the military services. DOD lacks a single authority to ensure alignment of these segments.[2] DOD has noted that space is becoming an increasingly contested domain, resulting in greater threats to deployed military forces. The ability to effectively respond to these threats has increased the importance of focused leadership in national security space.

In Senate Report 114-49 accompanying S.1376, a bill for the National Defense Authorization Act for Fiscal Year 2016, the Senate Armed Services Committee included a provision for GAO to review the effectiveness of the current DOD space acquisition and oversight model and to evaluate what changes, if any, could be considered to improve the governance of space system acquisitions and operations. This report formally transmits information we provided in a briefing to the committee on May 17, 2016, to meet our reporting requirement (see enclosure I: *DOD Space Acquisition Management and Oversight, Information Presented to Congressional Committees*). This report addresses the following: (1) what organizations are responsible for DOD's management and oversight of space system acquisitions; (2) what recommendations have been made for improvements to DOD's management and oversight of space acquisitions over the last two decades, and what major changes have occurred in that time period; (3) what

[1]GAO, *2012 Annual Report: Opportunities to Reduce Duplication, Overlap and Fragmentation, Achieve Savings, and Enhance Revenue*, GAO-12-342SP (Washington, D.C.: Feb. 28, 2012).

[2]GAO, *Space Acquisitions: Some Programs Have Overcome Past Problems, but Challenges and Uncertainty Remain for the Future*, GAO-15-492T (Washington, D.C.: Apr. 29, 2015).

persistent challenges, if any, has DOD experienced in its management and oversight of space acquisitions, and what changes could be considered for improvement?

To determine the organizations responsible for DOD's management and oversight of space system acquisitions and to identify the stakeholders involved in current and planned national security space activities, we reviewed relevant DOD documentation and interviewed officials with space-related responsibilities from various organizations within the services, the Office of the Secretary of Defense (OSD), and the National Reconnaissance Office (NRO), among others. To determine what changes have been made to improve management and oversight of space acquisitions, we selected a nongeneralizable sample of 17 experienced space industry professionals based on recommendations from current and retired DOD, industry, and congressional officials. We asked them about what they view as the most important recommendations and changes in defense space acquisitions over the last 20 years. From these interviews we identified four major studies on the topic of space management and oversight, analyzed the studies for recommendations made, and determined how many of those recommendations were adopted by DOD. We also analyzed applicable DOD directives and memos to determine changes in space-related organization and responsibilities. To assess persistent challenges that DOD has experienced in space acquisitions and changes that could be considered to mitigate them, we interviewed DOD officials and industry professionals. We also analyzed information from relevant studies and commissions. We then assessed the information gathered and sent our findings to the 17 experts we initially interviewed for their review and comment.

We conducted this performance audit from September 2015 to July 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary, DOD space leadership responsibilities are fragmented among several organizations. We identified approximately 60 stakeholder organizations across DOD, the Executive Office of the President, the Intelligence Community, and civilian agencies. Of these, eight organizations, including SMC and NRO mentioned above, have space acquisition management responsibilities; eleven have oversight responsibilities; and six are involved in setting requirements for defense space programs. In October 2015, the Deputy Secretary of Defense designated the Secretary of the Air Force as the Principal DOD Space Advisor (PDSA). The PDSA, supported by an advisory body called the Defense Space Council (DSC), is responsible for promoting a unified approach to space issues, including acquisitions; overseeing the entire DOD space portfolio, including all space policies, strategies, and plans across DOD; and serving as an independent advisor on all space matters to top DOD officials. PDSA officials stated that the PDSA role is expected to have new responsibilities that will help it effectively consolidate space leadership. Some of these responsibilities include reviewing all service budgets for conformity with national security space policy, and giving independent assessments and recommendations to top DOD officials when there is no DSC consensus. However, it remains to be seen whether the PDSA will be effective in unifying space leadership and authority.

The organization of space acquisitions and oversight has been studied in depth over the last 20 years; however, DOD has not made significant changes to space leadership that were recommended by the four most relevant studies that we identified:

1. *Report of the Commission to Assess US National Security Space Management and Organization*; Hon. Donald H. Rumsfeld, Chairman (2001)
2. *Joint Task Force on Acquisition of National Security Space Programs,* Defense Science Board and Air Force Scientific Advisory Board (2003)
3. *Leadership, Management, and Organization for National Security Space Report*, Institute for Defense Analyses (2008)
4. *Report on Challenges and Recommendations for United States Overhead Architecture*, House Permanent Select Committee on Intelligence (2008)

These studies made 28 recommendations related to management and oversight of national security space (listed in enclosure II), which can be grouped into six categories:

- Space as a national security priority
- Unified leadership and authority
- Improved coordination between defense space entities
- Budget issues
- Planning
- Acquisition process

We found that DOD has made significant progress in one category—making space a national security priority—and limited progress in four others—coordination, budget, planning, and acquisition reform. In the remaining category—unified leadership and authority—DOD has not adopted a number of recommendations made in the studies, such as combining NRO and Air Force space acquisition functions into a unified organization or establishing an Under Secretary of Defense-level official with responsibility for planning and executing national security space programs.

Some of the acquisition problems identified in past studies and GAO reports persist today, such as insufficient program manager empowerment and excessive reviews, which contribute to inefficiencies. Officials and experts we spoke with stated that the challenges are magnified in space programs because space technologies are frequently obsolete by the time they are deployed. The officials and experts also stated that DOD space acquisitions generally take too long due to fragmented leadership, a redundant oversight bureaucracy, and difficulty coordinating among numerous stakeholders. By contrast, the NRO's processes appear more streamlined than DOD's. For example, according to officials, NRO program managers are only two levels removed from the main acquisition decision maker. Many officials and experts stated that no one seems to be in charge of space acquisitions and many remain skeptical that the recently designated PDSA will have sufficient decision-making authority to address these concerns. However, others—including from the PDSA—stated a strong belief that the position will be able to effectively consolidate fragmented leadership responsibilities. While it is too early to gauge whether the PDSA has sufficient authority to consolidate space leadership responsibilities, PDSA officials stated that they will develop metrics to help assess the effectiveness of the PDSA role.

Based on our interviews with DOD officials and experts, we identified some suggested themes for reform, some of which apply to DOD acquisitions broadly. They include: (1) streamlining reviews; (2) delegating more decision-making authority to lower levels; (3) increasing unity of

national security space decisions between DOD and the NRO; (4) achieving lasting change that cannot be quickly undone and to allow time for the changes to work; and (5) providing sufficient acquisition, execution, and budget authority. We also identified and examined several potential approaches to reforming DOD space acquisitions that were suggested and supported by DOD and expert officials:

- No Further Changes: allow time for the newly established PDSA change to work.
- Defense Space Agency: combine the military space functions into one agency but leave the NRO unchanged.
- Space Acquisition Agency: combine SMC and NRO into one agency.
- Space Force: new military department for the space domain.

All four options have significant benefits and drawbacks. The final three options would likely result in significant short-term disruption to DOD's space organizational structure, roles, and responsibilities. However, given the long-standing fragmentation in space leadership and consequent challenges faced by DOD in synchronizing its extensive space enterprise, proposals such as these might deserve a closer look if the new PDSA role does not prove effective.

Agency Comments and Our Evaluation

We are not making recommendations in this report. We provided a draft of this report to DOD and NRO for comment. DOD provided us written comments (reprinted in enclosure III); NRO did not comment. DOD also provided technical comments that have been incorporated as appropriate.

In its written comments, DOD stated that it disagreed with GAO publishing the report at this time because it contains no new information on the reforms already adopted and states that it is too early to gauge whether these reforms are working. DOD also stated that identification of additional reforms for consideration before assessing the effectiveness of the existing reforms would be premature. Additionally, DOD stated that because the report focuses almost exclusively on enterprise-level governance processes and does not address the full scope of the stated questions regarding the Department's space acquisition model, the report is retrospective and does not assess the effectiveness of current efforts intended to reduce fragmentation and overlap.

As our report shows, we found the most notable space system governance reform DOD has adopted in recent years is the October 2015 designation of the Secretary of the Air Force as the PDSA. Both DOD and we agree it is too early to assess the effectiveness of this change, but this fact should not preclude consideration of other potential reform alternatives, especially in light of DOD's longstanding and generally unsuccessful track record of making effective and lasting improvements. For example, the Secretary of the Air Force was previously designated as the EA for Space in 2003 in order to unify space leadership; however, this role proved ineffective for several reasons, including insufficient authority and difficulty coordinating the numerous stakeholders. Our focus on enterprise-level governance in answering our research objectives is purposeful, as oversight and management of a wide range of space matters—including requirements, budgeting, and operations—have direct and significant implications on the effectiveness of acquisition efforts. For example, DOD's procurement of commercial satellite communications is fragmented and inefficient, partly due to a lack of central leadership. Additionally, several major studies have advocated broad enterprise-level reorganizations,

including centralized leadership and greater budgetary responsibilities, to resolve fragmented and overlapping leadership and improve acquisition performance, but DOD has generally shied away from such broad measures. Officials of the newly-established PDSA believe the new office will resolve these issues because its stated goal is to unify DOD space leadership; however, this change does not incorporate new budgetary and organizational authorities that DOD officials and experts say may prove necessary to overcome a history of insufficient centralized space leadership. We disagree the report is entirely retrospective, as a primary focus is to establish the current condition upon which future improvements might be made. But retrospect is valuable. Not duly considering what in the past has or has not happened and why carries the risk of repeating past mistakes of providing warfighters with delayed and/or reduced capabilities at increased cost.

- - - - -

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Secretary of the Air Force, and the Director of the NRO. This report will also be available at no charge on our website at http://www.gao.gov.

Should you or your staff have questions concerning this report please reach call or email me at (202) 512-4841 or at chaplainc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are Rich Horiuchi, Assistant Director; Raj Chitikila; Emily Bond; Maricela Cherveny; Andrea Evans; Laura Hook; Jean McSween; Sarah Veale; and Alyssa Weir.

Cristina Chaplain Director, Acquisition and Sourcing Management

Enclosures – 3

List of Committees

The Honorable John McCain
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate
The Honorable Thad Cochran
Chairman
The Honorable Richard Durbin
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate
The Honorable Mac Thornberry
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives
The Honorable Rodney Frelinghuysen
Chairman
The Honorable Pete Visclosky
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Enclosure I: DOD Space Acquisition Management and Oversight Information Presented to Congressional Committees (Powerpoint presentation, see attached accessible pdf in portfolio)

Enclosure II: Recommendations Related to Improving Management and Oversight of National Security Space Programs

The reports we identified as the most relevant to national security space oversight and management made 28 recommendations related to management, oversight and acquisitions in the defense space community. We listed the relevant recommendations below for each report. We grouped the recommendations into the following six categories:

- space as a national security priority,
- unified leadership and authority,
- improved coordination between defense space entities,
- budget issues,
- planning, and
- acquisition process.

The categories for each recommendation are listed in parentheses after the recommendation in the list below.

Report of the Commission to Assess United States National Security Space Management and Organization; Hon. Donald H. Rumsfeld, Chairman; 2001 (relevant recommendations)

1. The President should consider establishing space as a national security priority. (Space as a national security priority)

2. The President should consider the appointment of a Presidential Space Advisory Group to provide independent advice on developing and employing new space capabilities. (Unified leadership and authority)

3. The President should direct that a Senior Interagency Group for Space be established and staffed within the National Security Council structure. (Coordination)

4. The Secretary of Defense and the Director of Central Intelligence should meet regularly to address national security space policy, objectives and issues. (Coordination)

5. An Under Secretary of Defense for Space, Intelligence and Information should be established. (Unified leadership and authority)

6. The Air Force should realign headquarters and field commands to more effectively organize, train and equip for prompt and sustained space operations. Air Force Space Command (AFSPC) should be assigned responsibility for providing the resources to execute space research, development, acquisition and operations, under the command of a four-star general. The Army and Navy would still establish requirements and develop and deploy space systems unique to each Service. Amend Title 10 U.S.C. to assign the Air Force responsibility to organize, train and equip for prompt and sustained offensive and defensive air and space operations. In addition, the Secretary of Defense

should designate the Air Force as Executive Agent for Space within the Department of Defense. (Unified leadership and authority)

7. Assign the Under Secretary of the Air Force as the Director of the National Reconnaissance Office. Designate the Under Secretary as the Air Force Acquisition Executive for Space. (Unified leadership and authority)

8. The Secretary of Defense should establish a Major Force Program for Space. (Budget)

Leadership, Management, and Organization for National Security Space Report, Institute for Defense Analyses, 2008

9. The President should establish and lead the execution of a National Space Strategy that assures U.S. space preeminence, integrates the various participants, establishes lines of authority and accountability, and delineates priorities. To implement the strategy, the President should reestablish the National Space Council, chaired by the National Security Advisor, with the authority to assign roles and responsibilities and to adjudicate disputes over requirements and resources. (Space as a national security priority, Unified leadership and authority, Planning)

10. Establish a National Security Space Authority (NSSA). The Director of NSSA should be assigned the rank of Under Secretary of Defense for Space in addition to being designated the Deputy Director of National Intelligence (DDNI) for Space, reporting to the Secretary of Defense and the Director of National Intelligence (DNI). The Director, NSSA will be the Executive Agent for Space and the NSS acquisition authority. The director will also be responsible for defining and formulating the Major Force Program-12 Budget, be the focal point for interagency coordination on national security space (NSS) matters, and be the single authority with responsibility and accountability for the planning and execution of the NSS program. Analytical and technical support from a National Security Space Office-like organization augmented with Intelligence Community expertise will be required to execute this responsibility effectively. (Unified leadership and authority, Planning, Coordination, Budget)

11. Create a National Security Space Organization (NSSO). Assign the NSSO the functions currently assigned to the National Reconnaissance Office, the Air Force Space and Missile Systems Center, the Air Force Research Laboratories Space Vehicles Directorate, the operational functions of the of Air Force Space Command, and other Service organizations now providing space capability. The merged organization will report to NSSA for policy, requirements, and acquisition and AFSPC for organization, training, and equipping responsibilities. Spacecraft command, control, and data acquisition operations as well as launch will be the responsibility of National Security Space Organization. (Unified leadership and authority, Planning)

12. Change Air Force and intelligence community (IC) human resource management policies for space acquisition professionals in order to emphasize technical competence, experience, and continuity. Establish a career education, training, and experience path for the development of engineers and managers who are space acquisition professionals. Establish as the norm that space project management personnel be in a given position for sufficient time to maximize project success—four years or more—without adverse effect upon an individual's career. Support should be given to the current Space Cadre management and training program being implemented by the

Services, as exemplified by the Air Force through AFSPC and Air Education and Training Command. (Acquisition process)

***Joint Task Force on Acquisition of National Security Space Programs,* Defense Science Board and Air Force Scientific Advisory Board, 2003 (relevant recommendations)**

13. The Under Secretary of the Air Force/Director National Reconnaissance Office (USecAF/DNRO) should establish mission success as the guiding principle in all space systems acquisition. This requires incorporation of the principle in policy statements, leadership actions, and contractual provisions and incentives. (Acquisition process)
14. The Secretary of Defense should establish the same authority for the USecAF for the Department of Defense (DOD) space programs as the DNRO has for implementing the National Reconnaissance Program budget. (Unified leadership and authority, Budget)
15. To ensure realistic budgets and cost estimates, the USecAF/DNRO should:
    a. Direct that space acquisition programs be budgeted to a most probable (80/20) cost, with a 20-25 percent management reserve for development programs included within this cost; also direct that reserves are not to be used for new requirements;
    b. Direct that source selections evaluate contractor cost credibility and use the estimate as a measure of their technical understanding;
    c. Conduct more effective independent cost estimates and program assessments and incorporate the results into the program budget and plan; and
    d. Implement independent senior advisory reviews at critical acquisition milestones with experienced, respected outsiders. (Acquisition process)
16. The USecAF/DNRO should compete space system acquisitions only when clearly in the best interest of the government (e.g., new mission capability, major new technology, or poor incumbent performance). When a competition occurs and a nonincumbent is the winner, the loss of investment in the losing incumbent must be reflected in the program budget and plan. In addition, provisions must be made to assure continuity between the legacy system and the new system. (Acquisition process)
17. The USecAF/DNRO should, through policy and leadership action, clearly define the responsibility, authority, and accountability for program managers, recognizing the criticality of program managers to the success of their programs. In selecting managers, acquisition experience must be a prerequisite. (Acquisition process)
18. USecAF/DNRO should develop a robust systems engineering capability to support program initiation and development. Specifically, USecAF/DNRO should
    a. Reestablish organic government systems engineering capability by selecting appropriate people from within government, hiring to acquire needed capabilities, and implementing training programs; and
    b. In the near term, ensure full utilization of the combined capabilities of government, Federally Funded Research and Development Center, and systems engineering and technical assistance system engineering resources. (Acquisition process)
19. The USecAF/DNRO should require program managers to identify and report potential problems early.
    a. Program managers should establish early warning metrics and report problems up the management chain for timely corrective action.
    b. Severe and prominent penalties should follow any attempt to suppress problem reporting. (Acquisition process)

20. The USecAF/DNRO should demand that national security space contractors
    a. Account for the quality of their program implementation and for mission success,
    b. Identify proven management and engineering practices and ensure they are being utilized, and
    c. Account for the early identification and open discussion of problems in their program. (Acquisition process)

Report on Challenges and Recommendations for United States Overhead Architecture, House Permanent Select Committee on Intelligence, 2008 (relevant recommendations)

Overhead Architecture/Roadmap:

21. The DNI and Secretary of Defense should develop a common architecture for all space-related systems (imagery, signals, communications, etc.) that supports prioritized national and military needs and takes into consideration budget constraints. Organizations proposing new satellites should demonstrate how their proposals fit into the architecture. (Unified leadership and authority, Planning, Coordination)
22. The DNI and Secretary of Defense should agree to the architecture and related funding decisions. The Secretary of Defense's agreement ensures that the Under Secretary of Defense for Intelligence and the Under Secretary of Defense for Acquisition, Technology and Logistics both agree with the strategy. (Unified leadership and authority, Planning, Coordination)
23. The Office of Management and Budget should carefully consider what space programs it recommends for funding until both the DNI and Secretary of Defense agree on an architecture. (Unified leadership and authority, Planning, Coordination, Budget)

Authorities:

24. The executive branch should review and, as appropriate, recommend changes to the law and other authorities that clarify the DNI's role with respect to jointly funded programs. (Unified leadership and authority)
25. OMB should consider more closely what programs it decides to fund through the National Intelligence Program and the Military Intelligence Program. (Budget)

Program management:

26. Acquisition organizations should embrace acquisition reform that develops and maintains qualified government acquisition personnel while reducing dependence on systems engineering/technical assistance contractors. (Acquisition process)
27. The DDNI for Acquisition should mandate that sufficient margin is built into overall program cost during initiation of a complex program. The DDNI/Acquisition should review the track record of Intelligence Community independent cost estimates to determine if they have been providing adequate margin or if the risk assessment methodology needs to be adjusted. (Acquisition process)
28. The DDNI/Acquisition should mandate longer tours for acquisition personnel supporting high priority, multi-year projects. If rotations are necessary, program offices should provide sufficient time for overlap and transition of responsibility. (Acquisition process)

Enclosure III: Comments from the Department of Defense

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3600 DEFENSE PENTAGON
WASHINGTON, DC 20301-3600

ACQUISITION

JUL 6 2016

Ms. Cristina Chaplain
Director, Acquisition and Sourcing Management
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Ms. Chaplain:

Thank you for the opportunity to review GAO Draft Report GAO-16-592R, "DEFENSE SPACE ACQUISITIONS: Too Early to Determine If Recent Changes Will Resolve Persistent Fragmentation in Management and Oversight," dated June 2, 2016 (GAO Code 100289).

The Department does not concur with the GAO publishing this report at this time since it contains no new information on the reforms already adopted and states clearly that it is "too early to gauge" whether these reforms are working. Identification of additional reforms for consideration before assessing the effectiveness of the existing reforms would be premature. Because the report focuses almost exclusively on enterprise-level governance processes and does not address the full scope of the stated questions regarding the Department's space acquisition model, the report is entirely retrospective and does not assess the effectiveness of current efforts intended to reduce fragmentation and overlap.

Again, we appreciate the opportunity to comment on the GAO's draft report. The point of contact is Mr. Winston Beauchamp, Winston.A.Beauchamp.civ@mail.mil, 703-693-5799.

Sincerely,

James MacStravic
Acting Principal Deputy Assistant
Secretary of Defense for Acquisition
Performing the Duties of the Assistant
Secretary of Defense for Acquisition

Text of Enclosure III: Comments from the Department of Defense

Ms. Cristina Chaplain

Director, Acquisition and Sourcing Management

U.S. Government Accountability Office 441 G Street, N.W.

Washington, DC 20548 Dear Ms. Chaplain :

Thank you for the opportunity to review GAO Draft Report GA0-16-592R , "DEFENSE SPACE ACQUISITIONS : Too Early to Determine If Recent Changes Will Resolve Persistent Fragmentation in Management and Oversight," dated June 2, 2016 (GAO Code 100289).

The Department does not concur with the GAO publishing this report at this time since it contains no new information on the reforms already adopted and states clearly that it is "too early to gauge" whether these reforms are working. Identification of additional reforms for consideration before assessing the effectiveness of the existing reforms would be premature.

Because the report focuses almost exclusively on enterprise-level governance processes and does not address the full scope of the stated questions regarding the Department 's space acquisition model , the report is entirely retrospective and does not assess the effectiveness of current efforts intended to reduce fragmentation and overlap.

Again, we appreciate the opportunity to comment on the GAO's draft report. The point of contact is Mr. Winston Beauchamp , Winston.A.Beauchamp.civ@mail.mil , 703-693-5799.

Sincerely,

James MacStravic

Acting Principal Deputy Assistant Secretary of Defense for Acquisition Performing the Duties of the Assistant Secretary of Defense for Acquisition

(100289)