



July 2015

DEFENSE SATELLITE COMMUNICATIONS

DOD Needs Additional Information to Improve Procurements

GAO Highlights

Highlights of [GAO-15-459](#), a report to Committee on Armed Services, U.S. Senate

Why GAO Did This Study

DOD depends on commercial SATCOM to support a variety of critical mission needs, from unmanned aerial vehicles and intelligence to voice and data for military personnel. In fiscal year 2011, the most recent information available, DOD spent over \$1 billion leasing commercial SATCOM. In prior work, GAO found that some major DOD users of commercial satellite bandwidth were dissatisfied with DISA's acquisition process seeing it as too costly and lengthy. These users also indicated that the contracts used were too inflexible.

The Senate Armed Services Committee's report accompanying the National Defense Authorization Act for Fiscal Year 2014 included a provision for DOD to report on the future mix of military and commercial SATCOM and for GAO to review DOD's report, issued in August 2014. This report (1) assesses the extent to which DOD efficiently procures bandwidth, (2) analyzes the extent to which DOD has identified its future SATCOM requirements using DOD and commercial satellite services, as well as how those requirements will be met, and (3) identifies the steps DOD is taking to improve its procurements of commercial SATCOM.

To conduct this work, GAO reviewed DOD's reports, DOD SATCOM procurement guidance, prior GAO reports, and interviewed DOD officials.

What GAO Recommends

GAO recommends that DOD (1) enforce current policy requiring DISA to acquire all commercial SATCOM; (2) conduct a spend analysis identifying procurement inefficiencies and opportunities; and (3) assess whether further centralization of commercial SATCOM procurement could be beneficial. DOD concurred.

View [GAO-15-459](#). For more information, contact Cristina Chaplain, (202) 512-4841 or chaplainc@gao.gov.

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DOD Needs Additional Information to Improve Procurements

What GAO Found

The Department of Defense's (DOD) procurement of commercial satellite communications (SATCOM), or bandwidth, is fragmented and inefficient. Historically, commercial SATCOM was used to augment military capability, but DOD has become increasingly reliant on commercial SATCOM to support ongoing U.S. military operations. DOD policy requires all of its components to procure commercial SATCOM through the Defense Information Systems Agency (DISA), but GAO found that some components are independently procuring SATCOM to meet their individual needs. DOD's most recent SATCOM usage report estimates that over 30 percent of commercial SATCOM is bought independently by DOD components, even though DOD found the average cost of commercial SATCOM bought through DISA is about 16 percent lower than independently bought commercial SATCOM. Fragmentation limits opportunities for DOD to bundle purchases, share services, and streamline its procurement of commercial SATCOM.

DOD recently completed two studies aimed at identifying the appropriate future mix of military and commercial SATCOM and predicting future SATCOM needs, however, the reports are partially based on incomplete data. First, the 2014 Satellite Communications Strategy Report did not identify the appropriate future mix of military and commercial SATCOM; rather, it outlined a plan that, if successful, may allow DOD to do so at a later time. Second, the 2014 Mix of Media Report based its predictions of future SATCOM requirements and demand on DOD's SATCOM Database, which DOD officials acknowledge lacks comprehensive usage and demand data.

DOD is taking steps to improve its SATCOM procurement and address challenges through "pathfinder" efforts aimed at identifying short- and long-term options. For example, DOD intends to study the potential benefits of using innovative contracting approaches as it procures military and commercial SATCOM, and refine its understanding of DOD's global SATCOM requirements. However, it may be several years before DOD is able to evaluate the results of its pathfinder efforts. For example, all of the 10 pathfinders planned or already underway are expected to be completed in or beyond fiscal year 2017. DOD's efforts to improve its procurement of military and commercial SATCOM will also be hampered by two long-standing challenges—lack of knowledge of what DOD is spending on commercial SATCOM and resistance to centralized management of SATCOM procurement—both of which GAO reported on and made recommendations to improve in 2003—regarding commercial SATCOM. Specifically, GAO recommended that DOD strengthen its capacity to provide accurate and complete analyses of commercial bandwidth spending and implement a strategic management framework for improving the acquisition of commercial bandwidth. DOD generally concurred with GAO's 2003 recommendations and developed a plan to address them, but none of DOD's corrective actions was carried out as intended. These challenges are commonly faced by organizations seeking to strategically source procurements of services, but they can be overcome by employing best practices, which include conducting detailed spend analyses and centralized management of service procurements to identify procurement inefficiencies and opportunities.

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Abbreviations

CJCSI	Chairman of the Joint Chiefs of Staff Instruction
DSCS III	Defense Satellite Communications System Phase III
DISA	Defense Information Systems Agency
DOD	Department of Defense
NDAA	National Defense Authorization Act
SATCOM	satellite communications
WGS	Wideband Global SATCOM

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July 17, 2015

The Honorable John McCain
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

The Department of Defense (DOD) leases commercial satellite communications (SATCOM) to support a variety of critical mission needs, such as surveillance being performed by unmanned aerial vehicles and communications between commanders and field units. DOD currently meets these needs through a mix of military and commercial SATCOM to support land, sea, air, and space operations. Historically, DOD leased commercial SATCOM services to augment military capacity; however, DOD has become increasingly reliant upon commercial SATCOM to support ongoing U.S. military operations. Commercial SATCOM services now represent a significant portion of the DOD SATCOM architecture. For fiscal year 2011, DOD reported it spent over \$1 billion to lease SATCOM services from commercial providers.¹

The Senate Armed Services Committee, in its report accompanying S. 1197, a bill for the National Defense Authorization Act (NDAA) for Fiscal Year 2014, directed the Secretary of Defense to provide a report detailing a 5-, 10-, and 25-year strategy for using a mix of DOD and commercial satellite bandwidth.² The committee's report also directed DOD to

¹The Fiscal Year 2011 Commercial Satellite Communications Strategy Usage Report is the most recent report on commercial SATCOM usage available. U.S. Strategic Command Fiscal Year 2011 Commercial Satellite Communications Usage Report In Response To Chairman of the Joint Chiefs of Staff Instruction 6250.01E (August 7, 2013).

²S. Report 133-44, at 167-168 (2013). Bandwidth is the range of frequencies that can pass over a given transmission channel. In the commercial satellite bandwidth leases DOD acquires, it is usually measured in millions of hertz, or megahertz (MHz)—such as 36 MHz, 54 MHz, or 72 MHz—which determine the rate at which information can be transmitted through the circuit.

investigate alternative methods for procuring commercially supplied bandwidth. The department issued its report in August 2014.³

Additionally, the committee's report included a provision for GAO to review and report on DOD's acquisition strategy. As discussed with your staff, we included in our review recent DOD actions to identify a mix of satellite services. The scope of our work also includes follow up on prior reviews which identified inefficiencies and customer dissatisfaction in procurements of satellite communications bandwidth.⁴ Specifically, we (1) assessed the extent to which DOD efficiently procures bandwidth, (2) analyzed the extent to which DOD has identified its future SATCOM requirements, as well as how those requirements will be met using DOD and commercial satellite services, (3) identified the steps, if any, DOD is taking to improve its procurements of commercial SATCOM.

To assess the extent to which DOD efficiently procures bandwidth and assess the extent to which DOD has identified its future SATCOM requirements, we reviewed DOD guidance and recent DOD studies and reports to identify criteria for procuring commercial satellite services as well as for evidence DOD has identified its future SATCOM requirements. Specifically, we reviewed Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6250.01E which provides high-level operational policy, guidance, and procedures for the acquisition, planning, management, and use of satellite communications for DOD.⁵ We met with agency officials from the Defense Information Systems Agency (DISA), the U.S. Strategic Command, DOD's Chief Information Officer, Joint Staff, Combatant Commands, and the military services to obtain, from their perspective, how DOD procures bandwidth.⁶ Additionally, we reviewed recent DOD

³Department of Defense Chief Information Officer, *Satellite Communications Strategy Report In Response to Senate Report 113-44 to Accompany S. 1197 National Defense Authorization Act for Fiscal Year 2014* (Aug. 14, 2014).

⁴GAO, *Satellite Communications: Strategic Approach Needed for DOD's Procurement of Commercial Satellite Bandwidth*, [GAO-04-206](#) (Washington, D.C.: Dec. 10, 2003); and *Department of Defense Actions to Modify its Commercial Communications Satellite Services Procurement Process*, [GAO-06-480R](#) (Washington, D.C.: Apr. 17, 2006).

⁵*Chairman of the Joint Chiefs of Staff Instruction, Subject: Satellite Communications CJCSI 6250.01E* (Mar. 14, 2013).

⁶We interviewed the four combatant commands with the highest commercial SATCOM expenditures—Northern Command, Central Command, Pacific Command, and European Command.

studies and reports, such as its August 2014 Satellite Communications Strategy Report (Strategy Report), the Fiscal Year 2011 Commercial Satellite Communications Usage Report (Usage Report), as well as DISA's April 2013 Commercial Satellite Communications Analysis of Alternatives Final Report, in which past and current acquisition strategies are described. We then compared these acquisition strategies to the prescribed CJCSI procurement policy. Additionally, we reviewed DISA's DOD Satellite Communications Mix of Media Study, which examined the planned mix of DOD and commercial SATCOM to support user requirements for the 2018 through 2030 time frame, to ascertain whether or not DOD had identified its future SATCOM requirements, as well as how those requirements will be met using DOD and commercial SATCOM. Further, we reviewed our prior reports on DOD's procurement of commercial SATCOM to provide an update.⁷ To assess the reliability of the data presented in DOD's Strategy Report, Usage Report, and Mix of Media Report used to identify future SATCOM requirements, we interviewed agency officials about data quality control procedures and reviewed relevant documentation. We noted that there may be limitations in the data in terms of its completeness. However, we determined that the data are sufficiently reliable to identify a portion of the SATCOM DOD procures.

To assess additional steps DOD is taking to improve its procurements of commercial SATCOM, we obtained and reviewed briefing packages and reports describing current reform initiatives, as well as reviewed our prior reports, including work on strategic sourcing best practices.⁸ Specifically, we obtained and reviewed a briefing packaged related to DISA and Air Force Pathfinder efforts intended to improve the acquisition and management of commercial SATCOM. We also obtained and reviewed DOD's August 2014 Satellite Communications Strategy Report, as well as DISA's Commercial Satellite Communications Analysis of Alternatives

⁷GAO, *Satellite Communications: Strategic Approach Needed for DOD's Procurement of Commercial Satellite Bandwidth*, [GAO-04-206](#) (Washington, D.C.: Dec. 10, 2003); and *Department of Defense Actions to Modify its Commercial Communications Satellite Services Procurement Process*, [GAO-06-480R](#) (Washington, D.C.: Apr. 17, 2006).

⁸GAO, *Best Practices: Taking a Strategic Approach Could Improve DOD's Acquisition of Services*, [GAO-02-230](#) (Washington, D.C.: Jan. 18, 2002); *Strategic Sourcing: Improved and Expanded Use Could Save Billions in Annual Procurement Costs*, [GAO-12-919](#) (Washington, D.C.: Sept. 20, 2012); and *Strategic Sourcing: Leading Commercial Practices Can Help Federal Agencies Increase Savings When Acquiring Services*, [GAO-13-417](#) (Washington, D.C.: Apr. 15, 2013).

Final Report, in which DOD commercial SATCOM reform initiatives and procurement alternatives are described. We interviewed representatives from the offices of the Undersecretary of Defense for Acquisition, Technology, and Logistics; DOD's Chief Information Officer; Joint Chiefs of Staff; office of the Secretary of Defense, Cost Assessment and Program Evaluation; the Defense Information Systems Agency; and the office of the Executive Agent for Space, to obtain, from their perspective, initiatives DOD is undertaking to improve the acquisition and management of commercial SATCOM and the associated challenges. We then compared these efforts to leading commercial companies' strategic sourcing best practices for acquiring services.

We conducted this performance audit from March 2014 to July 2015 in accordance with generally accepted government audit standards. These 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 objectives.

Background

DOD currently uses both military and commercial SATCOM to meet its global communications requirements. DOD leases commercial SATCOM to meet outstanding military SATCOM requirements, to satisfy users who need a disproportionate share of military satellite resources, and to continue to provide capability to the military services using commercial-band-only equipment.

The military SATCOM architecture consists of three segments: a protected segment that provides secure, jam resistant communications; a wideband segment, which supports Army mobile ground terminals and Navy ships and submarines, among other things; and a narrowband segment, which provides complementary capability to the other segments, such as beyond line-of-sight secure tactical communications capabilities. In comparison, the commercial SATCOM architecture consists of two segments—fixed and mobile satellite services—which provide functions similar to the military wideband and narrowband

segments, respectively. There is no commercial counterpart to the military protected segment.⁹

DOD leases commercial SATCOM primarily through the Defense Information Systems Agency. DISA does not procure commercial SATCOM directly from satellite service providers; instead it buys commercial SATCOM through several competitively selected vendors, which in turn compete for work among individual service providers.

Before September 11, 2001, the majority of DOD's SATCOM capacity was provided by the Defense Satellite Communications System Phase III (DSCS III) program, a five-satellite military constellation. DSCS III capability was augmented by commercial SATCOM in support of US military operations abroad, such as Operation Desert Storm, and humanitarian relief efforts. The Wideband Global SATCOM (WGS) satellite system began replacing DSCS III in 2007, and each satellite provides about 10 times the capacity of its predecessor.

Prior GAO Findings on Procurements of Commercial Satellite Bandwidth Services

In 2003, we found that while the process for acquiring commercial satellite bandwidth is fair to DOD's vendors and their subcontractors, some major DOD users of commercial satellite bandwidth services were dissatisfied with DISA's process.¹⁰ They viewed the process as being too lengthy, particularly for time-critical military operations, and they believed that the cost was too high. They also indicated that the contracts resulting from the process were often too inflexible. As a result, some users were bypassing the DISA process, either by formally obtaining a waiver or by procuring services without a waiver. By allowing users to bypass the DISA waiver process, DOD was hampering its ability to ensure that its communications networks were interoperable and to minimize redundancies.

We also reported that DOD did not know exactly how much it was spending on commercial satellite bandwidth services, nor did it know much about its service providers or whether customer needs were really

⁹DOD primarily requires the services of satellites transmitting in five frequency bands—C, X, Ku, Ka, and Extremely High Frequency (EHF). DOD has traditionally relied more heavily on the Ku band within the fixed segment of commercial SATCOM.

¹⁰[GAO-04-206](#).

being satisfied. Without this knowledge, DOD could not take steps to leverage its buying power, even though it was the largest customer for commercial satellite bandwidth. Moreover, neither DOD nor DISA were making a concerted effort to collect forecasts of bandwidth needs from users and ensuring those needs could be met by the commercial sector. These are also important steps toward optimizing DOD's spending.

We concluded that if DISA was to remain as DOD's primary agent to acquire satellite bandwidth, it must implement a more strategic management approach—one that ensured that services could be acquired in a fair, timely, and cost-effective way that met users' needs. Doing so would be a considerable challenge, however, given the environment at that time and the potential resistance within DISA and from its users. Commitment was needed from senior leaders within DISA and DOD to overcome challenges associated with implementing a strategic approach.

Thus, we specifically recommended DOD implement a strategic management framework for improving the acquisition of commercial bandwidth, that, among other things, inventories current and potential users of commercial bandwidth to determine their existing and long-term requirements; identifies and exploits opportunities to consolidate bandwidth requirements of combatant commanders, the military services, and defense agencies; and adopt commonly used commercial practices, such as conducting spend analyses and negotiating pricing discounts based on overall DOD volume, to strengthen DOD's position to acquire bandwidth; and finally, improve the current funding structure by considering new funding approaches such as centralized funding of commercial bandwidth, and seeking legislative authority for multi-year procurements.

Our recommendations were based on practices of organizations that have successfully applied strategic sourcing techniques to their procurements of services. These include establishing a central agent or manager for acquiring services, gaining visibility over spending, and revising business processes to enable the organization to leverage its buying power.

Since our 2003 review, we have updated this work and found that leading companies still adhered to principles such as centralized management for procurements of services but also have been able to obtain considerable savings in their purchases of services by intensely analyzing their spending patterns and tailoring their procurement tactics to fit a particular

service, depending on its complexity and the number of available suppliers.¹¹ For a service such as commercial bandwidth, for example, companies typically leverage scale and volume across their organizations, use fixed price contracts, identify market trends to target savings opportunities, develop procurement catalogs with pre-negotiated prices for some services, and vary bidding parameters such as volume, scale, different contract lengths in order to find new ways to reduce costs.

At the time of our 2003 review, DOD generally agreed with our recommendations. As part of our 2006 review, we found that DOD had taken several actions to develop a new approach for procuring commercial satellite services.¹² For example, it developed an approach to embrace strategic sourcing techniques; it analyzed the costs and benefits of different procurement options; it made changes to its requirements and provisioning processes to improve responsiveness and aggregate bandwidth and it began seeking feedback from industry on different contracting approaches. Additional actions DOD has taken since our 2003 and 2006 reports, and the status of these actions, are discussed later in this report.¹³

DOD Procurement of Commercial Satellite Bandwidth Is a Fragmented, Inefficient Process

Though actions were taken in response to our earlier reviews of procurements of commercial SATCOM and DOD has embraced the need to be more strategic in its procurements of bandwidth, DOD is still challenged by a fragmented and inefficient process, similar to our 2003 findings, as the process has been overwhelmed by the demands of recent military operations, among other factors.

DOD has an agency-wide acquisition policy that requires DISA to procure all commercial SATCOM. DOD has not enforced this policy, however, which has resulted in a procurement approach that is largely fragmented. That is, some DOD components independently procure commercial SATCOM to meet their individual needs, rather than relying on DISA. A recent Air Force Space Command study found that despite DOD's high dependency on commercial SATCOM to fill significant capability gaps for

¹¹[GAO-13-417](#)

¹²[GAO-04-206](#) and [GAO-06-480R](#).

¹³[GAO-04-206](#) and [GAO-06-480R](#).

its warfighters, the department continues to procure commercial SATCOM inefficiently—purchasing commercial SATCOM on the spot market by various DOD components and managed in isolation from one another.¹⁴ This has resulted in commanders having limited situational awareness, control, and oversight of the commercial SATCOM resources. Additionally, these procurements limit opportunities for sharing commercial SATCOM among components and for creating savings by streamlining purchases.

More specifically, guidance from the Joint Chiefs of Staff (Joint Chiefs) states DISA is to procure commercial SATCOM for all DOD customers. Once procured, U.S. Strategic Command (Strategic Command), the DOD agency responsible for providing satellite capability for military operations, assumes operational responsibility of the commercial SATCOM. Although this policy sets the foundation for a centralized commercial SATCOM acquisition and management approach, according to DISA and Strategic Command officials, neither entity has enforcement power to ensure the combatant commands and military services adhere to it. According to DOD officials, some combatant commands and military services believe they can acquire commercial SATCOM faster, better, and cheaper than DISA.

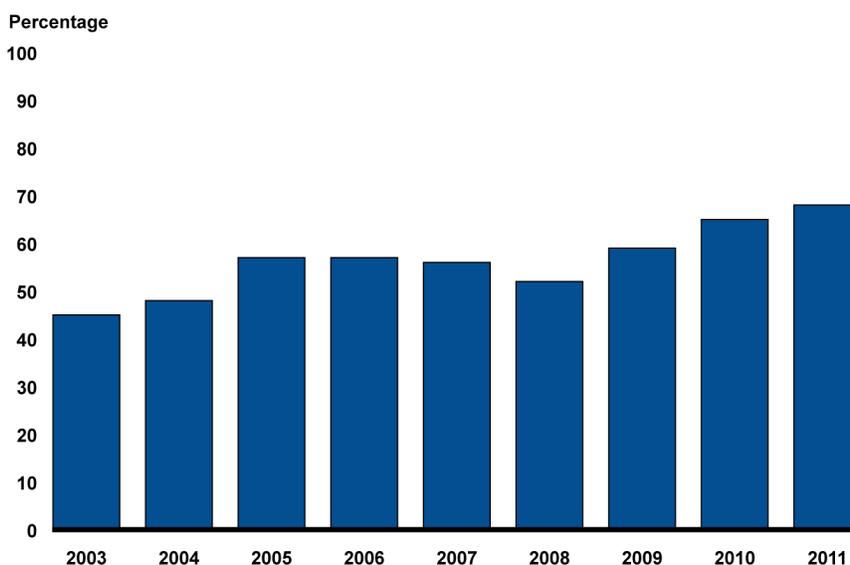
When DOD components procure commercial SATCOM outside of the DISA process, the department ends up paying more than needed for commercial SATCOM. For example, DOD reported in its most recent commercial SATCOM usage report that the average cost for commercial capacity leased though DISA was 16 percent lower than comparable services not acquired through DISA.¹⁵ Additionally, according to the same report, approximately \$280 million or about 32 percent of fixed satellite commercial SATCOM services was procured outside of DISA, in conflict with current DOD policy. As shown in figure 1 below, a significant portion

¹⁴The spot market is a term that refers to commodities, in this case commercial SATCOM, which is bought through short term purchases and available for immediate use with little regard to bundling of requirements or leasing longer term. Air Force Space Command White Paper, *Impediments and New Approaches for Leveraging Commercial Satellite Communications in Support of the Air Force and Department of Defense*, August 16, 2013.

¹⁵U.S. Strategic Command Fiscal Year 2011 Commercial Satellite Communications Usage Report In Response To Chairman of the Joint Chiefs of Staff Instruction 6250.01E (August 7, 2013).

of commercial SATCOM is procured independently by DOD components, and not through DISA, as DOD policy requires. This fragmented approach to acquiring commercial SATCOM places DOD at risk of not leveraging its own buying power through efficiencies, such as bundling acquisitions.

Figure 1: Percentage of Commercial Fixed Satellite Services Acquired by DISA, by Year, from 2003 through 2011



Source: GAO presentation of DOD data. | GAO-15-459

Although adherence to the Joint Chiefs guidance to procure commercial SATCOM through DISA has improved in recent years, as shown in figure 1, according to DOD officials, some DOD users still view the requirement as cumbersome and bureaucratic.

Since 2001, four specific events have contributed to fragmentation in DOD's commercial SATCOM acquisitions.

- First, following September 11, 2001, the U.S. military experienced a dramatic increase in forces supporting U.S. military Operation Enduring Freedom in Afghanistan and Iraqi Freedom in Iraq. To support these efforts, DOD needed significantly more SATCOM capability to support military operations. From 2000 to 2011, DOD reported that its reliance on commercial SATCOM rose by over 800 percent.

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- Second, prior to the first Wideband Global SATCOM satellite launch in 2007, DOD had limited SATCOM capacity through DSCS III in the Middle East region. The buildup in forces in Afghanistan and Iraq, combined with the lack of on-orbit WGS capability, resulted in several combatant commands and military services investing in commercial-band-only end user equipment to support ongoing military operations.
 - Third, DOD deployed new weapon systems, such as unmanned aerial vehicles and other intelligence, surveillance, and reconnaissance platforms that were originally designed to work with commercial systems. Because these platforms consume large amounts of bandwidth, support high-priority missions, and will only operate with commercial band services, commercial SATCOM procurement was further fragmented.
 - Finally, the Congress made supplemental funds available to the combatant commands and military services in an effort to offset the cost of increased military operations, which resulted in those commands and military services procuring commercial SATCOM on a piecemeal basis.

With few exceptions, DOD does not currently budget funds to acquire commercial SATCOM. Instead, it is the responsibility of the military services to plan, arrange, and fund commercial SATCOM acquisitions—typically utilizing supplemental funds. According to DOD officials, when using supplemental funds to purchase commercial bandwidth during times of conflict, efficiency is not the primary concern. While we recognize DOD is often confronted with addressing immediate needs to ensure mission effectiveness, particularly in times of conflict, utilizing a central point of contact could better position DOD to not only meet mission needs but to do so both effectively and efficiently. Supplemental funding allows DOD components the flexibility to acquire commercial SATCOM at their discretion, but it also impedes centralized, multi-year acquisitions, and hinders DOD's ability to manage military and commercial SATCOM as a whole. DOD's most recent commercial SATCOM usage report stated that the costs of the known DOD contracts for fixed satellite services during the reporting period totaled about \$875 million. Of this, an estimated 70

percent was paid for with supplemental funds, for a total of about \$613 million.¹⁶

Over the past decade, several entities have recommended that DOD move toward a more strategic approach for commercial SATCOM procurement. In addition to our 2003 work, for example, the Defense Business Board found in 2013 that DOD's strategy and management structure for procuring bandwidth was not optimized and recommended that DOD designate a single lead organization for overall satellite communication strategy.¹⁷ Specifically, the report recommended that DOD designate and resource a single organization, possibly DISA, to acquire and manage all SATCOM assets under a managed service type approach in the same manner that the Defense Logistics Agency is a one-stop shop for the military services common logistical commodities. Under this construct, all commercial SATCOM acquisition and management would be handled in a managed service type approach, with the designated organization maintaining an inventory of available resources, ensure their disciplined use, and procure SATCOM resources in manner to obtain the best value. Additionally, in 2013, executives from five leading commercial satellite operators co-authored a paper that reiterated the findings of our prior work—that one single focal point would be better positioned to determine how to best meet the overall demand for SATCOM.¹⁸

¹⁶Department of Defense Chief Information Officer. *Satellite Communications Strategy Report In Response to Senate Report 113-44 to Accompany S. 1197 National Defense Authorization Act for Fiscal Year 2014* (Aug. 14, 2014).

¹⁷Defense Business Board. *Report to the Secretary of Defense: Taking Advantage of Opportunities for Commercial Satellite Communications Services*, Report FY13-02.

¹⁸*Seven Ways to Make the DOD a Better Buyer of Commercial SATCOM* (Jan. 14, 2013).

DOD Studies on SATCOM Requirements Provide Data That Can Help Improve Procurements, but There Are Shortcomings

DOD's recent studies on SATCOM requirements provide data that are important to understanding where DOD is headed in terms of its demand for SATCOM and how much it should rely on purchases of commercial SATCOM as opposed to military communications satellites. But there are shortcomings in these studies that limit DOD's understanding of its requirements. Specifically, in its congressionally mandated 2014 Satellite Communication Strategy Report (Strategy Report), DOD did not identify a specific mix of military and commercial SATCOM to meet its needs, but it was able to outline a strategy that may allow DOD to project the appropriate military/commercial mix in the future.¹⁹ Additionally, the Strategy Report determined that DOD should continue to maximize the use of its military satellites and supplement with commercial SATCOM only when military SATCOM is unavailable. At the request of the Strategic Command, DISA also conducted a study looking into the optimal mix of military and commercial SATCOM—its 2014 Mix of Media Report (Media Report)—which indicated DOD demand for SATCOM is growing, but expected capacity will remain flat, suggesting military capability will need to be significantly supplemented with commercial SATCOM in the future.²⁰ The Media Report also indicated that DOD collects information to assist in predictions about future commercial SATCOM needs, but the database on which it bases these predictions is incomplete.

DOD's 2014 Strategy Report Outlines Plans to Determine Optimal Mix of Military and Commercial Satellite Communications

DOD prepared its 2014 Strategy Report in response to committee direction that DOD provide a 5-, 10-, and 25-year strategy for using an appropriate mix of military and commercial SATCOM. Due to shortfalls in DOD's current processes, including demand prediction, funding, and resource utilization, DOD did not identify a specific mix of military and commercial SATCOM to meet its needs, though it did determine that given the lower cost of military over commercial SATCOM, that military SATCOM should be maximized. The Strategy Report also presented plans which, if implemented, may enable DOD to determine the optimal mix of military and commercial SATCOM in the future. For example, DOD's 5-year strategy calls for improving forecasting demand tools to

¹⁹Department of Defense Chief Information Officer. *Satellite Communications Strategy Report In Response to Senate Report 113-44 to Accompany S. 1197 National Defense Authorization Act for Fiscal Year 2014* (Aug. 14, 2014).

²⁰Defense Information Systems Agency. *DOD Satellite Communications Mix of Media Study* (Sept. 25, 2014).

enable better predictions; monitoring the impact of diminishing supplemental funding on commercial SATCOM leases; identifying stable requirements; and refining or developing tools to compare predicted versus actual SATCOM use. DOD's 10-year strategy is to continue to refine the demand prediction methods, and evaluate the successes and failures of the 5-year strategy. DOD contends that due to uncertainties in future SATCOM demand and funding, a 25-year strategy is not practical.

Historically, DOD's preference for military over commercial SATCOM was driven by military SATCOM's superior technology and capabilities. After the September 11, 2001, terrorist attacks, however, DOD's operations supporting overseas contingency missions triggered a dramatic growth in commercial SATCOM demand. As military demand for commercial SATCOM grew, DOD decision makers struggled to define the appropriate mix of military and commercial SATCOM based on capability and cost. In its 2014 Strategy Report, DOD determined its best strategy is to maximize the use of military satellites. DOD identified, however, three conditions under which it would use commercial services: when military satellite bandwidth is unavailable, when user demand exceeds military satellite capability, or when end user ground terminals will only operate with commercial satellites.

DOD's determination to rely on military SATCOM as much as possible is based on several factors, including a military versus commercial cost comparison, protection and resiliency features of military satellites, and guidance provided in Senate Report 133-44. DOD calculated the cost of military SATCOM by including associated costs in addition to actual satellites costs; for example, the military SATCOM cost included acquisition and launch costs, in addition to those costs of military satellite operations. DOD then compared this value to the average cost of leasing commercial bandwidth, and determined that acquiring military bandwidth is less expensive than leasing commercial services, concluding that it would continue to use military SATCOM to the greatest extent possible. DOD compared the average Wideband Global SATCOM (WGS) costs to an average commercial lease value. We did not evaluate DOD's cost analysis, but commercial SATCOM providers have been critical of previous analyses because they believe the cost of commercial services is overstated. For example, in 2013, executives from five leading commercial satellite providers authored a white paper on the ways to make DOD a better buyer of commercial SATCOM. According to this paper, DOD leases commercial SATCOM using high cost, short-term contracts, thereby overstating the costs of commercial services. The paper further noted that if DOD procured commercial SATCOM using a

long-term baseline approach, the costs would be substantially lower. In addition to the cost comparison results, DOD reported that commercial SATCOM is not all designed for military use and some do not include the same capabilities as military SATCOM, such as encryption and jamming protection. DOD's plan to use military SATCOM to the greatest extent possible is consistent with Senate Report 133-44 guidance that alternative procurement arrangements, such as leasing commercial services, should only be pursued when military or other government satellites are unavailable or commercial SATCOM cost less.

DOD Study Aimed at Identifying SATCOM Needs Was Partially Based on Incomplete Information

In September 2014, DISA completed its Media Report, which was intended to provide a representation of future SATCOM demand and capacity in a planning scenario, but the data on which the SATCOM demand predictions in that study were based were incomplete. At the request of the Strategic Command, DISA conducted a study to predict demand and capacity at three future time frames; 2018, 2025, and 2030. The Media Report predicted increasing SATCOM demand with relatively little increase in capacity, resulting in a shortage of military bandwidth at all three future timeframes. The report derived baseline capabilities from current programs of record, and used DOD's SATCOM Database (Database) to identify requirements for those programs.²¹ DOD then applied a force structure scenario to those requirements to estimate future SATCOM needs.

DOD collects information on both military and commercial SATCOM requirements, but some information on the commercial side is lacking since some DOD users bypass DISA's process because, according to DOD officials, they view it as cumbersome and bureaucratic. As stated previously, DOD's most recent commercial SATCOM usage report indicates that roughly 32 percent of fixed satellite services are procured outside of DISA. According to DOD officials, some users who procure commercial SATCOM outside of DISA do not enter commercial requirements into the Database. These officials said that it is not known how often this occurs, and therefore, it is not known to what extent information is being excluded from DOD's Database. DOD uses the Database to predict future commercial SATCOM demand, so complete

²¹Paragraph 1. C., page 1, CJCSI 6250.01E (Mar. 14, 2013) establishes the SATCOM database as the DOD endorsed repository for documenting all current and future military and commercial SATCOM requirements.

data is important to ensuring realistic prediction. Moreover, standards for internal control in the federal government state that program managers need operational data to determine whether they are making effective and efficient use of resources, among other things. Missing data can skew DOD predictions of SATCOM demand, leading to SATCOM procurement decisions that are based on flawed information. Enforcing DOD's agency-wide acquisition policy that requires DISA to procure all commercial SATCOM could better position DOD to capture all SATCOM requirements in its database and thus, be better informed in making predictions of demand and procurement spending decisions.

Other Steps Being Taken to Improve Commercial SATCOM Procurement, but Challenges Remain

DOD is taking other actions to better understand its commercial and military SATCOM needs and improve management, but as DOD moves forward with its plans to reform its commercial SATCOM acquisition and management processes, the department faces challenges, the most prominent being a lack of critical data and resistance to centralizing procurements.

DOD has recently initiated a number of small scale approaches, known as pathfinders, to address fiscal, operational, and policy challenges that could potentially improve commercial SATCOM acquisition and management. DOD has separated the pathfinders into two primary categories: DISA acquisition and Air Force pathfinders. The DISA acquisition pathfinders are intended to help DOD understand its global commercial SATCOM requirements and analyze alternative commercial leases in the short-term. The Air Force pathfinders are intended to investigate better ways to buy commercial SATCOM in the long term. Currently, DOD and DISA have 10 pathfinder projects in various stages, as illustrated by table 1 below.

Table 1: Summary of DOD Pathfinder Efforts

DISA	Planned implementation dates	Air Force	Planned implementation dates
Requirements Analysis: Investigate and refine the Department of Defense’s (DOD) understanding of global annual and long-term commercial satellite communications (SATCOM) requirements.	Fiscal Year (FY) 2015-FY 2017	Buy On-orbit Transponder: Demonstrate investment viability and affordability in commercial bands. ^a	FY 2014-FY 2019
Aggregated Requirements: Analyze and aggregate requirements from multiple users with similar requirements for bulk buy of commercial SATCOM services.	FY 2015-FY 2017	Pre-launch Transponder Purchase: Investigate the pre-launch purchase of a transponder on a commercial satellite.	FY 2016-Post FY 2019
Multi-year Service Contract: Analyze multi-year contracts for long-term commercial SATCOM requirements.	FY 2015-FY 2017	Purchase All/Part of Commercial Satellite: Analyze the DOD purchase of all or a part of a commercial satellite, across multiple commercial constellations.	FY 2017-Post FY 2019
Utilization Monitoring: Investigate ways DOD can better manage commercial SATCOM data and spectrum usage and compare leased capacity to utilization to increase efficiency.	FY 2015-FY 2017	Global Portable Bandwidth Trades: Investigate the possibility of affordable, on-demand any time, place, and duration access to spare Ku band commercial transponders.	FY 2017-Post FY 2019
Active Management Pathfinder: Explore sharing commercial capability among multiple users.	FY 2016-FY 2017	Trade for High Capacity Bits: Examine possibility for DOD to adopt commercial high capacity satellites and managed service.	FY 2019-Post FY 2019

Source: GAO presentation of DOD data. GAO-15-459.

^aFixed satellite service satellites communicate with ground infrastructure by receiving signals from earth stations or antennas and retransmitting the signals to other locations on the earth’s surface through transponders on the satellite. A transponder aboard a communications satellite receives the uplink signal from the ground, shifts its frequency to the downlink frequency, amplifies it, and transmits it to the ground. A typical satellite has 24 to 72 transponders.

The pathfinders are intended to identify various opportunities to improve DOD procurement of commercial and military SATCOM, but it will be several years before DOD gains enough information and experience from its pathfinder efforts to determine what, if any, changes to make to its acquisition approach. None of the five DISA pathfinder initiatives is expected to be completed until fiscal year 2017 and only one of the Air Force pathfinder initiatives is currently under way—with an expected completion date sometime in fiscal year 2019. The remaining Air Force pathfinders are expected to be initiated on a phased implementation approach, ranging from fiscal years 2016 through 2019.

In addition to the pathfinder efforts, in April 2013, DOD’s Chief Information Officer and DISA produced an analysis of alternatives identifying six alternatives for acquiring commercial SATCOM for the region with the

largest share of commercial SATCOM expenditures.²² DOD currently uses costly small scale, short duration commercial SATCOM leases. The analysis of alternatives examined opportunities for DOD to save on commercial SATCOM leases through longer-term contracts on existing commercial satellites, capital lease or purchase of commercial high capacity satellites, and procurement of additional military satellites.²³ The focus of the analysis was on life-cycle costs, comparing the current leasing practice, or baseline, with these and other alternatives that could result in savings to DOD. For example, according to DOD, the use of longer duration, higher capacity operating leases could save about \$1.5 billion compared to the current baseline. DISA also estimated that if DOD used a capital lease or purchase of a single band satellite based on commercially available technology, the department could avoid costs of about \$4.5 billion over 15 years compared to the current baseline. This was the lowest cost alternative identified by the analysis.

Lastly, DOD is planning to conduct an additional analysis of alternatives to determine the replenishment strategy for its wideband military SATCOM, the WGS satellite. The WGS analysis is not expected to begin until fiscal year 2017, but DOD officials are optimistic that the resulting investments could mitigate DOD's future reliance on commercial SATCOM, and could also help the department maximize its military SATCOM capability and usage.

While DOD's recent actions represent good steps, two long-standing challenges will make it difficult to make meaningful changes. First, DOD still does not know what it spends annually on either military or commercial SATCOM. Without this knowledge, DOD cannot effectively manage and plan for its SATCOM procurement. The studies performed to date are based on incomplete and older data. More importantly, even when combined with the pathfinder initiatives focused on requirements

²²The focus of the analysis of alternatives was on Fixed Satellite Services (FSS) transponded satellites in the U.S. Central Command region (USCENTCOM). FSS was chosen because DOD relies more heavily on this particular segment of commercial SATCOM for its commercial SATCOM needs and USCENTCOM accounted for nearly half of DOD's FSS commercial SATCOM expenditures and bandwidth usage on more than 20 satellites in fiscal year 2010. Therefore, DOD deemed that this region, with the highest concentration of FSS commercial SATCOM leases, offered the best venue for commercial SATCOM savings, should DOD pursue an alternative path to its current acquisition approach.

²³Capital leases are those leases that are considered equivalent to a purchase.

and utilization, the studies represent just a portion of what leading companies typically analyze when seeking to make their procurements of services more efficient. On a broad level, for instance, our body of work on acquisitions has found that leading companies conduct spend analyses of all their services procurements each year to review how much their company has spent each year, what was bought, from whom it was bought, and who was purchasing it. The analyses identify where numerous suppliers are providing similar goods and services—often at varying prices—and where purchasing costs can be reduced and performance improved by better leveraging buying power and reducing the number of suppliers. These analyses are subjected to an extensive review for accuracy and consistency, and steps are taken to standardize the data in the same format, which involves creation of uniform purchasing codes. For specific categories of spending, companies assess such factors as current and projected requirements, volume, cyclicity of demand, risk, the services that the market is able to provide, supplier base competition trends, the company’s relative buying power, and market price trends.

Second, centralized management of service procurements is a leading practice that DOD has already embraced. But it has not been able to enforce it for a variety of reasons, notably increasing demand for bandwidth to conduct military operations, resistance to using the centralized process, and the fact that the military services have the authority to fund their own procurements.²⁴ While DISA is responsible for acquiring all commercial SATCOM services for DOD, it does not have oversight or control over commercial SATCOM procured outside DISA. Thus, at present, there is no single person or organization responsible for balancing needs with wants and ensuring coordination among the many organizations involved with the military and commercial SATCOM acquisition process. Strategic Command officials stated they support a centrally managed commercial SATCOM procurement approach; however, the Strategic Command lacks the enforcement ability, funding, and situational awareness to centrally manage.

²⁴Title 10 grants authority to the Secretaries of the Army, the Navy, and the Air Force, respectively, to conduct all affairs of their Departments including recruiting, organizing, supplying, equipping, training, servicing, mobilizing, demobilizing, administering, maintaining, and military construction and maintenance. 10 U.S.C. §§ 3013, 5013, and 8013.

The leading organizations we have studied similarly encountered resistance to centralizing procurements of services. But without centralizing, companies ran the risk that different parts of the organization could be unwittingly buying the same item or service. They relied on clearly defined and communicated policies to ensure users did not engage suppliers without procurement organization involvement as well as tools that could enable cost data to be shared globally. Some companies focused more on centralizing knowledge on procurements or ensuring an approved contract was used than on creating a centralized organization.

If these hurdles can be overcome and the pathfinders prove successful, adopting additional practices could better position DOD to optimize its procurements. Our studies of leading organizations have found that in addition to maintaining spend visibility and centralizing procurements, companies found it was necessary to tailor buying tactics to specific categories of services. They also regularly reviewed strategies and tactics to adapt to market trends. In addition, they focused on total cost of ownership—making a holistic purchase decision by considering factors other than price, for instance, risk to the company’s mission, innovation, operational performance, and demand management. For the long term, the Defense Business Board also suggested establishing a governance and usage plan for both military satellites and commercial satellites and facilitating future governance by designating a single DOD point for procuring all military and commercial SATCOM assets and services.

Conclusions

DOD’s use of SATCOM is critical to military operations worldwide and its dependency is expected to increase over the next decade. DOD’s long-standing history of supplementing military communications with commercial SATCOM has led to a fragmented and individualized approach to contracting for commercial satellite services across the military services and combatant commands. This approach is inefficient and costly. Fragmentation has remained problematic since our earlier reviews partly due to pressing demands and the availability of supplemental funds. While DISA and the Air Force are taking steps to transform the commercial SATCOM management and acquisition process, these efforts will be hampered by the lack of complete spending and usage data as well as resistance from DOD entities that prefer the current acquisition process so they can individually control their own SATCOM. Utilizing strategic sourcing best practices for DOD’s use of commercial and military satellite bandwidth, beginning with robust

analyses of spending and better enforcement of centralized management, would increase chances of success for DOD's improvement efforts.

Recommendations for Executive Action

In order to improve DOD's procurement of SATCOM, we are making the following three recommendations. To address DOD's fragmented procurement of commercial SATCOM, to better position DOD to identify needs, manage and acquire commercial SATCOM, and to address the incomplete data on commercial SATCOM spending and demand, we recommend that the Secretary of Defense, in coordination with the Joint Chiefs, U.S. Strategic Command, combatant commands, military services, and DISA, enforce current policy requiring DISA to acquire all commercial SATCOM for DOD.

To better leverage DOD's buying power and help DOD understand its military and commercial SATCOM spending, and enable DOD to reform its commercial SATCOM acquisition and management processes, we recommend that the Secretary of Defense, in conjunction with the Air Force and DISA, complement the pathfinder efforts by conducting the following:

- A spend analysis that identifies procurement inefficiencies and opportunities to consolidate purchases. Specifically, the analysis should identify how much is being spent for which services, who the buyers are, who the suppliers are, duplicative contracts and opportunities to aggregate demand, and where the opportunities are for leveraged buying and other tactics to save money and improve performance.
- An assessment of whether further centralization of military and commercial SATCOM procurement, such as the identification of a single focal point within DOD to decide how to meet the overall demand or a central procurement knowledge focal point, could further save money and improve performance.

Agency Comments and Our Evaluation

We provided a draft of this report to DOD for comment. In its written comments, DOD concurred with all three of our recommendations to improve the department's procurement of SATCOM. The comments are reprinted in appendix I.

In concurring with our first recommendation, DOD stated that enforcing current policy requiring DISA to procure all commercial SATCOM for DOD

makes the best use of taxpayer dollars and supports acquisitions that are fully compliant with applicable laws and regulations. DOD also stated that recently the Army, Air Force, and Navy have been working with DISA on their follow-on commercial SATCOM contracts and once these contracts are awarded, the department expects the percentage of total commercial SATCOM acquired by DISA to be approximately 90 percent. Finally, the department is currently reviewing and updating policy related to commercial SATCOM acquisition with more specific language concerning combatant command SATCOM procurements; updating and reinforcing current policy in a DOD Instruction on SATCOM, which is expected to be in effect in 2015; and is finalizing a Joint Concept of Operations intended to improve the effectiveness and efficiency of DOD SATCOM operational management.

In concurring with our second recommendation, DOD agreed that complementing the pathfinder efforts with a spend analysis could help the department understand its military and commercial SATCOM spending and leverage its buying power. Specifically, DOD noted that it intends to augment its pathfinder program and commercial SATCOM utilization reporting to include the recommended spend analysis that identifies procurement inefficiencies and opportunities to consolidate purchases.

In concurring with our third recommendation, DOD agreed that undertaking an assessment of whether further centralization of military and commercial SATCOM procurement would assist in enabling the department to reform its commercial SATCOM acquisition and management processes. The department noted that it intends to conduct an analysis of alternatives for future wideband SATCOM in the fiscal year 2017 timeframe, considering both military and commercial SATCOM components, to provide a thorough evaluation of cost and effectiveness prior to any significant action changing how DOD procures wideband SATCOM. DOD also stated that it will continue to gather data and conduct analysis to improve commercial SATCOM acquisition.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Secretary of the Air Force, the Commander, U.S. Strategic Command, the Director, Defense Information Systems Agency, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions concerning this report, please contact me at (202) 512-4841 or 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 listed in appendix II.

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end.

Cristina Chaplain
Director, Acquisition and Sourcing Management

Appendix I: Comments from the Department of Defense



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

JUL 8 2015

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

Dear Ms. Chaplain:

This is the Department of Defense (DoD) response to the Government Accountability Office (GAO) Draft Report, GAO-15-459, "DEFENSE SATELLITE COMMUNICATIONS: DOD Needs Additional Information to Improve Procurements," dated June 4, 2015 (GAO Code 121202). Detailed comments on the report recommendations are enclosed.

Sincerely,

Katrina McFarland

Enclosure:
As stated

GAO Draft Report Dated June 4, 2015
GAO-15-459 (GAO CODE 121202)

“DEFENSE SATELLITE COMMUNICATIONS: DOD NEEDS ADDITIONAL
INFORMATION TO IMPROVE PROCUREMENTS”

DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATIONS

RECOMMENDATION 1: To address DOD’s fragmented procurement of commercial SATCOM, to better position DOD to identify needs, manage and acquire commercial SATCOM, and to address the incomplete data on commercial SATCOM spending and demand, the GAO recommend that the Secretary of Defense, in coordination with the Joint Chiefs, U.S. Strategic Command, combatant commands, military services, and DISA, enforce current policy requiring DISA to acquire all commercial SATCOM for DOD.

DoD RESPONSE: DoD concurs. The DoD fully supports efficient acquisition of products and services to make the best use of taxpayer dollars and supports acquisitions that are fully compliant with all applicable laws and policies. The DoD has improved the ratio of expenditures in compliance with policy over the past few years. In FY2011, the percentage of total DoD COMSATCOM acquired by DISA was approximately 65%. Recently the Army, Air Force, and Navy have worked with DISA on their follow-on COMSATCOM contracts. Once all of these contracts are awarded, the percentage of total DoD COMSATCOM acquired by DISA will be approximately 90%. The Department is currently reviewing and updating policy regarding commercial SATCOM acquisition with more specific language concerning combatant command SATCOM procurements. DoD intends to reinforce and update current policy in a DoD Instruction on SATCOM, expected to be in effect in 2015. In response to congressional direction, DoD is also considering changes to centralize procurement to satisfy long-term wideband SATCOM requirements. In addition to better policy enforcement and acquisition, the Joint Staff is in the late stages of a Joint Concept of Operations designed to improve the effectiveness and efficiency of DoD SATCOM operational management.

RECOMMENDATION 2: To better leverage DOD’s buying power and help DOD understand its military and commercial SATCOM spending, and enable DOD to reform its commercial SATCOM acquisition and management processes, the GAO recommend that the Secretary of Defense, in conjunction with the Air Force and DISA, complement the pathfinder efforts by conducting:

- A spend analysis that identifies procurement inefficiencies and opportunities to consolidate purchases. Specifically, the analysis should identify how much is being spent for which services, who the buyers are, who the suppliers are, duplicative contracts and opportunities to aggregate demand, and where the opportunities are for leveraged buying and other tactics to save money and improve performance
- An assessment of whether further centralization of military and commercial SATCOM

procurement, such as the identification of a single focal point within DOD to decide how to meet the overall demand or a central procurement knowledge focal point, could further save money and improve performance.

DoD RESPONSE: DoD concurs. DoD intends to augment its pathfinder program and commercial SATCOM utilization reporting to include the recommended spend analysis. DoD also plans to conduct an analysis of alternatives (AoA) for future wideband SATCOM in the FY17 timeframe that will consider both military and commercial SATCOM components. The AoA will include a thorough evaluation of cost and effectiveness prior to any actions to significantly change how DoD procures wideband SATCOM.

The DoD will continue to gather data and conduct analysis to improve commercial SATCOM acquisition. In response to congressional direction, the DoD is considering Air Force Space Command's Space and Missile Systems Center (SMC) and DISA as focal points for wideband SATCOM acquisition.

It should be noted that while the GAO's observations are generally accurate, the recommendations provided can be expanded to fully address the causes of fragmented acquisition that were found. Specifically, the GAO found that 'Congress made supplemental funds available...which resulted in those commands and military services procuring commercial SATCOM on a piecemeal basis.' In support of the policy objective articulated in this report, the DoD is also reviewing the guidance provided to the Military Services detailing supplemental funding criteria. It is possible that this guidance could be modified to better control commercial SATCOM procurement efforts in the future. This would have the positive effect of driving the funding of these acquisitions to more accountable sources.

GAO reported that, prior to the fielding and employment of WGS, 'DoD deployed new weapon systems... (that) will only operate with commercial-band services (and) fragmentation of commercial SATCOM procurement was furthered.' Aligning space segment capabilities with corresponding user terminals is vital in alleviating the fragmented procurement of commercial SATCOM services. Upgrading remotely-piloted aircraft with military-band terminals is both technologically feasible and provides better information assurance. The DoD is examining how best to affordably upgrade these terminals.

Finally, the DoD continues to increase our wideband MILSATCOM capabilities through the deployment of WGS satellites, which should reduce our reliance on commercial services and allow for better accountability. As GAO noted, the DoD will conduct a wideband AoA in the near term that will help in aligning wideband space and user requirements and recommend an appropriate mix of MILSATCOM and commercial services to meet enduring and contingency requirements in the future.

Appendix II: GAO Contact and Staff Acknowledgments

GAO Contact

Cristina Chaplain (202) 512-4841 or chaplainc@gao.gov

Staff Acknowledgments

In addition to the contact named above, Art Gallegos, Assistant Director; William Allbritton; Claire Buck; James Haynes; John Krump; Katherine Lenane; Jay Tallon; and Gwyneth Woolwine made key contributions to this report.

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