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April 2014

# WEAPON SYSTEMS MANAGEMENT

DOD Has Taken  
Steps to Implement  
Product Support  
Managers but Needs  
to Evaluate Their  
Effects

Highlights of [GAO-14-326](#), a report to the Committee on Armed Services, House of Representatives

## Why GAO Did This Study

DOD spends billions of dollars annually to sustain weapon systems. With the prospect of tighter defense budgets, DOD has placed more attention on controlling total life-cycle costs with initiatives aimed at ensuring that weapon systems are more affordable over the long term. Section 2337 of Title 10, U.S. Code, requires that each major weapon system be supported by a PSM and lays out the responsibilities of the PSM, including developing and implementing a comprehensive product support strategy for the system. GAO was asked to review DOD's progress in implementing PSMs for major weapon systems.

This report examines (1) the steps, if any, that DOD and the military services have taken to implement PSMs for major weapon systems and (2) the extent to which DOD has evaluated the effects, if any, that PSMs are having on life-cycle sustainment decisions for their assigned systems. To conduct this review, GAO obtained information and interviewed product support personnel assigned to 12 of 332 major weapon systems that reflected varying characteristics—such as military service and system costs—and analyzed documentation from DOD and the military services.

## What GAO Recommends

GAO recommends that DOD and the services develop a plan to institutionalize a career path for PSMs; issue clear, comprehensive, and centralized PSM implementation guidance; evaluate the effects PSMs have on sustainment decisions; and improve Army PSMs' visibility over sustainment funding. DOD generally agreed with the recommendations.

View [GAO-14-326](#). For more information, contact Cary Russell at (202) 512-5431 or [russellc@gao.gov](mailto:russellc@gao.gov).

April 2014

## WEAPON SYSTEMS MANAGEMENT

### DOD Has Taken Steps to Implement Product Support Managers but Needs to Evaluate Their Effects

## What GAO Found

The Department of Defense (DOD) and the military services have taken steps to implement Product Support Managers (PSM) for major weapon systems, but certain aspects of the implementation process remain incomplete. The services have assigned PSMs to almost all of their major weapon systems. For example, as of February 2014, 325 of 332 PSM position requirements across DOD for major weapon systems—approximately 98 percent—were filled. While DOD and all of the services have taken some steps to develop a comprehensive career path and associated guidance to develop, train, and support future PSMs, DOD, in coordination with the military services, has not developed a plan—to include objectives, milestones, and resources—to implement and institutionalize a comprehensive PSM career path. Until DOD develops such a plan, it may not be able to ensure that the services can fill PSM positions with qualified personnel in the future. Moreover, DOD's PSM implementation guidance is not centralized and future product support personnel may be hindered in their ability to easily access and implement such guidance. Also, because the latest DOD guidance lacks detail and contains a potentially unclear provision, personnel may confuse the responsibilities of Program Managers and PSMs. Without clear, comprehensive, and centralized implementation guidance, DOD may be hindered in its ability to institutionalize the implementation of PSMs for its major weapon systems going forward. Additionally, the Army has been working for a year to clarify the roles and responsibilities of certain product support personnel, who support PSMs, for the sustainment portion of the life cycle for major weapon systems. According to officials from the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, major weapon systems program offices have raised the issue of the lack of clear roles and responsibilities of these personnel, which has prompted senior-level Army meetings to attempt to resolve the issue. However, the Army has not yet finalized guidance that clarifies roles and responsibilities, which may hinder PSMs in their ability to effectively manage and conduct their daily product support responsibilities.

DOD does not fully know how or to what extent PSMs are affecting life-cycle sustainment decisions because it has not systematically collected and evaluated information on the effects PSMs are having on their assigned weapon systems. Program evaluation guidance states that evaluations can play a key role in program planning, management, and oversight by providing feedback to managers on programs. Evaluations can show whether PSMs are conducting good practices that could be shared across the department as well as whether changes are needed to guidance or other areas to enhance the contributions of PSMs. In the absence of DOD information on the effects PSMs are having on life-cycle sustainment decisions, weapon system program offices identified several good practices and challenges associated with PSMs. For example, several PSMs told us that they had initiated analyses focused on reducing life-cycle sustainment costs for their assigned weapon systems. One challenge that Army headquarters officials noted was that PSMs do not have knowledge of how much sustainment funding their systems will receive prior to the year of execution of funds. Without greater visibility over the allocation of sustainment funding for their assigned weapon systems, these PSMs may be hindered in their ability to proactively manage and influence their system's life-cycle sustainment decisions.

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## Abbreviations

ACAT	Acquisition Category
AMC	Army Materiel Command
ASA(ALT)	Assistant Secretary of the Army for Acquisition, Logistics and Technology
DOD	Department of Defense
O&S	operating and support
OSD	Office of the Secretary of Defense
PSM	Product Support Manager
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology and Logistics

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April 29, 2014

The Honorable Howard P. “Buck” McKeon  
Chairman  
The Honorable Adam Smith  
Ranking Member  
Committee on Armed Services  
House of Representatives

The Department of Defense (DOD) spends billions of dollars each year to sustain its weapon systems. We have previously noted that the acquisition of a weapon system today involves a significant financial commitment to that system over its entire life cycle, a period that may last several decades—from the system’s development to the time it is removed from DOD’s inventory.<sup>1</sup> With the nation facing fiscal challenges and the potential for tighter defense budgets, DOD has placed more attention on controlling dollars spent on the total life-cycle costs of weapon systems by instituting various initiatives aimed at ensuring that systems are more affordable over the long term. Congress has passed legislation that may have similar effects. For example, the National Defense Authorization Act for Fiscal Year 2010 required that Product Support Managers (PSM) be assigned to all major weapon systems and outlined the roles and responsibilities that PSMs must perform, including developing and implementing a comprehensive product support strategy

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<sup>1</sup>GAO, *Defense Logistics: Improvements Needed to Enhance Oversight of Estimated Long-Term Costs for Operating and Supporting Major Weapon Systems*, [GAO-12-340](#) (Washington, D.C.: Feb. 2, 2012).

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for the system.<sup>2</sup> PSMs are to report to Program Managers, who are responsible for the management of a program over its life cycle. A provision in the National Defense Authorization Act for Fiscal Year 2013 subsequently codified the roles and responsibilities of the PSM at section 2337 of Title 10, U.S. Code, which was later amended by the National Defense Authorization Act for Fiscal Year 2014.<sup>3</sup> As amended, these responsibilities are to

1. develop and implement a comprehensive product support strategy for the weapon system;
2. use appropriate predictive analysis and modeling tools that can improve material availability and reliability, increase operational availability rates, and reduce operation and sustainment costs;
3. conduct appropriate cost analyses to validate the product support strategy, including cost-benefit analyses as outlined in Office of Management and Budget Circular A-94;
4. ensure achievement of desired product support outcomes through development and implementation of appropriate product support arrangements;

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<sup>2</sup>See Pub. L. No. 111-84, § 805 (2009). The statute mandated that the Secretary of Defense require that each major weapon system be supported by a PSM; DOD interprets this provision as requiring that a PSM be appointed for each Acquisition Category (ACAT) I and ACAT II system. ACAT I programs are Major Defense Acquisition Programs. A Major Defense Acquisition Program is a program that is not a highly sensitive classified program and that is designated by the Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L]) as a Major Defense Acquisition Program or that is estimated to require eventual total expenditure for research, development, test, and evaluation of more than \$480 million (fiscal year 2014 constant dollars) or for procurement of more than \$2.79 billion (fiscal year 2014 constant dollars). ACAT II programs are defined as those acquisition programs that do not meet the criteria for an ACAT I program but do meet the criteria for a major system. A major system is defined as a program estimated by the DOD component head to require eventual total expenditure for research, development, test, and evaluation of more than \$185 million in fiscal year 2014 constant dollars or for procurement of more than \$835 million in fiscal year 2014 constant dollars—or those designated by the DOD component head to be ACAT II.

<sup>3</sup>See Pub. L. No. 112-239, § 823(a)(1) (2013) (codified at 10 U.S.C. § 2337). Section 823 also repealed section 805 of the National Defense Authorization Act for Fiscal Year 2010 as superseded. See § 823(b). The National Defense Authorization Act for Fiscal Year 2014 amended section 2337 by adding an additional responsibility for PSMs. See Pub. L. No. 113-66, § 823 (2013).

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5. adjust performance requirements and resource allocations across Product Support Integrators and Product Support Providers as necessary to optimize implementation of the product support strategy;
  6. periodically review product support arrangements between the Product Support Integrators and Product Support Providers to ensure the arrangements are consistent with the overall product support strategy;
  7. prior to each change in the product support strategy or every 5 years, whichever occurs first, revalidate any business-case analysis performed in support of the product support strategy;
  8. ensure that the product support strategy maximizes small-business participation at the appropriate tiers; and
  9. ensure that product support arrangements for the weapon system describe how such arrangements will ensure efficient procurement, management, and allocation of government-owned parts inventories in order to prevent unnecessary procurements of such parts.

PSMs are assigned to each major weapon system to help DOD ensure that it has effective product support strategies and processes to support the goals of maintaining its weapon systems readiness and controlling costs throughout the life cycle of a system.

Although this is our first report focused on PSMs, we have conducted prior work on operating and support (O&S) issues, including costs<sup>4</sup> related to weapon systems, and made recommendations to improve management of these issues. For example, we noted that DOD lacks key information needed to effectively manage and reduce O&S costs for most of the weapon systems GAO reviewed—including life-cycle O&S cost estimates and complete historical data on actual O&S costs. Moreover, we also reported that DOD needed to enhance oversight of estimated long-term costs for operating and supporting major weapon systems.<sup>5</sup>

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<sup>4</sup>DOD describes O&S costs as all direct and indirect costs of goods and services incurred from initial deployment and fielding of an acquisition item or program through the end of the acquisition item's or program's operational and support activities. These operational and support activities are not bound to a life-cycle phase or appropriation category. O&S costs include, among other things, costs for repair parts, maintenance, and personnel.

<sup>5</sup>GAO, *Defense Logistics: Improvements Needed to Enhance Oversight of Estimated Long-Term Costs for Operating and Supporting Major Weapon Systems*, [GAO-12-340](#) (Washington, D.C.: Feb. 2, 2012).

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The Related GAO Products section at the end of this report lists our prior work.

For this report, you asked us to examine DOD's progress in establishing and institutionalizing PSMs for major weapon systems. Specifically, our objectives were to determine (1) what steps, if any, DOD and the military services have taken to implement PSMs for major weapon systems and (2) the extent to which DOD has evaluated the effects, if any, that PSMs are having on life-cycle sustainment decisions for the systems to which they are assigned. To satisfy these objectives, we interviewed Office of the Secretary of Defense (OSD), military department headquarters, and military service command officials. We also obtained pertinent documents, including DOD directives and instructions, military department regulations and instructions, memorandums, other guidance, and lists of assigned PSMs. Additionally, we collected and analyzed DOD and service data on PSMs assigned to 12 of 332 major weapon systems, and selected and interviewed a nongeneralizable sample of PSMs, program management, and other product support personnel. In identifying this nonprobability sample, we selected major weapon systems that reflected varied characteristics, such as military service, Acquisition Category (ACAT) level, acquisition phase, type of system (e.g., aviation, ground, naval), and total estimated system cost. From these interviews, we obtained more-in-depth information to identify good practices that some PSMs have found helpful in enabling them to make or affect life-cycle sustainment decisions for major weapon systems, as well as any challenges that may have prevented PSMs from making or influencing such decisions. To obtain information on the overall size and cost of DOD's ACAT I systems, we also analyzed data from DOD's Selected Acquisition Reports and other information in the Defense Acquisition Management Information Retrieval Purview system.<sup>6</sup> We obtained similar data for ACAT II systems, where available, that the services maintained on their respective systems. We assessed the reliability of the PSM-related data we obtained from DOD and the services, along with the information we obtained from the Defense Acquisition Management Information Retrieval Purview system, through questionnaires and interviews with knowledgeable officials and determined that these data were sufficiently reliable for the purposes of assessing the implementation

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<sup>6</sup>The Defense Acquisition Management Information Retrieval Purview system is an executive information system operated by the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics / Acquisition Resources and Analysis.



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of PSMs for major weapon systems and discussing the findings in this report. A more detailed discussion of our scope and methodology is included in appendix I.

We conducted this performance audit from April 2013 through April 2014 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.

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## Background

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### DOD Product Support

Product support refers to the support functions required to field and maintain the readiness and operational capability of major weapon systems, subsystems, and components, including all functions related to a weapon system's readiness. O&S costs historically account for approximately 70 percent of a weapon system's total life-cycle cost and include costs for repair parts, maintenance, contract services, engineering support, and personnel, among other things.<sup>7</sup> Weapon systems are costly to sustain in part because they often incorporate a technologically complex array of subsystems and components and need expensive spare parts and logistics support to meet required readiness levels. In addition, military operations in such locations as Afghanistan have increased the wear and tear on many weapon systems and escalated their O&S costs well beyond peacetime levels. Many of the key decisions affecting a weapon system's O&S costs are made while the system is still in the acquisition process. For example, acquisition-based decisions about the design, materials, and technology for a system affect the logistics support

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<sup>7</sup>According to DOD officials, O&S costs generally range from 60 to 80 percent of a weapon system's total costs, depending on the weapon system type. DOD previously estimated that weapon-system product support costs in fiscal year 2008 were at least \$132 billion. According to DOD, product support includes materiel management, distribution, technical-data management, maintenance, training, cataloging, configuration management, engineering support, repair-parts management, failure reporting and analysis, reliability-growth tracking, and the logistics elements (e.g., support equipment, spares) related to weapon systems readiness. Under this definition, product support does not include all the costs categorized as O&S costs.

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that is eventually needed to keep that system available and ready after it is fielded. Controlling O&S costs is critical to ensure future affordability of defense budgets. In short, the acquisition of a weapon system today involves a significant financial commitment to that system over its entire life cycle, a period that may last several decades from the system's development to the time it is removed from DOD's inventory. For example, DOD estimated in 2012 that life-cycle O&S costs for the F-35 Joint Strike Fighter—being acquired for the Air Force, Navy, and Marines—would be about \$1.1 trillion, in addition to an estimated \$391.1 billion in total acquisition costs.<sup>8</sup>

Recognizing the importance of operations and sustainment costs, DOD has been engaged in a number of efforts to improve product support management. Recent acquisition reforms, such as those in response to the Weapon System Acquisition Reform Act of 2009, the recent issuance of Interim DOD Instruction 5000.02, and the Department's "Better Buying Power" initiative<sup>9</sup> may encourage greater efficiency and cost savings in acquisition-based and product support-related decisions and activities for major defense acquisition programs. In December 2012, we reported on DOD's implementation of the act and noted that DOD had taken steps to implement fundamental provisions of the act and was taking additional steps to further strengthen its acquisition policies and acquisition capabilities. We also reported, however, that DOD still faced organizational, guidance, and cultural challenges to implementing acquisition reform.<sup>10</sup> Appendix II contains a more-detailed discussion on the defense acquisition system framework.

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<sup>8</sup>These costs are expressed in then-year dollars.

<sup>9</sup>Under Secretary of Defense for Acquisition, Technology and Logistics, "Better Buying Power: Mandate for Restoring Affordability and Productivity in Defense Spending," memorandum (June 28, 2010); "Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending," memorandum (Sept. 14, 2010); "Implementation Directive for Better Buying Power—Obtaining Greater Efficiency and Productivity in Defense Spending," memorandum (Nov. 3, 2010); "Better Buying Power 2.0: Continuing the Pursuit for Greater Efficiency and Productivity in Defense Spending," memorandum (Nov. 13, 2012).

<sup>10</sup>GAO, *Weapons Acquisition Reform: Reform Act Is Helping DOD Acquisition Programs Reduce Risk, but Implementation Challenges Remain*, [GAO-13-103](#) (Washington, D.C.: Dec. 14, 2012).

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## Role of the PSM within the Product Support Organizational Structure

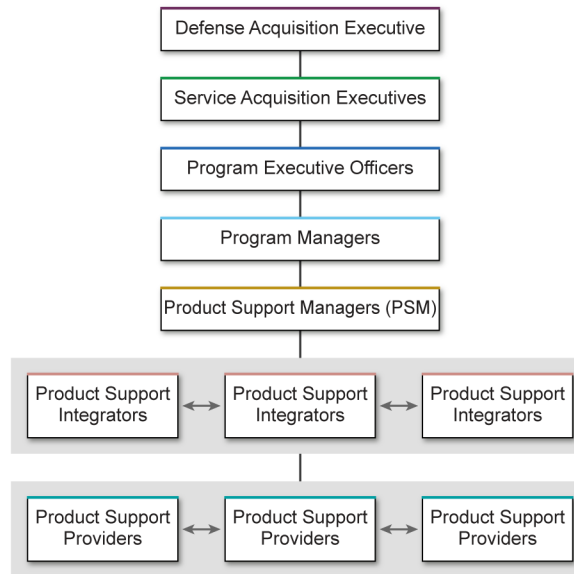
Consistent with section 2337 and DOD guidance, PSMs are assigned to major weapon systems to provide oversight and management and to serve as advisors to Program Managers on matters related to product support, such as weapon system sustainment. According to DOD's PSM Guidebook,<sup>11</sup> DOD must continue to improve product support, with a specific focus on increasing readiness and enabling better cost control. DOD guidance describes a PSM as the individual who provides weapon systems product support subject-matter expertise to the Program Manager for the execution of his or her total life-cycle management responsibilities.<sup>12</sup> As described by the PSM guidebook, a Program Manager is assigned life-cycle management responsibility and is accountable for the implementation, management, and oversight of all activities associated with the development, production, sustainment, and disposal of a weapon system across its life cycle. The Program Manager's responsibilities for oversight and management of the product support function are typically delegated to a PSM, who leads the development, implementation, and top-level integration and management of all sources of support to meet warfighter sustainment and readiness requirements. This organization is displayed in figure 1.

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<sup>11</sup>Department of Defense, *Product Support Manager Guidebook* (April 2011).

<sup>12</sup>See Department of Defense, *Defense Acquisition Guidebook*, para. 5.1.3.2. DOD's Directive-Type Memorandum 10-015, cancelled by the issuance of Interim DOD Instruction 5000.02 on November 26, 2013, noted that the following positions are considered synonymous with PSMs: Director of Logistics, Assistant Program Manager for Logistics, Deputy Program Manager for Logistics, Program Lead Logistician, and System Support Manager. See Department of Defense, *Requirements for Life Cycle Management and Product Support*, Directive-Type Memorandum 10-015, attachment 5, para. 1.d (Oct. 7, 2010) (version incorporating change Jan. 16, 2013).

**Figure 1: Product Support Organizational Structure**



Source: GAO analysis of Department of Defense (DOD) information.

## DOD Responsibilities for Life-Cycle Management

The Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) serves as the Defense Acquisition Executive and is the individual responsible for supervising the defense acquisition system. The USD(AT&L) has policy and procedural authority for the defense acquisition system, is the principal acquisition official of the department, and is the acquisition advisor to the Secretary of Defense. For acquisition matters, the USD(AT&L) generally takes precedence in DOD, including over the secretaries of the military departments, after the Secretary of Defense and Deputy Secretary of Defense. The USD(AT&L)'s authority includes directing the services and defense agencies on acquisition matters and making milestone decisions for major defense acquisition programs.<sup>13</sup> Under the USD(AT&L), and subject to the authority, direction, and control of the Secretary of the relevant military department, each of the military services has officials designated as Component or Service Acquisition Executives who are responsible for acquisition functions within their services. A Program Executive Officer—

<sup>13</sup>The USD(AT&L) may delegate authority to act as the Milestone Decision Authority to the head of a DOD component, who may further delegate authority to the Component Acquisition Executive.

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a military or civilian official who has responsibility for directing assigned programs—reports to and receives guidance and direction from the Service Acquisition Executive.<sup>14</sup> The Program Executive Officer supervises a Program Manager, who is the individual responsible for accomplishing a program's objectives for development, production, and sustainment to meet the user's operational needs. The PSM reports to the Program Manager.

Under the PSM, there may be a need for Product Support Integrators, who are assigned within the scope, direction, and oversight of the PSM, and who may be either a government or commercial entity. Product Support Integrators are tasked with integrating sources of support, and may use Product Support Providers to accomplish this role. Product Support Providers are tasked with providing specific product support functions.<sup>15</sup> Thus, generally, a product support arrangement is established wherein the PSM (acting on behalf of the Program Manager) may effectively delegate some levels of responsibility for product support implementation and oversight to Product Support Integrators. The Product Support Integrators, in turn, ensure that the performance requirements to meet their arrangements are accomplished by the Product Support Providers, who perform product support activities on major weapon systems. However, as noted by the PSM guidebook, in all cases the PSM is accountable to the Program Manager for the support outcome.

While their structures vary, each of the military services has organizations responsible for providing life-cycle support for weapon systems.

- **Army.** Within the Army, the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]) oversees the research, development, testing, and evaluation of the acquisition of materiel systems. Among other responsibilities, ASA(ALT) establishes policy, oversees the development and execution of program management, and oversees the acquisition and life-cycle

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<sup>14</sup>In some instances, a Program Manager may report directly to the Service Acquisition Executive.

<sup>15</sup>The PSM guidebook includes depots and original equipment manufacturers among the most likely candidates for both the Product Support Integrator and Product Support Provider roles.

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logistics management function.<sup>16</sup> The Army's principal materiel command, the Army Materiel Command (AMC), works closely with program executive offices, the Army acquisition executive, industry, academia, and other related agencies to develop, acquire, and sustain materiel for the Army. AMC's maintenance depots and arsenals overhaul, modernize, and upgrade major weapon systems.

- **Navy and Marine Corps.** The Assistant Secretary of the Navy for Research, Development, and Acquisition serves as the Component Acquisition Executive and is responsible for all research, development, and acquisition within the Department of the Navy. In order to address a diverse set of needs, the Department of the Navy comprises components known as Systems Commands. These include Naval Sea Systems Command, Naval Air Systems Command, and Space and Naval Warfare Systems Command, among others. Marine Corps Systems Command serves as the Department of the Navy enterprise acquisition and life-cycle systems manager for the Marine Corps. Marine Corps Systems Command provides competency resources to the program executive officer, including financial management, engineering, contracting, logistics, and program management. These Systems Commands oversee various acquisition programs, such as for ships and aircraft, and these programs are responsible for the management of their respective systems' life-cycle support.
- **Air Force.** The Office of the Assistant Secretary of the Air Force for Acquisition is responsible for the integrated life-cycle management of systems from the time the system enters into the defense acquisition management system until system retirement and disposal.<sup>17</sup> Individual program executive officers beneath this office are then responsible for the total life-cycle management of an assigned portfolio of programs. Air Force Materiel Command and Air Force Space Command support these efforts by providing technical assistance, infrastructure, manpower, test capabilities, laboratory support, professional education, training and development, and management tools.

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<sup>16</sup> See Department of the Army, *Logistics: Integrated Logistics Support*, Regulation 700-127 (July 17, 2008) (rapid action revision Mar. 26, 2012).

<sup>17</sup> See, e.g., Air Force Instruction 63-101/20-101, *Integrated Life Cycle Management* (Mar. 7, 2013).

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## DOD and the Services Have Taken Steps to Implement PSMs for Major Weapon Systems, but Certain Aspects of the Implementation Process Remain Incomplete

DOD and the services have taken steps to implement PSMs for major weapon systems and have described them as a valuable resource in managing product support, but certain aspects of the implementation process remain incomplete.

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## Almost All Systems Have PSMs Assigned, but DOD and the Services Do Not Have a Plan to Institutionalize a Comprehensive Career Path for PSMs

DOD has assigned PSMs to almost all of its major weapon systems and has developed PSM training courses, but DOD, in coordination with the military services, has not developed a plan—to include objectives, milestones, and resources—to implement and institutionalize a comprehensive PSM career path.

### Assigning PSMs

The services have identified and assigned PSMs to almost all of their major weapon systems. As of the most-current data available from the military services, 325 of 332 PSM position requirements across DOD for major weapon systems—approximately 98 percent—were filled.<sup>18</sup> In addition, DOD has designated the PSM position as a key leadership position<sup>19</sup> for ACAT I level systems. In accordance with statute and DOD policy, the PSM position for major defense acquisition programs is to be filled by a properly qualified military servicemember or full-time DOD

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<sup>18</sup>According to Army and Navy officials, PSM requirements have vacancies arise when new requirements open and when former PSMs retire or move on to assume a new position. Officials used the term requirement to refer to a weapon system to which a PSM would need to be assigned.

<sup>19</sup>Key leadership positions are positions that require a significant level of authority commensurate with the responsibility and accountability for acquisition program success.

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employee.<sup>20</sup> Most of the PSMs are senior-level civilian personnel; the remaining positions are filled by military personnel. However, according to Navy and Air Force officials, in a few instances, the services have had to issue waivers to individuals to allow them to take PSM positions, because they did not have the necessary education, experience, or training to fill the position.<sup>21</sup>

OSD, military department headquarters, and PSM officials told us that PSMs are carrying out the duties identified in law. Moreover, PSMs we spoke with told us that they are performing many of the same duties that they performed in their previous positions as senior logisticians or in related fields. In addition to those duties, however, DOD officials told us that one of the changes to these officials' prior responsibilities is the idea that support concepts should be evaluated periodically over a system's life cycle; to this end, section 2337 requires that PSMs develop and implement a comprehensive product support strategy, and revalidate any business-case analysis performed in support of the strategy prior to each change or every 5 years.<sup>22</sup> This requirement is met in part via the development of a document called a life-cycle sustainment plan. To help improve life-cycle product support, the Office of the USD(AT&L) has issued guidance that discusses how to develop a life-cycle sustainment plan and works with program offices to review these plans. Table 1 shows the number and characteristics of PSMs assigned to major weapon systems by service.

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<sup>20</sup>See 10 U.S.C. § 1706(a)(7); Under Secretary of Defense (Acquisition, Technology and Logistics), *Key Leadership Positions and Qualification Criteria*, memorandum (Nov. 8, 2013); and Office of the Assistant Secretary of Defense (Logistics and Materiel Readiness), *Product Support Manager Yearly Reporting Requirement* (July 11, 2013).

<sup>21</sup>See table 1 for the number of PSMs functioning under a waiver.

<sup>22</sup>See 10 U.S.C. § 2337(b)(2)(A), (G).



**Table 1: Number and Characteristics of Product Support Managers (PSM) Assigned to Major Weapon Systems by Service as of February 2014**

Military service	Number of PSM requirements <sup>a</sup>	Number of PSM requirements filled	Number of PSM requirements vacant	PSMs' grade/rank	Number of PSMs functioning under a waiver
Army	95	92	3	NH-IV <sup>b</sup> (equivalent to GS-14 and GS-15)	7 <sup>c</sup>
Navy and Marine Corps	76	73	3	NH-IV <sup>b</sup> (equivalent to GS-14 and GS-15)	2 <sup>d</sup>
Air Force	161	160	1	GS-12, GS-13, GS-14, GS-15, and Lieutenant Colonel	29 <sup>e</sup>
<b>Total</b>	<b>332</b>	<b>325</b>	<b>7</b>	<b>Not applicable</b>	<b>38</b>

Source: GAO analysis of Department of Defense (DOD) data.

<sup>a</sup>According to military service officials, some PSMs are assigned to multiple weapon systems, thus fulfilling multiple PSM requirements. As previously mentioned, officials used the term requirement to refer to a weapon system to which a PSM would need to be assigned.

<sup>b</sup>NH is a designation within DOD's pay classification system that refers to a business and technical management professional.

<sup>c</sup>According to an Army official and Army data, these waivers were issued due to the PSMs lacking the highest level of life-cycle logistics certification.

<sup>d</sup>According to a Navy official and Navy data, both of these waivers were issued due to the PSMs lacking the highest level of life-cycle logistics certification.

<sup>e</sup>According to Air Force data, these waivers were issued due to the PSMs lacking the highest level of life-cycle logistics certification, or the required grade, among other reasons.

## Training, Career Paths, and Succession Planning

OSD and the Defense Acquisition University have developed courses for PSMs on life-cycle product support and logistics management; however, DOD, in coordination with the military services, has not developed a plan—to include objectives, milestones, and resources—to implement a comprehensive PSM career path. For example, in 2011 DOD began offering a new course on life-cycle product support, among other courses, and the Defense Acquisition University is currently developing a new executive-level PSM course, which is expected to focus on PSMs' lessons learned and on enhancing PSMs' success in fielding and sustaining systems. Further, recognizing the importance of placing qualified individuals in PSM positions, in November 2013 the Office of the USD(AT&L) noted that it would establish a new set of qualification boards, whose task will be to prescreen personnel to qualify a pool of candidates to fill key leadership positions, including PSM positions.<sup>23</sup>

<sup>23</sup>See Under Secretary of Defense (Acquisition, Technology and Logistics), *Key Leadership Positions and Qualification Criteria*, memorandum (Nov. 8, 2013).

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These boards are expected to identify individuals who are prepared to fill key leadership positions based on their training, education, and experience. This process will allow DOD and service leadership to create a pool of qualified personnel who are ready to fill these positions and assist in workforce talent management and succession planning. In addition, the Office of the Deputy Assistant Secretary of Defense for Materiel Readiness has also developed a PSM notional career path. Moreover, at the service level, the Army, Navy, Marine Corps, and Air Force have each taken some steps to create notional career paths for PSMs, as well as issuing guidance identifying training, experience, and other requirements.

- **Army.** The Army's 2012 *Product Support Manager Concept of Operations*, calls for a defined career path for PSMs that targets progressive leadership growth, with focused education and experience requirements to shape and develop PSMs into future senior leaders and executives.<sup>24</sup> It also outlines a "notional career roadmap" for the newly created PSM position. However, the Army notes in its Product Support Manager Concept of Operations that this roadmap is still in its infancy and states that there is currently no defined comprehensive career path in place to develop, train, and support future PSMs. Furthermore, an Army official told us that, as of March 2014, the Army does not have a plan with actions, milestones, objectives, or resources dedicated to implementing a PSM career path. Yet, according to this official, the Army is actively working to address long-term PSM development and management planning issues by meeting to discuss these items.
- **Navy and Marine Corps.** The Navy has also provided a draft "notional development career ladder" for life-cycle logistics to each of its various Systems Commands as a starting point for developing a PSM career path. Officials from one of the Navy's Systems Commands told us that they are concerned about the future of, and succession planning for, PSM positions and that, to address this concern, the command is implementing the draft career ladder and using it to develop a draft talent-management document. According to a senior official within the Department of the Navy, the Systems Commands need to implement a fundamental career structure for PSMs, with specific learning objectives laid out. Additionally,

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<sup>24</sup>U.S. Army, *U.S. Army Product Support Manager Concept of Operations* (Washington, D.C.: Sept. 30, 2012).

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according to Department of the Navy officials, while the Systems Commands have indicated that efforts are ongoing, a completion date for these efforts has not been determined. Moreover, according to these officials, the Department of the Navy does not currently have a plan with actions, milestones, objectives, or resources dedicated to implementing a PSM career path.

- **Air Force.** The Air Force noted in October 2013, as part of a review of its life-cycle logisticians, that there was no clear “career progression path” or competency model to develop life-cycle logisticians. Recognizing these challenges, the Air Force embarked on a 2–3 year effort aimed at developing life-cycle logistics professionals. As one of the initial short-term activities within this effort, the Air Force issued in October of 2013 an *Air Force Life Cycle Logistics (LCL) Workforce Guidebook*, which includes a “notional career roadmap” for life-cycle logistics professionals.<sup>25</sup> The Air Force also recently engaged in an effort to recode positions to increase the number of personnel available to fill life-cycle logistics positions. According to Air Force officials, however, there are not always enough personnel within the life-cycle logistics workforce to meet the Air Force’s needs. Further, while the Air Force has taken steps to address some of the initial challenges it identified and has developed an implementation plan with associated objectives, milestones, and resources, it has stated that it needs to do additional work to develop a clear understanding of the life-cycle logistics skills a PSM would require across a program’s life cycle and to design a new training curriculum to include logistics, engineering, finance, contracting, and acquisition.

Thus, DOD and all of the military services, in coordination with the Defense Acquisition University, have taken some initial steps in establishing a defined career path and the associated guidance or plans to develop, train, and support future PSMs. However, DOD, in coordination with the military services, has not developed a plan—to include objectives, milestones, and resources—to implement and institutionalize a comprehensive PSM career path. As noted above, each of the services has identified additional steps that remain to be taken to implement and institutionalize a comprehensive career path to develop, train, and support its future PSMs. Standard practices for project management call for agencies to conceptualize, define, and document specific goals and objectives in the planning process, along with the

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<sup>25</sup>U.S. Air Force, *Air Force Life Cycle Logistics (LCL) Workforce Guidebook* (Oct. 23, 2013).

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appropriate steps, milestones, time frames, and resources needed to achieve those results.<sup>26</sup> In addition, the John Warner National Defense Authorization Act for Fiscal Year 2007 established the goal for DOD and the military departments of ensuring that certain development- and acquisition-related positions for each major defense acquisition program be performed by a properly qualified member of the armed forces or full-time employee of DOD within 5 years from enactment, and required the Secretary of Defense to develop and begin implementation of a plan of action for recruiting, training, and ensuring appropriate career development of personnel to achieve this objective.<sup>27</sup> The National Defense Authorization Act for Fiscal Year 2010 added PSMs to that list of positions.<sup>28</sup> A similar provision was subsequently codified at section 1706 of Title 10, U.S. Code.<sup>29</sup> DOD policy similarly directs that the PSM position for ACAT I and II systems be filled by a properly qualified and certified military servicemember or full-time DOD employee.<sup>30</sup> Further, DOD Instruction 5000.66 requires the DOD components to provide education, training, and experience opportunities with the objective of developing a professional, agile, motivated workforce, and ensuring that individuals are qualified to perform the activities required of them in their

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<sup>26</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999), and Project Management Institute, *A Guide to the Project Management Body of Knowledge* (PMBOK® Guide), 5th ed. (Newtown Square, PA: 2013). *A Guide to the Project Management Body of Knowledge* provides standards for project managers. We have used *A Guide to the Project Management Body of Knowledge* to provide criteria in previous reports, including GAO, *Overstay Enforcement: Additional Actions Needed to Assess DHS's Data and Improve Planning for a Biometric Air Exit Program*, [GAO-13-683](#) (Washington, D.C.: July 30, 2013); *Bureau of Prisons: Timelier Reviews, Plan for Evaluations, and Updated Policies Could Improve Inmate Mental Health Services Oversight*, [GAO-13-1](#) (Washington, D.C.: July 17, 2013); and *Nonproliferation and Disarmament Fund: State Should Better Assure the Effective Use of Program Authorities*, [GAO-13-83](#) (Washington, D.C.: Nov. 30, 2012).

<sup>27</sup>See Pub. L. No. 109-364, § 820(a), (b) (2006) (superseded and repealed by Pub. L. No. 112-239, § 824(b)).

<sup>28</sup>See Pub. L. No. 111-84, § 805(c) (2009).

<sup>29</sup>See 10 U.S.C. § 1706(a)(7), *added by* Pub. L. No. 112-239, § 824(a)(1) (2013). As codified, the list includes the program lead PSM.

<sup>30</sup>See Office of the Assistant Secretary of Defense (Logistics and Materiel Readiness), *Product Support Manager Yearly Reporting Requirement*, memorandum (July 11, 2013).

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positions.<sup>31</sup> While the planned qualification boards may assist in ensuring that individuals selected for PSM positions are qualified, each of the military services has identified additional steps that are necessary to implement a defined, comprehensive career path to develop, train, and support future PSMs. While there are individuals serving in the PSM role today for most major weapon systems, until a defined career path is finalized and institutionalized within DOD, including within each of the services, the department may not be well positioned to ensure that the services will be able to fill PSM positions with properly qualified personnel in the future.

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## Department Guidance on Implementing PSMs Lacks Detail

DOD has issued guidance for implementing PSMs; however, a recent update to DOD's guidance omits certain information, contains a potentially confusing description of responsibilities, and—according to service officials—is not sufficiently clear. *Standards for Internal Control in the Federal Government* states that federal agencies should, among other things, design and document internal control activities, such as policies and procedures, to help ensure compliance with applicable laws and regulations.<sup>32</sup> In October 2010, DOD issued Directive-Type Memorandum (DTM) 10-015, which established the department's policy to implement and institutionalize the requirement that PSMs be assigned to support each of its major weapon systems.<sup>33</sup> Among other things, this document outlined the PSM's duties and required that PSMs be certified in the life-cycle logistics career field, which includes fulfilling general educational, training, and experience requirements. The memorandum indicates that it was intended to be a provisional policy that would eventually be incorporated into the next update of its defense acquisition system guidance—DOD Instruction 5000.02—which describes the operation of the defense acquisition system, including product support.<sup>34</sup>

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<sup>31</sup> See Department of Defense, *Operation of the Defense Acquisition, Technology and Logistics Workforce Education, Training, and Career Development Program*, Instruction 5000.66, encl. 2, para. E2.2.4.2 (Dec. 21, 2005).

<sup>32</sup> [GAO/AIMD-00-21.3.1](#).

<sup>33</sup> See Department of Defense, Directive Type Memorandum 10-015.

<sup>34</sup> See Department of Defense, *Operation of the Defense Acquisition System*, Interim Instruction 5000.02 (Nov. 25, 2013).

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In November 2013, DOD issued an interim update to its defense acquisition system guidance that canceled and, according to the update, incorporated a number of memorandums, including the PSM-related DTM 10-015.<sup>35</sup> However, the newly issued acquisition system instruction does not include all of the information from DTM 10-015. For example, the instruction does not list all of the responsibilities of a PSM. Although the instruction identifies PSMs among the key leadership positions for major defense acquisition programs, it does not include a statement that it is DOD policy for PSMs to be assigned to all major weapon systems. OSD officials told us that interim DOD Instruction 5000.02 does not contain this information because instructions are meant to offer clarification of issues, not to recite what is already in statute. OSD officials also told us that the policy to assign PSMs to each major weapon system was now included in a separate memorandum issued on July 11, 2013,<sup>36</sup> which is not cited within Interim DOD Instruction 5000.02. They said that there are no differences between the information on PSM assignment, roles, and responsibilities covered previously in DTM 10-015 and what is now covered in Interim DOD Instruction 5000.02, memorandums from July and November 2013, and the Defense Acquisition Guidebook. However, each of the military department headquarters offices responsible for implementing PSMs told us that the current guidance is not sufficiently clear when addressing product support and the implementation of PSMs. They stated that the interim guidance does not discuss PSMs at the same level of detail as the DTM 10-015. Specifically, as previously mentioned, the responsibilities of PSMs are not listed in the new guidance. The instruction discusses the roles and responsibilities of the Program Manager at length, but only alludes to the responsibilities of PSMs, citing section 2337 of Title 10, U.S. Code and discussing the requirement to revalidate business-case analyses.

The interim instruction also contains a potentially confusing provision and omits certain information that is important to the implementation of the

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<sup>35</sup> See Department of Defense, Interim Instruction 5000.02, para. 1.c. In a memorandum issued with the Interim DOD Instruction, the Deputy Secretary of Defense called for various DOD entities to jointly prepare a revised DOD Instruction 5000.02 to replace the interim policy within 180 days. See Deputy Secretary of Defense Memorandum, *Defense Acquisition* (Nov. 26, 2013).

<sup>36</sup> Officials referenced the July 11, 2013, memorandum from the Office of the Assistant Secretary of Defense (Logistics and Materiel Readiness) titled *Product Support Manager Yearly Reporting Requirement*.

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PSM position. For example, it states that the Program Manager will develop and implement an affordable and effective performance-based product support strategy. Although the Program Manager is ultimately responsible for accomplishing program objectives, including for the sustainment phase, and for developing and implementing performance-based logistics strategies in the context of sustainment planning, the responsibilities of the PSM in section 2337 include developing and implementing a comprehensive product support strategy for the weapon system. While DTM 10-015 specifically identified the responsibilities of the PSM, the interim instruction does not, which could result in confusion regarding the role of the PSM and the nature of the support provided to the Program Manager.

Each of the military department headquarters offices responsible for implementing PSMs told us that they found the language from the canceled DTM 10-015 to be very useful as the services developed their own service-level policies and guidance to implement PSMs for their assigned major weapon systems. Service officials said that they believed there was value in having all of the PSM-related guidance in one document, so that current and future product support personnel would not have to refer to multiple documents. Officials from one of the military services added that a life-cycle logistician would now have to look up PSM-related policy and information in law, in Interim DOD Instruction 5000.02, and in the July 2013 memorandum instead of just referring to DTM-015—which clearly laid out that information in one document. In addition, these officials expressed concern that it was no longer clear who should assign PSMs. They also noted that DTM 10-015 identified the Component Acquisition Executive as the individual responsible for identifying and assigning a PSM for every major weapon system. However, the officials noted that the interim instruction does not specify which individual or office is responsible for identifying and assigning a PSM. Moreover, these officials expressed particular concern about institutionalizing the implementation of PSMs, noting that, unlike DOD instructions, memorandums like the July 2013 memorandum are not stored in a central repository. These officials told us that the institutional knowledge behind the evolving PSM-related guidance and policy would be lost, and they questioned whether new personnel would know where to find all of the PSM-related guidance.

In the absence of clear and comprehensive guidance, DOD and military service officials may not understand which office or individual is responsible for identifying and assigning PSMs, and there may be an increased risk of DOD personnel confusing the responsibilities of

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Program Managers and PSMs. Further, without centralized guidance that serves to institutionalize the implementation of PSMs, DOD may be hindered in its ability to implement future PSMs for its major weapon systems.

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The Army Has Not Clarified the Roles and Responsibilities of Some Support Personnel Involved in Sustainment of Major Weapon Systems

Each of the military departments has issued its own guidance for implementing PSMs, but the Army's guidance on PSM implementation is currently unclear regarding responsibilities and reporting relationships for certain support personnel involved in the sustainment of weapon systems. For example, the Navy issued a memorandum, entitled *Product Support Manager (PSM) Implementation*, in May 2011 to discuss the requirement that major weapon systems be supported by the PSM who would provide weapon systems product support subject-matter expertise to the Program Manager. Similarly, in March 2013, the Air Force issued Air Force Instruction 63-101/20-101, Integrated Life Cycle Management, which incorporates various PSM requirements and responsibilities. Moreover, the Air Force issued a guidebook on life-cycle logistics in October 2013, which discusses the implementation and responsibilities of the PSM position within the Air Force. Government standards for internal control state that a good internal control environment requires that the agency's organizational structure clearly define key areas of authority and responsibility and establish appropriate lines of reporting.<sup>37</sup> The Army issued a memorandum to help implement its PSMs<sup>38</sup> and also developed a PSM Concept of Operations,<sup>39</sup> which identifies PSM responsibilities and establishes the Army's framework for integrating the new PSM position into its organizational structure. This Concept of Operations gives PSMs—who reside organizationally under ASA(ALT)<sup>40</sup>—responsibility for

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<sup>37</sup>[GAO/AIMD-00-21.3.1](#).

<sup>38</sup>Assistant Secretary of the Army (Acquisition, Logistics and Technology), *Product Support Manager (PSM) Implementation* (Nov. 5, 2010).

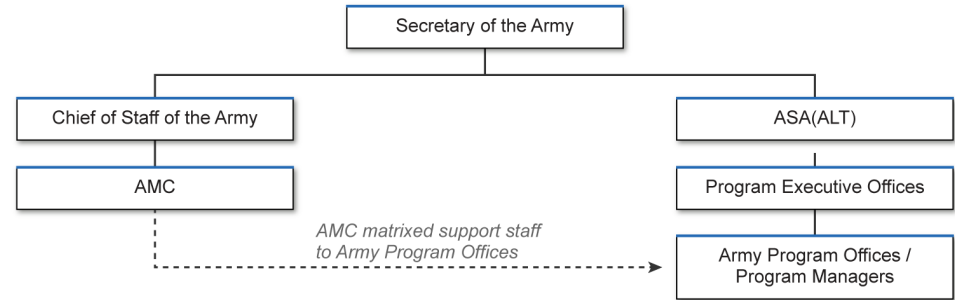
<sup>39</sup>U.S. Army, *U.S. Army Product Support Manager Concept of Operations*.

<sup>40</sup>Upon direction of the Secretary of the Army, the ASA(ALT) serves as the Army Acquisition Executive, the Senior Procurement Executive, the Science Advisor to the Secretary of the Army, and the senior research and development official for Department of the Army. ASA(ALT) also has the principal responsibility for all Department of the Army matters and policy related to acquisition, logistics, technology, procurement, the industrial base, and security cooperation (that is, security assistance and armaments cooperation). See Department of the Army, *Army Acquisition Policy*, Regulation 70-1, para. 2-6.a (July 22, 2011).



total life-cycle product support of their assigned systems, including sustainment, in support of the Program Manager.<sup>41</sup> However, Army Regulation 10-87<sup>42</sup>—which predates the implementation of PSMs—notes AMC roles and responsibilities for sustainment and for integrated materiel life-cycle management in partnership with program executive offices and Program Managers. AMC continues to have a significant role in providing assistance to the Program Manager and PSM and in executing the sustainment support for major weapon systems. Figure 2 shows the relationship between ASA(ALT) and AMC for product support activities.

**Figure 2: Overview of Relationship between Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]) and Army Materiel Command (AMC) for Product Support Activities**



Source: GAO analysis of Department of Defense (DOD) information.

Note: For some programs, the Program Manager may report directly to the ASA(ALT), rather than through a Program Executive Office.

AMC provides sustainment support in the form of personnel—consisting of AMC contractors or government logistics managers—who are sometimes assigned to ASA(ALT) programs to provide sustainment support to PSMs. While these personnel are “matrixed” to the program office, they are AMC personnel and, according to officials, therefore remain under AMC’s chain of command. Thus, the PSM provides input

<sup>41</sup>PSMs provide product support expertise to Program Managers in execution of the Program Manager’s duties as the total life-cycle system manager. The PSM guidebook describes life-cycle management as the implementation, management, and oversight: by the designated Program Manager, of all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a DOD weapon system across its life cycle.

<sup>42</sup>Department of the Army, *Organization and Functions: Army Commands, Army Service Component Commands, and Direct Reporting Units*, Regulation 10-87 (Sept. 4, 2007).

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into their annual performance ratings but does not officially rate them and, according to Army officials, does not have direct authority over them. This lack of authority may make it difficult for PSMs to achieve some of their goals. ASA(ALT) officials stated that major weapon systems program offices have raised the issue of the lack of clear roles and responsibilities of these personnel and, according to a senior AMC official, AMC discussed this issue with their personnel in an attempt to address this issue. However, in one specific example, an Army PSM we spoke with noted that while he has responsibilities as a PSM, he has no authority over the matrixed personnel from AMC who are assigned to support him and his assigned programs. He therefore faces the risk of these individuals not complying with his direction, which could hinder his ability to conduct his job as PSM. Specifically, according to this PSM, in 2012 the Joint Logistics Board (a senior-level governance body) provided guidance that maintenance work for one of his programs was to be conducted at a particular location, and he directed his AMC support personnel to stop pursuing and promoting their own depot with his program office's resources. However, the life cycle management command and the AMC-matrixed personnel continued to pursue the work at their own depot.<sup>43</sup> It took this Army PSM a year's worth of effort going through the appropriate chain of command to ensure that the AMC personnel followed the Joint Logistics Board's guidance for the designated location. As a result of these unclear reporting relationships, this PSM was unable to effectively plan or proactively manage his assigned weapon systems' life-cycle sustainment decisions.

According to senior Army officials, ASA(ALT) and AMC are working to resolve this issue and have held meetings to determine the best approach to enable PSMs to effectively perform their duties while simultaneously enabling AMC to perform its mission of providing sustainment support to the Army's weapon systems' life cycles. However, the Army has not yet issued guidance clarifying the roles and responsibilities of ASA(ALT) and AMC in light of the new requirement for PSMs to be assigned to major weapon systems—particularly for AMC personnel assigned to support ASA(ALT) program offices and for PSMs. The Army is currently drafting a revision to Army Regulation 700-127 and developing a new Department of the Army Pamphlet 700-127-1. According to Army officials, these publications will further define the Army policy and guidance on PSM

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<sup>43</sup>Life-cycle management commands are among the AMC major subordinate commands.

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responsibilities, relationships with AMC, and career-path development, among other items. According to an Army official, this regulation and pamphlet are planned to be published in June 2014. Yet, the Army has been working on this effort since March 2013 and has not finalized these documents over the last year due to delays, in part as a result of multiple reviews. Until the Army finalizes this guidance, which is expected to clarify the roles and responsibilities of ASA(ALT) and AMC with respect to matrixed personnel, Army PSMs and the AMC personnel who support them may lack clear reporting lines. Without clear guidance detailing responsibilities and reporting relationships for AMC support personnel involved in the sustainment of weapon systems, PSMs may be hindered in their ability to effectively manage and conduct their daily product support responsibilities.

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## **DOD Has Not Systematically Collected or Evaluated Information on the Effects PSMs Are Having on Life-Cycle Sustainment Decisions**

DOD is not fully aware of how or to what extent PSMs are affecting life-cycle sustainment decisions for major weapon systems because it has not systematically collected or evaluated information on the effects of PSMs. In the absence of department- and service-wide information on the effects PSMs are having on life-cycle sustainment decisions, we interviewed product support personnel at 12 program offices, and program officials identified several good practices and challenges associated with the effects, if any, that PSMs are having on life-cycle sustainment decisions. For example, one challenge we found was that some Army PSMs may not be able to fulfill their daily product support responsibilities because they do not have greater visibility into how much sustainment funding their weapon systems will receive, including prior to the year of execution of funds, to the extent possible.

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## **DOD Does Not Have Sufficient Information to Determine the Effects of PSMs**

DOD does not fully know how or to what extent PSMs are affecting life-cycle sustainment decisions because it is not systematically collecting or evaluating information on the implementation or effect of PSMs. Officials from OSD and each of the military department headquarters responsible for implementing PSMs told us that the PSM designation garners more respect than other similar product support positions have in the past and that it has elevated the importance of sustainment planning within weapon systems' program offices. This was also the widespread consensus among product support personnel we spoke to—including all 12 PSMs and the 5 Program and Deputy Program Managers whom we interviewed. Over the years, OSD has engaged in several activities aimed at providing oversight, collecting some information on the effects that PSMs are having on life-cycle sustainment decisions, and recognizing the

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achievements of PSMs. For example, OSD officials stated that they review life-cycle sustainment plans created by PSMs to ensure that their assigned weapon system demonstrates continued reliability and performance, so as not to adversely affect the system's readiness or O&S costs. In addition, these officials told us that the Office of the Assistant Secretary of Defense for Logistics and Materiel Readiness leads a quarterly logistics workforce meeting,<sup>44</sup> comprising service representatives and other officials from DOD's acquisition community, to discuss PSM-related life-cycle logistics initiatives and challenges. Since 2013, the USD(AT&L) has issued an annual award to highlight outstanding individual PSM performance across the services. This award recognizes PSMs' contributions to controlling increases in weapon system cost, addressing long-term affordability, and promoting industry competition and innovation. It also recognizes outstanding achievements in the development, implementation, and execution of affordable and effective product support strategies for weapon systems. According to guidance from the USD(AT&L), award recipients are selected from a small pool of candidate submissions based on the following criteria, among others: reducing life-cycle cost; significantly increasing current or future operational suitability; and developing, implementing, or executing effective and affordable product support arrangements for their assigned weapon systems.<sup>45</sup>

Officials from one of the military services told us that they have been asked by their senior leadership to develop objective measures to evaluate the effectiveness of current initiatives—including sustainment efforts for major weapon systems—in which PSMs play a key role. These officials mentioned that there may be various mechanisms with which to evaluate the effects that PSMs are having on their assigned major weapon systems' life-cycle sustainment decisions. For instance, they stated that they currently review and evaluate the quality of life-cycle sustainment plans and business-case analyses, among other logistics assessments, and that continuing to conduct these types of reviews and evaluations—including evaluations on the effects of these efforts—may

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<sup>44</sup>We refer to the Office of the Assistant Secretary of Defense for Logistics and Materiel Readiness' Life Cycle Logistics Functional Integrated Product Team as a quarterly logistics workforce meeting throughout this report.

<sup>45</sup>See Under Secretary of Defense (Acquisition, Technology and Logistics), *First Annual Secretary of Defense Product Support Manager Award*, memorandum (Mar. 18, 2013).

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help them to better understand the extent to which PSMs are carrying out their responsibilities or are affecting life-cycle sustainment decisions for their assigned systems.

Program evaluation guidance states that evaluations can play a key role in program planning, management, and oversight by providing feedback—on both program design and execution—to Program Managers, Congress, executive-branch policy officials, and the public.<sup>46</sup> Additionally, this guidance indicates that outcome and impact evaluations are helpful in assessing (1) the extent to which a program achieves its outcome-oriented objectives and (2) the net effect of a program, by comparing the program's outcomes with an estimate of what would have happened in the absence of the program.<sup>47</sup> Such evaluations can also be useful for identifying various trends—such as good practices and challenges related to the effects PSMs are having on life-cycle sustainment decisions—to help enhance future product support efforts across the department. Although OSD and the military services have various product support efforts under way—including those cited above—in the years since the PSM legislation was enacted, DOD has not systematically collected and evaluated information on the effects, if any, that PSMs are having on life-cycle sustainment decisions for major weapon systems. Department and military service officials stated that DOD is still in the early stages of implementation, and it is therefore too early to conduct such an evaluation of the PSM program. These officials also stated that isolating the effects of a PSM is challenging because different factors may influence a PSM's effects; the PSM position is one position of many that can affect decisions regarding life-cycle sustainment for a major weapon system, and a PSM reports directly to the Program Manager, who makes final decisions related to the PSM's assigned system. However, based on good practices we have identified in our previous work, we believe that it is important to start an evaluation program as early as possible to collect baseline information against which future effectiveness could be measured.<sup>48</sup> Moreover, OSD already

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<sup>46</sup>GAO, *Program Evaluation: Strategies to Facilitate Agencies' Use of Evaluation in Program Management and Policy Making*, [GAO-13-570](#) (Washington, D.C.: June 26, 2013).

<sup>47</sup>GAO, *Performance Measurement and Evaluation: Definitions and Relationships*, [GAO-11-646SP](#) (Washington, D.C.: May 2011).

<sup>48</sup>GAO, *Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers*, [GAO/GGD/AIMD-99-69](#) (Washington, D.C.: Feb. 26, 1999).

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collects some information on the effects of PSMs through the annual PSM award submissions and the documentation of some information regarding PSM initiatives at its quarterly logistics workforce meeting. Therefore, with PSMs now in place for most major weapon systems and with the existence of various PSM-led efforts, conducting evaluations of the effects PSMs are having on programmatic decision making at this stage of the implementation could help inform whether the PSM position—as it is currently being implemented—will help to improve product support, and whether changes are needed to guidance or other areas to enhance PSMs' contributions.

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Although DOD Has Not Systematically Collected Data on the Effects PSMs Are Having on Life-Cycle Sustainment Decisions, Program Offices Identified PSM-Related Good Practices and Challenges

In the absence of department- or service-wide information systematically documenting the effects PSMs are having on life-cycle sustainment decisions, we conducted interviews with product support personnel assigned to 12 major weapon systems, and program offices identified several good practices being employed as well as several challenges that PSMs face. For example, in fiscal year 2011, a *Virginia*-class submarine PSM led an effort to conduct an analysis focused on reducing life-cycle sustainment costs by minimizing the time the system spends in depot maintenance, in order to maximize its availability for missions. As a result of this effort, the *Virginia*-class submarine program office has adopted this practice and now conducts similar analyses on a recurring basis. Additionally, the PSM assigned to the Abrams Tank is currently conducting several analyses on components that affect the sustainment of the Abrams Tank. Specifically, the Abrams Tank PSM is analyzing staffing information on both Abrams Tank variants—the first already in sustainment and the second approaching sustainment—to determine future staffing levels for the systems. This PSM is also examining warfighters' total ownership costs to sustain the Abrams Tank, and the reliability of the system's engine, to help reduce O&S costs. Army officials stated that once these efforts are completed, the Abrams Tank PSM will be able to conduct business-case analyses to determine if there is a more cost-effective approach to sustaining both variants. Similar predictive analysis and modeling tools are currently being developed by the PSM for the KC-46A Tanker aircraft. For instance, the PSM is developing a model to prioritize component overhaul processes based on the frequency, uniqueness, and cost of a repair. This PSM is also developing the analytical components of an internal analysis system that is aimed at correcting deficiencies in the performance and effectiveness of the KC-46A's scheduled and unscheduled maintenance programs. According to the PSM, this tool will also be used to gather and assess various

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engineering, logistics, and cost factors to make timely adjustments to the KC-46A's sustainment operations.

In conducting interviews with product support personnel, program officials also identified challenges that may have prevented PSMs from making or influencing life-cycle sustainment decisions for their assigned weapon systems. For example, 4 of 12 PSMs we spoke with from 3 of the military services stated that they did not have sufficient sustainment funding to effectively conduct their daily product support responsibilities and manage sustainment decisions for their assigned major weapon systems. This has affected their ability to anticipate sustainment issues and manage potential risks regarding the reliability, availability, and readiness of their systems. Additionally, product support personnel we interviewed from the Army and Air Force told us that their respective services do not have enough product support personnel to fully support all major weapon systems and that, consequently, they conducted not only their own PSM duties and responsibilities but those of other logistics-related positions, such as senior logisticians, directors of logistics, and assistant product managers for logistics. Moreover, the shortage of funding and personnel led one of the services to assign multiple major weapon systems to two of their PSMs in order to ensure that each major weapon system is supported by a PSM. According to these two PSMs, they were collectively assigned to support 17 major weapon systems and, as a result of not having enough product support personnel, they faced increased risks—such as low system availability and readiness rates—of not being able to effectively influence sustainment costs and prevent undesirable performance outcomes for their assigned systems.

According to internal Army documentation, the Office of the ASA(ALT) has recognized that while program offices have the responsibility to sustain the systems they manage, they have little influence on how resources are allocated or executed. The Defense Acquisition Guidebook and the Army's PSM Concept of Operations both note the ultimate responsibility of the Program Manager for accomplishing program objectives over the life cycle of a system, including sustainment, and discuss the assistance provided by the PSM through product support expertise and oversight of product support activities. Army regulations note the involvement of AMC in sustainment planning and execution, including a role in the development of funding requirements. For example, according to Army Regulation 10-87, AMC provides integrated materiel

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life-cycle management of systems and equipment in partnership with program executive offices and Program Managers, and serves as the maintenance process owner for national-level sustainment.<sup>49</sup> Army Regulation 70-1 discusses AMC support for program executive offices and Program Managers through oversight of AMC life-cycle management command development and submission of sustainment funding requirements.<sup>50</sup> According to officials, AMC assists in life-cycle logistics planning and executes the product support activities planned by the Program Manager and PSM. Although funding requests are generated in collaboration, distribution of approved funding for execution is handled by AMC. Moreover, ASA(ALT) and Army officials from two of six program offices expressed concern that Army PSMs may not be able to positively affect their assigned system's life-cycle sustainment decisions because PSMs lack information on sustainment funding decisions. Army PSMs from these offices stated that they have very little input into funding decisions related to the sustainment of their systems and said that it is a challenge for them to manage their assigned systems without greater visibility—specifically, knowledge prior to the year of execution of the funds, to the extent possible—into how much sustainment funding their programs will receive, because the Army's processes for requesting and distributing sustainment funds is not transparent.

According to ASA(ALT) officials, the PSM provides input into funding requests that are developed in support of the system and these funding requests are then vetted internally and submitted through the appropriate Army life-cycle management command for review and prioritization. Once the life-cycle management command completes its review and prioritization of the requested funds, AMC then conducts its review and prioritization to make the final command-level decision on the distribution of sustainment funding for the Army's major weapon systems. However, some Army officials we spoke with said that AMC does not consistently communicate with program offices about how it prioritizes competing funding requests and distributes sustainment funds. For example, some Army PSMs told us that they are often surprised when they receive less sustainment funding than they had anticipated in the year of execution of funds and must quickly shift sustainment funding provided for other efforts within their program to cover the shortage of sustainment funding for their

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<sup>49</sup> See Department of the Army, Regulation 10-87.

<sup>50</sup> See Department of the Army, Regulation 70-1.



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assigned systems. According to AMC officials, because their organization is responsible for sustaining all Army weapon systems, they can provide the strategic overview necessary to prioritize competing funding requests. These officials also told us that AMC is responsible for balancing the distribution of funding across all systems under sustainment based on the level of Headquarters Department of the Army funding provided to AMC. They noted that some of their life-cycle management commands have formed councils where they regularly discuss sustainment funding issues with program offices. However, these officials also acknowledged that some PSMs are not receiving complete information on the status of sustainment funding decisions in the year of execution of funds. In this regard, in fiscal year 2014 the Army began a pilot on one major weapon system with the goal of more-closely tracking sustainment funding in an effort to help identify ways to provide more clarity and visibility on the resources distributed to the system. According to AMC officials, this should improve the transparency of resources for the PSMs to better manage their assigned major weapon systems. As previously stated, ASA(ALT) and AMC are continuing to work to clarify roles and responsibilities and have held high-level departmental meetings to determine the best approach to enable PSMs to effectively perform their duties while simultaneously enabling AMC to perform its mission of providing sustainment support to the Army's weapon systems. Furthermore, ASA(ALT) officials told us that the current process and supporting policies for prioritizing and managing sustainment funding should be updated to reflect PSM responsibilities. We discussed this issue with service officials and PSMs from the Navy, Marine Corps, and Air Force, and each said that this problem does not exist for them in their service. They are aware in advance of the amount of sustainment funding they will receive for their programs and are able to plan accordingly. However, until the Army reviews the current process for requesting and distributing sustainment funding for major weapon systems and makes the adjustments necessary to ensure that PSMs have greater visibility over the allocation of sustainment funding their assigned weapon systems will receive—including prior to the year of execution of funds, to the extent possible—some PSMs in the Army may not be able to plan, proactively manage, or affect life-cycle sustainment decisions for their assigned systems.

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## Conclusions

Since fiscal year 2010, DOD has made progress in implementing PSMs for its major weapon systems, and department officials and product support personnel have stated that the PSM designation garners more respect than other similar product support positions have in the past.

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While DOD and all of the services have taken some steps to develop a comprehensive career path and associated guidance to develop, train, and support future PSMs, DOD, in coordination with the military services, has not developed a plan—to include objectives, milestones, and resources—to implement and institutionalize a comprehensive PSM career path. Until DOD develops such a plan, the department may not be able to ensure that the services can fill PSM positions with properly qualified personnel in the future. Moreover, DOD guidance for implementing PSMs is not sufficiently clear to ensure effective implementation of PSMs across the services going forward. Without clear, comprehensive, and centralized implementation guidance, DOD may be hindered in its ability to implement future PSMs for its major weapon systems. Likewise, until the Army clarifies roles and responsibilities in its guidance for the sustainment portion of the life cycle for major weapon systems, PSMs may be hindered in their ability to effectively manage and conduct their daily product support responsibilities.

Although the PSM program is relatively new, there is anecdotal evidence of the effects PSMs are having on life-cycle sustainment decisions for major weapon systems. While program officials we spoke with were able to identify several good practices and challenges facing PSMs, DOD is not well positioned to make changes or enhancements to the PSM program because it has yet to systematically collect or evaluate information on the effects, if any, that PSMs are having on their assigned systems' sustainment decisions. One such change that DOD could have identified if it had been collecting evaluative information would be to examine the current process for making sustainment funding decisions in the Army to ensure that Army PSMs have greater visibility into the funding decisions affecting the sustainment of their systems, to the extent possible, including prior to the year of execution of funds. With PSMs now in place for almost all major weapon systems, information on the effects PSMs are having on life-cycle management and sustainment decisions could help inform DOD, the services, and Congress on the extent to which the PSM position is helping to improve product support efforts or whether changes are needed to guidance or to roles and responsibilities to enhance the contributions of PSMs.

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## Recommendations for Executive Action

To help DOD improve the implementation of Product Support Managers (PSM), we recommend that the Secretary of Defense take the following five actions.

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To ensure the development of a sufficient cadre of qualified, trained personnel to meet future requirements for Product Support Managers (PSM), we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L])—in coordination with the Defense Acquisition University and the Secretaries of the Army, Navy, and Air Force—to develop and implement a plan with objectives, milestones, and resources to implement and institutionalize a comprehensive career path and associated guidance to develop, train, and support future PSMs.

To better enable the military services to implement and institutionalize the roles and responsibilities of Product Support Managers (PSM), we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L])—in coordination with the Secretaries of the Army, Navy, and Air Force—to issue clear, comprehensive, centralized guidance regarding the roles and responsibilities of PSMs and the officials that assign them.

To better enable Army Product Support Managers (PSM) to fulfill their product support responsibilities, we recommend that the Secretary of Defense direct the Secretary of the Army—in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]) and the Commander of Army Materiel Command (AMC)—to clearly define Army-wide roles and responsibilities for the sustainment portion of the life cycle of major weapon systems, to include the reporting relationships of AMC support personnel assigned to Army weapon system program offices, by issuing new, or revising existing, Army guidance.

To help inform departmental and congressional oversight of the status of Product Support Manager (PSM) implementation and the influence, if any, that PSMs have in life-cycle sustainment decisions for major weapon systems, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L])—in conjunction with the Secretaries of the Army, Navy, and Air Force—to systematically collect and evaluate information on the effects, if any, that PSMs are having on life-cycle sustainment decisions for their assigned major weapon systems.

To better enable Army Product Support Managers (PSM) to fulfill their daily product support responsibilities, including planning and proactively managing sustainment efforts for their assigned weapon systems, we recommend that the Secretary of Defense direct the Secretary of the

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Army—in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]) and the Commander of Army Materiel Command (AMC)—to review the current process for requesting and distributing sustainment funding for major weapon systems and to take necessary actions to ensure that PSMs have greater visibility of the amount of sustainment funds their weapon systems will receive including prior to the year of execution of funds, to the extent possible.

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## Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD concurred with four of our recommendations and partially concurred with one recommendation. DOD's comments are reprinted in appendix IV. DOD also provided technical comments, which we have incorporated into our report where appropriate.

DOD concurred with our recommendation that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics—in coordination with the Defense Acquisition University and the Secretaries of the Army, Navy, and Air Force—to develop and implement a plan with objectives, milestones, and resources to implement and institutionalize a comprehensive career path and associated guidance to develop, train, and support future PSMs. DOD stated that the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics will work over the next year with the staffs of the Secretaries of the Army, Navy, and Air Force, along with the Defense Acquisition University and the Human Capital Initiatives Directorate via the Life Cycle Logistics Functional Integrated Product Team to define a methodology and plan for institutionalizing a comprehensive career path and associated guidance for developing, training, and supporting future PSMs. We agree that, if fully implemented, this action should address our recommendation.

DOD also agreed with our recommendation that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics—in coordination with the Secretaries of the Army, Navy, and Air Force—to issue clear, comprehensive, centralized guidance regarding the roles and responsibilities of PSMs and the officials that assign them. DOD stated that the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics will work over the next year with the staffs of the Secretaries of the Army, Navy, and Air Force to develop clear, comprehensive, centralized guidance regarding the roles and responsibilities of PSMs and the officials that assign them. While DOD did

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not provide details on how it will develop such guidance, we agree that, if fully implemented, this action should address our recommendation.

DOD partially concurred with our recommendation that the Secretary of Defense direct the Secretary of the Army—in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Commander of Army Materiel Command—to clearly define Army-wide roles and responsibilities for the sustainment portion of the life cycle of major weapon systems, to include the reporting relationships of Army Materiel Command support personnel assigned to Army weapon system program offices, by issuing new, or revising existing, Army guidance. DOD stated that the Army sees no ambiguity in the Army-wide roles and responsibilities for the sustainment portion of the life cycle of major weapon systems, including the reporting requirements of Army Materiel Command personnel providing matrix support to the Program Managers. DOD further noted that the Army leadership has been coordinating the role of the PSM and is finalizing its capstone policy to solidify required changes as part of the statutory implementation. While our report acknowledges the Army is currently drafting a revision to Army Regulation 700-127 and developing a new Department of the Army Pamphlet 700-127-1, which Army officials told us will further define the Army policy and guidance on PSM responsibilities, relationships with Army Materiel Command, and career-path development, among other items, these documents have not yet been finalized. We also acknowledge in our report that the Army has been working on this guidance since March 2013, but note that it has not finalized these documents over the last year due to delays. We continue to believe that until the Army finalizes guidance that clarifies the roles and responsibilities of the program offices and Army Materiel Command with respect to matrixed personnel, Army PSMs and the Army Materiel Command personnel who support them may lack clear reporting lines.

DOD concurred with our recommendation that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics—in conjunction with the Secretaries of the Army, Navy, and Air Force—to systematically collect and evaluate information on the effects, if any, that PSMs are having on life-cycle sustainment decisions for their assigned major weapon systems. DOD stated that the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics will work over the next year with the staffs of the Secretaries of the Army, Navy, and Air Force to define a methodology and plan for systematically collecting and evaluating information on the effects, if any, that PSMs are having on the life-cycle sustainment decisions for their assigned major

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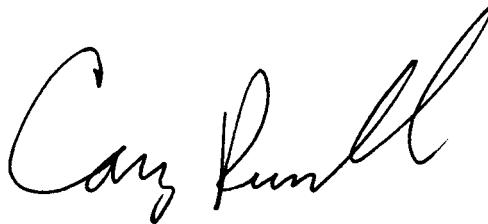
weapon systems. We agree that, if fully implemented, this action should address our recommendation.

Finally, DOD concurred with our recommendation that the Secretary of Defense direct the Secretary of the Army—in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Commander of Army Materiel Command—to review the current process for requesting and distributing sustainment funding for major weapon systems and to take necessary actions to ensure that PSMs have greater visibility of the amount of sustainment funds their weapon systems will receive including prior to the year of execution of funds, to the extent possible. DOD stated that Army Staff, in coordination with the Commander of Army Materiel Command, will work over the next year to review the current process for requesting and distributing sustainment funding for major weapon systems and take necessary actions to ensure that PSMs and all other stakeholders have greater visibility of the amount of sustainment funds their weapon systems will receive. We agree that, if fully implemented, this action should address our recommendation.

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We are sending copies of this report to the appropriate congressional committees; the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; and the Commandant of the Marine Corps. The report also is available at no charge on GAO's website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-5431 or [russellc@gao.gov](mailto:russellc@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 V.

A handwritten signature in black ink, reading "Cary Russell". The signature is fluid and cursive, with the first name "Cary" and last name "Russell" clearly distinguishable.

Cary Russell  
Director  
Defense Capabilities and Management

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# Appendix I: Scope and Methodology

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To determine what steps, if any, the Department of Defense (DOD) and the military services have taken to implement Product Support Managers (PSM) for major weapon systems, we collected and analyzed DOD and service data on the PSMs assigned to these systems. We also interviewed and obtained pertinent documents from acquisition, program management, and logistics officials—including PSMs—to understand how the PSM position has been implemented to-date. These documents included DOD directives and instructions, Army regulations, memorandums, other guidance, and lists of assigned PSMs. To determine the extent to which DOD has evaluated the effects, if any, that PSMs are having on life-cycle sustainment decisions for major weapon systems, we spoke with Office of the Secretary of Defense (OSD), military department headquarters, and military service command officials. Additionally, we selected and interviewed a nongeneralizable sample of PSMs, program management, and other product support personnel assigned to a total of 12 major weapon systems to identify good practices that some PSMs have found helpful in enabling them to make or affect life-cycle sustainment decisions for major weapon systems as well as challenges that may have prevented PSMs from making or affecting such decisions. In identifying a nonprobability sample of PSMs (and related program staff) to interview, we selected PSMs who were assigned to systems that reflected varied characteristics, such as military service, Acquisition Category (ACAT) level, acquisition phase, type of system (e.g., aviation, ground, naval), and total estimated system cost. The 12 systems we chose were: (1) the Army's Abrams Tank; (2) the Army's Thermal Weapon Sight, AN/PAS-13; (3) the Army's Distributed Common Ground System; (4) the Army's Long Range Advanced Scout Surveillance System; (5) the Army's Counter Radio Controlled-Improvised Explosive Device Electronic Warfare Duke; (6) the Army's Prophet Enhanced Spiral 1; (7) the Navy's *Virginia*-class submarine; (8) the Navy's Littoral Combat Ship; (9) the Marine Corps' CH-53K Helicopter; (10) the Army and Marine Corps' Joint Light Tactical Vehicle; (11) the Air Force's KC-46A Tanker; and (12) the Air Force, Navy, and Marine Corps' F-35 Program. From these interviews, we obtained more-in-depth information on the effects, if any, that PSMs have on life-cycle sustainment decisions. For more information on these systems, please see appendix III. The results from this nonprobability sample cannot be used to make inferences about all PSMs or the respective major weapon systems to which they were assigned, because a nonprobability sample may not reflect all characteristics of a population. However, this information provided a broad representation of PSMs' perspectives on their position's implementation status and their effects on life-cycle sustainment decisions. To obtain information on the overall size and cost

of DOD's ACAT I systems, we also analyzed data from DOD's Selected Acquisition Reports and other information in the Defense Acquisition Management Information Retrieval Purview system. We obtained similar data for ACAT II systems, where available, that the services maintained on their respective systems. We assessed the reliability of the PSM-related data we obtained from DOD and the services, along with the information we obtained from the Defense Acquisition Management Information Retrieval Purview system, through questionnaires and interviews with knowledgeable officials and determined that these data were sufficiently reliable for the purposes of assessing the implementation of PSMs for major weapon systems and discussing the findings in this report.

To address our reporting objectives, we visited or contacted knowledgeable officials and reviewed relevant documents from the following organizations:

**Department of Defense**

- Office of the Under Secretary of Defense for Acquisition, Technology and Logistics
  - Office of the Assistant Secretary of Defense (Logistics and Materiel Readiness)
  - Office of the Deputy Assistant Secretary of Defense (Systems Engineering)
- Defense Acquisition University

**Department of the Army**

- Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology
  - U.S. Army Deputy Assistant Secretary of the Army for Acquisition Policy and Logistics
- Army Materiel Command
  - U.S. Army Communications-Electronics Command
  - TACOM Life Cycle Management Command
- Army Program Management Office for Soldier, Sensors, and Lasers
  - Army Program Executive Office Soldier
  - Army Program Executive Office Intelligence, Electronic Warfare & Sensors
    - Night Vision/Reconnaissance, Surveillance, and Target Acquisition Program Office
    - Long Range Advance Scout Surveillance System Program Office



- Counter Radio Controlled-Improvised Explosive Device Electronic Warfare Duke Program Office
- Distributed Common Ground System-Army Program Office
- Prophet Enhanced/Spiral 1 Program Office
- Army Program Executive Office Ground Combat Systems
  - Abrams Tank Program Office

#### **Department of the Navy**

- Office of the Deputy Assistant Secretary of the Navy—Expeditionary Programs and Logistics Management
- Office of the Assistant Secretary of the Navy—Financial Management and Comptroller
- Deputy Assistant Secretary of the Navy—Management and Budget
- Assistant Secretary of the Navy Research Development and Acquisition
- The Department of the Navy Director, Acquisition Career Management
- U.S. Naval Air Systems Command
  - CH-53K Helicopter Program Office
- U.S. Naval Sea Systems Command
  - NAVSEA 21
  - *Virginia*-Class Submarines Program Office
  - Program Executive Office Littoral Combat Ship
    - Littoral Combat Ship Program Office
- Space and Naval Warfare Systems Command

#### **U.S. Marine Corps**

- U.S. Marine Corps Systems Command
- U.S. Marine Corps Acquisition Logistics and Product Support

#### **Department of the Air Force**

- U.S. Air Force Headquarters
- Office of the Assistant Secretary of the Air Force, Installations, Environment, and Logistics
- Office of the Assistant Secretary of the Air Force, Acquisition
- U.S. Air Force KC-46A Tanker Program Office

#### **Joint Program Offices**

- Department of the Army and U.S. Marine Corps
  - Joint Light Tactical Vehicle Program Office
- Department of the Navy, U.S. Marine Corps, and Department of the Air Force
  - F-35 Joint Program Office

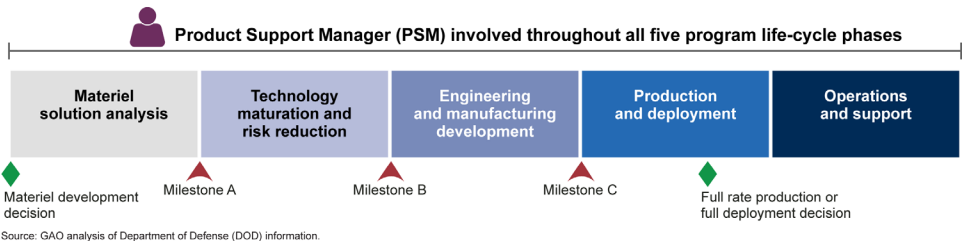
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We conducted this performance audit from April 2013 through April 2014 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide 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.

# Appendix II: Defense Acquisition System Framework

The defense acquisition system framework establishes the steps that Department of Defense (DOD) programs generally take as DOD plans, designs, acquires, deploys, operates, and maintains its weapon systems. It consists of five program life-cycle phases and multiple related decision points (three of which are referred to as milestones), which are generally shown in figure 3 and described following the figure.<sup>1</sup> The milestone decision authority for programs under this framework is either the Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L]); the DOD component head; a Component Acquisition Executive; or, when authorized, a designee. DOD issued an interim update to the instruction guiding operation of the defense acquisition system in November 2013;<sup>2</sup> the following discussion reflects the updated guidance.

Figure 3: Overview of the Defense Acquisition System Framework



Note: This figure is meant to provide an overview of the defense acquisition system framework and does not identify all decision points or activities.

The five program life-cycle phases are as follows:

- **Materiel solution analysis:** The purpose of this phase is to conduct the analysis and other activities needed to choose the concept for the product that will be acquired, to begin translating validated capability gaps into system-specific requirements, and to conduct planning to support a decision on the acquisition strategy for the product. A decision is made at the end of this phase to continue into the next

<sup>1</sup>DOD guidance notes that milestone decision authorities have full latitude to tailor programs in the most effective and efficient structure possible, to include eliminating phases and combining or eliminating milestones and decision points, unless constrained by statute. See Department of Defense, *Operation of the Defense Acquisition System*, Interim Instruction 5000.02, para. 5.c(2)(b)(5) (Nov. 25, 2013).

<sup>2</sup>Department of Defense, Interim Instruction 5000.02.

phase of acquisition for the program—this decision is referred to as Milestone A.<sup>3</sup> According to DOD, product support considerations (the primary responsibility of PSMs) should begin prior to Milestone A, with early requirements determination, and continue through system design, development, operational use, retirement, and disposal. Program Managers are responsible for developing and maintaining a life-cycle sustainment plan consistent with the product support strategy, beginning at Milestone A.

- **Technology maturation and risk reduction (formerly technology development):** The purpose of this phase is to reduce technology, engineering, integration, and life-cycle cost risk to the point that a decision to contract for engineering and manufacturing development can be made with confidence in successful program execution for development, production, and sustainment. In this phase, DOD determines the set of technologies to be integrated into the system solution and refines user requirements. A decision is made at the end of this phase to authorize further product development—this decision is referred to as Milestone B. PSM objectives during this phase include ensuring that the overall design specifications incorporate supportability design features.
- **Engineering and manufacturing development:** The purpose of this phase is to develop, build, and test a product to verify that requirements have been met and to support production or deployment decisions. A decision is made at the end of this phase to authorize entry of the system into the production and deployment phase or for limited deployment in support of operational testing—this decision is referred to as Milestone C. As part of this development phase, according to a briefing from the Office of the Assistant Secretary of Defense for Logistics and Materiel Readiness, one of the basic objectives of a PSM is to ensure that a weapon system is designed, maintained, and modified to continuously reduce the demand for logistics.
- **Production and deployment:** In this phase, DOD seeks to achieve an operational capability that satisfies mission needs, as verified through operational test and evaluation, and to implement the system at all applicable locations.
- **Operations and support:** In this final phase, DOD seeks to operationally sustain the system over its life cycle. The phase includes

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<sup>3</sup>Some programs may instead proceed to later phases of the acquisition cycle, depending on actions needed to mature the product being acquired.

execution of the product support strategy and is based on an approved life-cycle support plan. PSMs are to revalidate business-case analyses used to develop the product support strategy based on changes to the assumptions, constraints, and operating environment, or every 5 years, whichever occurs first.

In addition to the three milestone decision points included in this framework (Milestones A, B, and C), the framework also includes several other decision points, such as: (1) materiel development decision, which directs officials to conduct analyses to assess the potential solutions that can satisfy the program's requirements, and (2) full rate production or full deployment decision, which authorizes the system to be deployed to all remaining locations beyond the limited fielding locations.<sup>4</sup>

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<sup>4</sup>Limited fielding involves the deployment of a capability to a limited number of users to test the capability in an operational environment.

# Appendix III: Descriptions of Selected Department of Defense (DOD) Major Weapon Systems

We selected and interviewed a nongeneralizable sample of Product Support Managers (PSM), program management, and other product support personnel assigned to a total of 12 major weapon systems to identify good practices and challenges that may have helped or prevented PSMs in making or affecting life-cycle sustainment decisions for their assigned systems. This appendix contains descriptions of the 12 major weapon systems we selected. Each description contains information on the military service or services to which these systems belong, their respective Acquisition Category (ACAT) levels, the status of the system, and a brief description of the system.

## 1. Abrams Tank

**Service:** Army

**ACAT Level:** ACAT I

**Status of System:** Sustainment for M1A1 Variant

**System Description:** The Army's Abrams Tank provides heavy armor superiority on the battlefield and destroys enemy forces using mobility, firepower, and shock effect. Variants of the tank include increased armor protection, position navigation equipment, and improved fire control systems.



Source: Department of the Army.

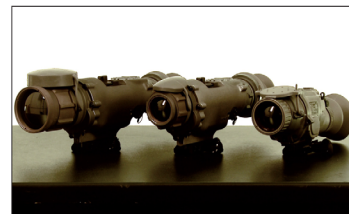
## 2. Thermal Weapon Sight, AN/PAS-13

**Service:** Army

**ACAT Level:** ACAT I

**Status of System:** Sustainment (Procurement Ended July 2012)

**System Description:** The Army's Thermal Weapon Sight provides soldiers with the capability to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants, day or night. The Thermal Weapon Sight systems use uncooled, forward-looking infrared technology and provide a standard video output for training, image transfer, or remote viewing. Thermal Weapon Sights are lightweight systems that are mountable onto a weapon rail and operate to the maximum effective range of the weapon.



Source: Department of the Army.

## 3. Distributed Common Ground System–Army

**Service:** Army

**ACAT Level:** ACAT I

**Status of System:** Completed Full Deployment Decision in December 2012

**System Description:** The Distributed Common Ground System–Army is the Army's intelligence component, which functions as the Army's primary system for processing and disseminating multisensor intelligence and weather information to the warfighter. This system is a global enterprise of capabilities and is designed to gather information from various sources to support the Army's worldwide intelligence operations.



Source: Department of the Army.

See next page.

**Appendix III: Descriptions of Selected  
Department of Defense (DOD) Major Weapon  
Systems**

**4. Long Range Advanced Scout Surveillance System**

**Service:** Army

**ACAT Level:** ACAT II

**Status of System:** Sustainment

**System Description:** The Army's Long Range Advanced Scout Surveillance System provides U.S. Army armor and infantry scout platoons with a long-range reconnaissance and surveillance sensor system. The system's line-of-sight, multisensor suite provides real-time target detection, recognition, and identification capability, with 24-hour and adverse-weather operation. The system also determines far-target location coordinates and can operate in both mounted and dismounted configurations.



Source: Department of the Army.

**5. Counter Radio Controlled-Improvised Explosive Device Electronic Warfare Duke**

**Service:** Army

**ACAT Level:** ACAT II

**Status of System:** Post-Full Operational Capability

**System Description:** The Army's Counter Radio Controlled-Improvised Explosive Device Electronic Warfare Duke is a field-deployable, single-unit system designed to have minimal size, weight, and power requirements while providing simple operation and optimal performance in order to provide force protection against radio controlled-improvised explosive devices.



Source: Department of the Army.

**6. Prophet Enhanced/Spiral 1**

**Service:** Army

**ACAT Level:** ACAT II

**Status of System:** Post-Full Operational Capability

**System Description:** The Army's Prophet Enhanced/Spiral 1 is a ground-based tactical signals intelligence and electronic warfare sensor that creates a near-real-time electronic picture of the Brigade Combat Team, Stryker Brigade Combat Team, Armored Cavalry Regiment, and Battlefield Surveillance Brigade battlespace. This system provides intelligence support by reporting the location, tracking, and identity of threat emitters, and it can also conduct Electronic Attack against enemy emitters.



Source: Department of the Army.

See next page.

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## Appendix III: Descriptions of Selected Department of Defense (DOD) Major Weapon Systems

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### 7. Virginia-Class Submarine

**Service:** Navy

**ACAT Level:** ACAT I

**Status of System:** Procurement, Production, Sustainment; Achieved Initial Operational Capability March 2007; Achieved Full Rate Production September 2010; Reached Depot Shipyard Support in June 2013

**System Description:** The Navy's *Virginia* class of attack submarines is designed for a broad spectrum of open-ocean and littoral missions around the world. These submarines have a fly-by-wire (computer assisted) ship control system that provides improved shallow-water ship handling. The class has special features to support special operations forces including a reconfigurable torpedo room that can accommodate a large number of special operations forces and all their equipment for prolonged deployments and future off-board payloads. The class also has a large lock-in/lock-out chamber for divers.



Source: © 2013 Huntington Ingalls Industries-Newport News Shipbuilding.

### 8. Littoral Combat Ship

**Service:** Navy

**ACAT Level:** ACAT I

**Status of System:** Procurement; Approaching Initial Operational Capability in July 2014

**System Description:** The Navy's Littoral Combat Ship is intended to be reconfigurable to perform three different primary missions: mine countermeasures, surface warfare, and antisubmarine warfare. This ship consists of two distinct parts—the ship itself and the interchangeable package of sensors and weapons that it carries and deploys, called a mission package. The mission package provides the majority of the ship's combat capability. Mission packages are composed of one or more mission modules and an aviation capability.



Source: Defense Video and Imagery Distribution System.

### 9. CH-53K Helicopter

**Service:** Marine Corps

**ACAT Level:** ACAT I

**Status of System:** Development; Scheduled for Milestone C in February 2016

**System Description:** The Marine Corps' CH-53K Heavy Lift Replacement Helicopter is intended to transport armored vehicles, equipment, and personnel to support operations deep inland from a sea-based center of operations. The CH-53K is expected to replace the legacy CH-53E Helicopter and provide increased range and payload, survivability and force protection, reliability and maintainability, and coordination with other assets.



Source: Sikorsky.

See next page.



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## Appendix III: Descriptions of Selected Department of Defense (DOD) Major Weapon Systems

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### 10. Joint Light Tactical Vehicle

**Service:** Army and Marine Corps (Joint Program)

**ACAT Level:** ACAT I

**Status of System:** Engineering and Manufacturing Development; Completed Milestone B in August 2012

**System Description:** The Army and Marine Corps' Joint Light Tactical Vehicle program is a family of vehicles being developed to replace the High Mobility Multipurpose Wheeled Vehicle for some missions. This vehicle is expected to provide better protection for passengers against current and future battlefield threats, increased payload capacity, and improved automotive performance over the up-armored High Mobility Multipurpose Wheeled Vehicle.



Source: Lockheed Martin.

### 11. KC-46A Tanker

**Service:** Air Force

**ACAT Level:** ACAT I

**Status of System:** Scheduled for Milestone C in August 2015; Completed Milestone B in February 2011

**System Description:** The Air Force's KC-46A aerial refueling tanker is designed with more refueling capacity, improved efficiency, and increased cargo and aeromedical evacuation capabilities than its predecessor. This tanker is expected to be able to refuel in a variety of nighttime and covert mission settings and will have countermeasures to protect it against infrared missile threats. It is also intended to refuel Air Force, Navy, Marine Corps, and allied aircraft.



Source: © 2011 Boeing. All rights reserved.

### 12. F-35 Joint Strike Fighter

**Service:** Air Force, Navy, and Marine Corps (Joint Program)

**ACAT Level:** ACAT I

**Status of System:** Low Rate Initial Production; Completed Milestone B in March 2012

**System Description:** The F-35 Joint Strike Fighter program is developing a family of stealthy, strike fighter aircraft for the Air Force, Navy, Marine Corps, and U.S. allies. Each variant of the F-35 will be customized for the capabilities desired by the military services, such as the carrier-suitable variant for the Navy, the air-to-ground attack variant for the Air Force, and the short take-off and vertical landing variant for the Marine Corps.



Source: 2010 Lockheed Martin.

Source: GAO analysis of Department of Defense (DOD) information.

# Appendix IV: Comments from the Department of Defense



LOGISTICS AND  
MATERIEL READINESS

ASSISTANT SECRETARY OF DEFENSE  
3500 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3500

MAR 28 2014

Mr. Cary Russell  
Director  
Defense Capabilities and Management  
U.S. Government Accountability Office  
441 G Street, N.W.  
Washington, DC 20548

Dear Mr. Russell:

This is the Department of Defense (DoD) response to the Government Accountability Office (GAO) Draft Report, GAO-14-326, "Weapon Systems Management: DoD Has Taken Steps to Implement Product Support Managers but Needs to Evaluate Their Effects," dated April, 2014 (GAO code 351815). Detailed comments on the report recommendations are enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul D. Peters", is located below the word "Sincerely,".

Paul D. Peters  
Acting

Enclosure:  
As stated

**GAO Draft Report Dated MARCH 6, 2014  
GAO-14-326 (GAO CODE 351815)**

**“WEAPON SYSTEMS MANAGEMENT: DOD HAS TAKEN STEPS TO IMPLEMENT  
PRODUCT SUPPORT MANAGERS BUT NEEDS TO EVALUATE THEIR EFFECTS”**

**DEPARTMENT OF DEFENSE COMMENTS  
TO THE GAO RECOMMENDATIONS**

**RECOMMENDATION 1:** The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics – in coordination with the Defense Acquisition University and the Secretaries of the Air Force, Army, and Navy – to develop and implement a plan with objectives, milestones, and resources to implement and institutionalize a comprehensive career path and associated guidance to develop, train, and support future PSMs.

**DoD RESPONSE:** The Department concurs with GAO's recommendation. OUSD(AT&L) will work over the next year with the staffs of the Secretaries of the Army, Air Force, and Navy, along with DAU and HCI via the Life Cycle Logistics Functional Integrated Product Team to define a methodology and plan for institutionalizing a comprehensive career path and associated guidance for developing, training, and supporting future PSMs.

**RECOMMENDATION 2:** The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics – in coordination with the Secretaries of the Air Force, Army, and Navy – to issue clear, comprehensive, centralized guidance regarding the roles and responsibilities of product support managers and the officials that assign them.

**DoD RESPONSE:** The Department concurs with GAO's recommendation. OUSD(AT&L) will work over the next year with the staffs of the Secretaries of the Army, Air Force, and Navy to develop clear, comprehensive, centralized guidance regarding the roles and responsibilities of PSMs and the officials that assign them.

**RECOMMENDATION 3:** The GAO recommends that the Secretary of Defense direct the Secretary of the Army – in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Commander of Army Materiel Command – to clearly define Army-wide roles and responsibilities for the sustainment portion of the life cycle of major weapon systems, to include the reporting relationships of Army Materiel Command support personnel assigned to Army weapon system program offices, by issuing new, or revising existing Army Guidance.

**DoD RESPONSE:** The Department partially concurs with the GAO's recommendation. The Army sees no ambiguity in the Army-wide roles and responsibilities for the sustainment portion of the life cycle of major weapon systems including the reporting requirements of AMC personnel providing matrix support to the program managers. The Army leadership has been

coordinating the role of the product support manager and is finalizing its capstone policy to solidify required changes as part of the statutory implementation.

**RECOMMENDATION 4:** The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics – in coordination with the Secretaries of the Army, Air Force, and Navy – to systematically collect and evaluate information on the effects, if any, that PSMs are having on the life-cycle sustainment decisions for their assigned major weapon systems.

**DoD RESPONSE:** The Department concurs with GAO's recommendation. OUSD(AT&L) will work over the next year with the staffs of the Secretaries of the Army, Air Force, and Navy to define a methodology and plan for systematically collecting and evaluating information on the effects, if any, that PSMs are having on the life-cycle sustainment decisions for their assigned major weapon systems.

**RECOMMENDATION 5:** The GAO recommends that the Secretary of Defense direct the Secretary of the Army – in coordination with the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Commander of Army Materiel Command – to review the current process for requesting and distributing sustainment funding for major weapon systems and to take necessary actions to ensure that PSMs have greater visibility of the amount of sustainment funds their weapon systems will receive including prior to the year of execution, to the extent possible.

**DoD RESPONSE:** The Department concurs with the GAO's recommendation. The Army Staff in coordination with the Commander of Army Materiel Command will work over the next year to review the current process for requesting and distributing sustainment funding for major weapon systems and take necessary actions to ensure that PSMs and all other stakeholders have greater visibility of the amount of sustainment funds their weapon systems will receive.

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# Appendix V: GAO Contact and Staff Acknowledgments

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## GAO Contact

Cary B. Russell, 202-512-5431 or [russellc@gao.gov](mailto:russellc@gao.gov)

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## Staff Acknowledgments

In addition to the contact named above, the following staff members made key contributions to this report: Alissa H. Czyz, Assistant Director; Jerome A. Brown; Yecenia C. Camarillo; Joanne Landesman; Michael C. Shaughnessy; Michael D. Silver; Amie M. Steele; Tristan T. To; and Matthew R. Young.

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# Related GAO Products

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*Defense Acquisitions: Where Should Reform Aim Next?* [GAO-14-145T](#). Washington, D.C.: October 29, 2013.

*Defense Acquisitions: Goals and Associated Metrics Needed to Assess Progress in Improving Service Acquisition.* [GAO-13-634](#). Washington, D.C.: June 27, 2013.

*Program Evaluation: Strategies to Facilitate Agencies' Use of Evaluation in Program Management and Policy Making.* [GAO-13-570](#). Washington, D.C.: June 26, 2013.

*Defense Acquisitions: Assessments of Selected Weapon Programs.* [GAO-13-294SP](#). Washington, D.C.: March 28, 2013.

*Weapons Acquisition Reform: Reform Act Is Helping DOD Acquisition Programs Reduce Risk, but Implementation Challenges Remain.* [GAO-13-103](#). Washington, D.C.: December 14, 2012.

*Defense Logistics: Improvements Needed to Enhance Oversight of Estimated Long-Term Costs for Operating and Supporting Major Weapon Systems.* [GAO-12-340](#). Washington, D.C.: February 2, 2012.

*Defense Management: DOD Needs Better Information and Guidance to More Effectively Manage and Reduce Operating and Support Costs of Major Weapon Systems.* [GAO-10-717](#). Washington, D.C.: July 20, 2010.

*Defense Acquisitions: Fundamental Changes Are Needed to Improve Weapon Program Outcomes.* [GAO-08-1159T](#). Washington, D.C.: September 25, 2008.

*Defense Logistics: Opportunities to Improve the Army's and the Navy's Decision-making Process for Weapons System Support.* [GAO-02-306](#). Washington, D.C.: February 28, 2002.

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