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DEFENSE LOGISTICS

Improved Performance Measures and Information Needed for Assessing Asset Visibility Initiatives
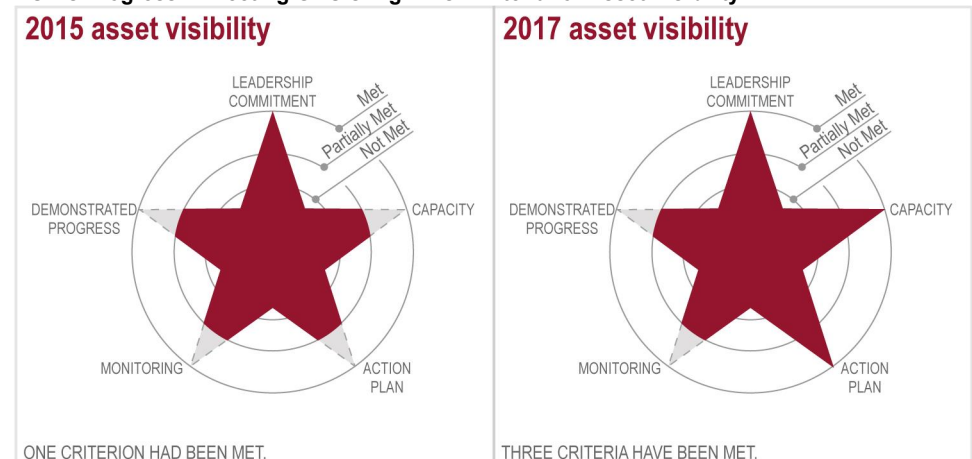
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DEFENSE LOGISTICS

Improved Performance Measures and Information Needed for Assessing Asset Visibility Initiatives

Why GAO Did This Study

GAO designated DOD's supply chain management as a high-risk area in 1990 and in February 2011 reported that limitations in asset visibility make it difficult to obtain timely and accurate information on assets that are present in a theater of operations. DOD defines asset visibility as the ability to provide timely and accurate information on the location, quantity, condition, movement, and status of items in its inventory. In 2015, GAO found that DOD had demonstrated leadership commitment and made considerable progress in addressing weaknesses in its supply chain management.

This report addresses the extent to which DOD has (1) identified performance measures that allow it to monitor the progress of selected asset visibility initiatives identified in its *Strategies*; and (2) addressed the five criteria—leadership commitment, capacity, corrective action plan, monitoring, and demonstrated progress—for removing asset visibility from the High Risk List. GAO reviewed documents associated with selected initiatives, surveyed DOD officials, and observed demonstrations.

What GAO Recommends

GAO recommends that DOD use key attributes of successful performance measures in refining measures in updates to the *Strategy* and incorporate information related to performance measures into after-action reports for the asset visibility initiatives. DOD partially concurred with both recommendations. The actions DOD proposed are positive steps, but GAO believes the recommendations should be fully implemented, as discussed in the report.

What GAO Found

The Department of Defense (DOD) has identified performance measures for the eight selected asset visibility initiatives GAO reviewed, but these performance measures generally cannot be used to monitor progress. Specifically, GAO found that the measures for the eight initiatives reviewed did not generally include key attributes of successful performance measures. For example, for six initiatives there were no baseline and trend data associated with the measures. While DOD's 2014 and 2015 *Strategy for Improving DOD Asset Visibility* (*Strategies*) called for performance measures to be identified for the initiatives, the *Strategies* lacked complete direction on how to develop performance measures that would allow DOD to assess the progress of the initiatives toward their intended outcomes. GAO also found that after-action reports for the initiatives did not always include key information needed to determine the success of the initiatives in achieving the goals described in the *Strategies*. Without improved performance measures and information to support that progress has been made, DOD may not be able to monitor and show progress in improving asset visibility.

DOD has made progress and meets the criteria related to capacity and its corrective action plan but needs to take additional actions to monitor implementation and demonstrate progress to meet GAO's two remaining criteria for removal from the High Risk List, as shown in the figure. For the capacity criterion, in its draft update to the 2015 *Strategy*, DOD provides guidance on how to document cases where the funding for the initiatives is embedded within the overall program funding. Also, for the action plan criterion, DOD included matrixes in its 2015 *Strategy* to link ongoing initiatives to the *Strategy*'s goals and objectives. DOD has also taken steps to monitor the status of initiatives. However, the performance measures for the selected initiatives that GAO reviewed generally cannot be used to track progress and are not consistently incorporated into reports to demonstrate results. Until these criteria are met, DOD will have limited ability to demonstrate sustained progress in improving asset visibility.

DOD's Progress in Meeting GAO's High-Risk Criteria for Asset Visibility

Source: GAO analysis. | GAO-17-183

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Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense
GCSS-J	Global Combat Support System–Joint
RFID	Radio Frequency Identification
SEP	Supporting Execution Plan
U.S. TRANSCOM	United States Transportation Command

GAO

U.S. GOVERNMENT ACCOUNTABILITY OFFICE

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Congressional Committees

One of the most complex and vital tasks facing the Department of Defense (DOD) is managing its supply chain to effectively and efficiently provide spare parts, food, fuel, and other critical supplies in support of U.S. military forces. DOD's goal and challenge are to deliver the right items in the right quantities to the right place at the right time—and at the right cost. Supply chain management encompasses the processes and systems for accomplishing this goal and includes inventory management, materiel distribution, and asset visibility. According to DOD, to achieve a seamless and effective supply chain, DOD needs to have end-to-end visibility of its assets from acquisition to disposal. DOD defines asset visibility as the ability to provide timely and accurate information on the location, quantity, condition, movement, and status of items in its inventory, including assets in transit. Maintaining visibility of these assets is critical to ensure that DOD provides support to the warfighter. Because of long-standing weaknesses in DOD's supply chain management, in 1990 we designated it as a high-risk area.[1] In 2005, we added asset visibility to the supply chain management high-risk area.[2] In 2011, we reported that limitations in asset visibility made it difficult for DOD to obtain timely and accurate information on the assets that are present in the theater of operations.[3]

In our February 2015 biennial update to the *High-Risk Series*, we reported that DOD had made progress addressing weaknesses in its supply chain management, which is comprised of three issue areas: inventory management, materiel distribution, and asset visibility.[4] With respect to asset visibility, we reported that the department had met one of our five criteria—leadership commitment—for the removal of asset

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[1]This high-risk area was originally identified as DOD inventory management. In 1990, we began a program to report on government operations that we identified as "high risk." Every 2 years, we call attention to agencies and program areas that are high risk because of their vulnerabilities to fraud, waste, abuse, and mismanagement or are most in need of transformation.

[2]*See GAO, High-Risk Series: An Update*, GAO-05-207 (Washington, D.C.: January 2005).

[3]GAO, High-Risk *Series: An Update*, GAO-11-278 (Washington, D.C.: February 2011).

[4]GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015).

visibility from the high risk list, and partially met the other four criteria—capacity, corrective action plan, monitoring, and demonstrated progress.[5] We reported that DOD had made considerable progress from 2013 to 2015 in addressing the four remaining criteria through actions such as developing the department's framework for improving asset visibility, known as its 2014 *Strategy for Improving DOD Asset Visibility (2014 Strategy)*. The 2014 *Strategy* outlined initiatives intended to improve DOD's asset visibility.[6] Furthermore, we reported that to fully address the remaining four high-risk criteria DOD needed to take a number of actions, such as linking the goals and objectives in the 2014 *Strategy* with the initiatives intended to implement the *Strategy*. We also reported that DOD needed to assess and refine, as appropriate, existing performance measures to ensure that these measures assessed the implementation of individual initiatives as well as progress toward achieving the *Strategy's* goals and objectives.

In December 2015, we reported that DOD had updated its 2014 *Strategy* in October 2015 (2015 *Strategy*), and had taken numerous actions to address weaknesses in its 2014 *Strategy*.[7] For example, the 2015 *Strategy* addressed steps DOD was taking to facilitate collaboration with industry to capture best practices with respect to asset visibility. Like its predecessor, the updated 2015 *Strategy* states that it is intended to create a framework whereby the DOD components can work collaboratively to enhance asset visibility in a manner that provides accurate, reliable, and timely data to track assets throughout their life cycles.[8] According to the 2015 *Strategy* and Office of the Secretary of Defense (OSD) officials, the Asset Visibility Working Group—comprised

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[5]For the criteria we used to determine whether to remove a high-risk designation, *see* GAO, *Determining Performance and Accountability Challenges and High Risks*, GAO-01-159SP (Washington, D.C.: November 2000).

[6]These initiatives are outlined in supporting execution plans (SEP), which are in appendix F of the 2014 *Strategy* and appendix D of the 2015 *Strategy*. DOD describes a SEP as a "high-level snapshot" of the capability being implemented, along with point of contact information to obtain additional details. Each of the SEPs outlines an initiative and describes specific actions that are intended to improve asset visibility.

[7]GAO, *Defense Logistics: DOD Has Addressed Most Reporting Requirements and Continues to Refine Its Asset Visibility Strategy*, GAO-16-88 (Washington, D.C.: Dec. 22, 2015).

[8]DOD, *Strategy for Improving DOD Asset Visibility (*October 2015). We use the term component to refer to the organizations involved in delivering logistics capabilities to the warfighter—the Joint Staff, the Defense Logistics Agency, U.S. Transportation Command, and the military services.

of representatives from the components and other government agencies, as needed—facilitates collaboration across the components, identifies opportunities for improvement, and monitors the implementation of the initiatives.[9]

We initiated this review under the authority of the Comptroller General to address issues of broad interest to Congress. In this report, we address the extent to which DOD has (1) identified performance measures that allow it to monitor the progress of selected asset visibility initiatives identified in its *Strategies* and (2) addressed our five criteria—leadership commitment, capacity, corrective action plan, monitoring, and demonstrated progress—for removing asset visibility from our High Risk List.

To determine the extent to which DOD has identified performance measures that allow it to monitor the progress of selected asset visibility initiatives identified in the 2014 and 2015 *Strategies (Strategies)*, we reviewed documents such as the *Strategies*; minutes from the Asset Visibility Working Group meetings; and documents showing the status of the implementation, including charts that track the development and closure of the asset visibility initiatives. Thirty initiatives have been included in the *Strategies*, but 3 of these were halted, for a variety of reasons.[10] To develop a non-generalizable sample from the remaining 27 initiatives, we selected 8—at least one from each of the components—to review and assess, including analyzing the performance measures associated with each initiative.[11] The results from this sample cannot be generalized to the other 19 initiatives. In our selection of initiatives to review, we used several sampling criteria to ensure that we had a range of initiatives—from some just beginning to some that had already been completed. We surveyed program managers and other cognizant officials

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[9]The Asset Visibility Working Group is responsible for monitoring the execution of the initiatives outlined in the SEPs. The components report the status of their initiatives to this group on a quarterly basis.

[10]The Defense Logistics Agency initiative, intended to improve asset tracking with materiel transfer at retail industrial activities in the continental United States and identify underperforming points in the supply chain, was halted because DOD was unable to provide meaningful performance measures. Initiatives were also canceled for other reasons, such as lack of funding or not meeting performance measures.

[11]Results from nongeneralizable samples cannot be used to draw inferences about a population, because in a nongeneralizable sample some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample.

(hereafter referred to as component officials) responsible for the asset visibility initiatives we selected. We included questions in our survey related to the development and closure of the initiatives and took several steps to ensure the validity and reliability of the survey instrument. We also reviewed the *Strategies* to identify performance measures necessary to monitor progress of the 8 initiatives we selected. We assessed whether (1) DOD had followed the guidance set forth in the *Strategies* and (2) the measures for the initiatives included selected key attributes of successful performance measures (for example, are the measures clear, quantifiable (i.e., have measurable targets and baseline and trend data), objective, and reliable).[12]

Additionally, we reviewed the after-action reports for all of the initiatives that had been closed—20 of 27 initiatives, which included 5 of the 8 initiatives we reviewed in detail—by the Asset Visibility Working Group as of October 31, 2016. We assessed these after-action reports to determine whether they were completed for the initiative, documented whether measures were obtained, and identified challenges and lessons learned. Furthermore, we interviewed component officials and officials at the Office of the Deputy Assistant Secretary of Defense for Supply Chain Integration (hereafter referred to as OSD) to clarify survey responses and to discuss plans to develop the initiatives, including any efforts to monitor progress and demonstrate results.

To determine whether DOD had addressed the five criteria—leadership commitment, capacity, corrective action plan, monitoring, and demonstrated progress—that would have to be met for us to remove asset visibility from the High Risk List, we reviewed documents such as the 2014 and 2015 *Strategies* and charts that track the implementation

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[12]*See* GAO, *Tax Administration: IRS Needs to Further Refine Its Tax Filing Season Performance Measures,* GAO-03-143 (Washington, D.C.: Nov. 22, 2002), p. 45, for a description of how we developed the attributes of effective performance goals and measures. We also reviewed the Government Performance and Results Act of 1993, as amended by the Government Performance and Results Act Modernization Act of 2010, Pub. L. No. 111-352 (2011). *See also*, GAO, *GPRA Performance Reports,* GAO/GGD-96-66R, (Washington, D.C.: Feb. 14, 1996); GAO, *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management,* GAO-13-432 (Washington, D.C.: Apr. 26, 2013); GAO, *Performance Measurement and Evaluation: Definitions and Relationships,* GAO-11-646SP (Washington, D.C.: May 2011); and, GAO, *Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers*, GAO/GGD/AIMD-99-69 (Washington, D.C.: Feb. 26, 1999).

and closure of asset visibility initiatives.[13] We included questions in our survey to collect additional information from officials on their efforts to address the high-risk criteria. For example, we asked how the component monitored the implementation of the initiative and whether there had been any demonstrated progress in addressing the opportunity, deficiency, or gap in asset visibility capability that the initiative was designed to address. We evaluated DOD's actions to improve asset visibility against each of our five high-risk criteria for removing this dimension from the high-risk list.[14] Additionally, we interviewed component officials and OSD officials to clarify their survey responses and to discuss their plans to continue to make progress in improving asset visibility. We provide additional information about our scope and methodology in appendix I.

We conducted this performance audit from February 2016 to March 2017 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.

Background

DOD's supply chain is a global network that provides materiel, services, and equipment to the joint force. In February 2015, we reported that DOD had been experiencing weaknesses in the management of its supply chain, particularly in the following areas: inventory management, materiel distribution, and asset visibility. Regarding asset visibility, DOD has had weaknesses in maintaining visibility of supplies, such as problems with inadequate radio-frequency identification information to track all cargo movements.[15] Additionally, in February 2015, we reported on progress

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[13]Improvements made to asset visibility as a result of initiatives may continue after the initiative has been implemented and is closed for the purpose of Asset Visibility Working Group review. However, according to DOD officials, DOD components may update information provided to the Working Group, or the Working Group may request additional information after the initiative has been closed, especially when implementation affects multiple components.

[14]For the criteria and process for assessing agency activities and determining whether performance and accountability challenges warrant designation as high risk, *see* GAO-01-159SP.

[15]GAO-15-290.

DOD had made in addressing weaknesses in its asset visibility, including developing its 2014 *Strategy*.[16]

Overview of Asset Visibility at DOD

DOD has focused on improving asset visibility since the 1990s, and its efforts have evolved over time, as shown in figure 1. The 2015 *Strategy* states that the department introduced automatic identification technology capabilities to improve its ability to track assets. Since we added asset visibility to the high risk list in 2005, we have reported that DOD has made a great deal of progress in improving asset visibility.[17] The 2014 *Strategy* notes that for more than 25 years, the department has been using technologies, starting with linear bar codes and progressing to a variety of more advanced technologies, with the goal of improving asset visibility. Specifically, the *Strategies* state that, based on lessons learned from years of war in Iraq and Afghanistan, the department introduced technology capabilities to improve its ability to track assets as they progress from posts, camps, and stations. Additionally, the 2015 *Strategy* states that DOD has made significant progress toward improving asset visibility, but opportunities for greater DOD-wide integration still exist.

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[16]GAO-15-290.

[17]*See* GAO, *Defense Logistics: DOD Has a Strategy and Has Taken Steps to Improve Its Asset Visibility, but Further Actions Are Needed*, GAO-15-148 (Washington, D.C.: Jan. 27, 2015), GAO-15-290, and GAO-16-88.

Figure 1: Evolution of DOD's Efforts to Improve Asset Visibility

Prior to 1990: DOD used bar codes on items repeatedly used, bought, stocked or distributed by DOD.

2007:
- DOD begins to migrate active RFID tags from American National Standards Institute air interface protocol to the International Organization for Standardization standard.
- DLA uses passive RFID to enhance the pick, pack and ship processes.

Before 1999

1990: GAO adds supply chain management to the High Risk List because of inefficient inventory-management practices.

1996: DOD uses the first active RFID network for the European Command to track the identity, status, and location of DOD units, non-unit cargo, and personal property from origin to destination across the range of military operations.

2000 to 2009

2001: DOD begins to use active RFID for in-transit visibility in the United States.

2003: U.S. TRANSCOM was made responsible for the overall effectiveness and efficiency of DOD distribution activities, including force projection, sustainment, and redeployment operations.

2004: Policy established for implementation of RFID across DOD and specific uses of active and passive RFID. Passive RFID tags temporarily store a small amount of energy received from the tag reader in order to generate a tag response. Passive RFID is used at the item, case or pallet level.

2005: GAO adds asset visibility to the supply chain management high-risk area.

2006: Vendors required to affix passive RFID tags to their shipments pursuant to passive RFID clause in DFARS.

2009: DOD begins to use intrusion detection with RFID devices to prevent cargo containers from being opened without authorization.

2010 to 2019

2010: Passive RFID begins to be used on repairable parts and components, such as engines or weapon system components being stored by the DLA.

2011: U.S. TRANSCOM is designated as the lead proponent for in-transit visibility.

2013: According to DOD officials, DOD establishes the Asset Visibility Working Group to monitor the execution of the initiatives outlined in the supporting execution plans. The components report the status of their initiatives to this group on a quarterly basis.

2014: DOD develops *Strategy for Improving DOD Asset Visibility*.

2015: DOD updates *Strategy for Improving DOD Asset Visibility*.

DFARS	Defense Federal Acquisition Regulation Supplement
DLA	Defense Logistics Agency
DOD	Department of Defense
RFID	Radio Frequency Identification
U.S. TRANSCOM	U.S. Transportation Command

Source: GAO analysis of DOD information. | GAO-17-183

DOD Strategies for Improving Asset Visibility

DOD has issued two strategies to guide its efforts in improving asset visibility:

- **2014 *Strategy:*** In January 2014, the department issued its *Strategy for Improving DOD Asset Visibility*.[18] The 2014 *Strategy* creates a framework whereby the components work collaboratively to identify improvement opportunities and capability gaps and to leverage technology capabilities, such as radio frequency identification. These capabilities aid in providing timely, accurate, and actionable information about the location, quantity, and status of assets. The 2014 *Strategy* identified 22 initiatives developed by the components that were intended to improve asset visibility. OSD officials stated that an initiative is conducted in accordance with component-level policy and procedures and can either be for a single component or for potential improvement throughout DOD. According to OSD officials, DOD components develop asset visibility initiatives, and these initiatives may be identified by the Asset Visibility Working Group or by components for inclusion in the *Strategies*.

- **2015 *Strategy*:** In October 2015, DOD issued its update to the 2014 *Strategy*. The 2015 *Strategy* outlined an additional 8 initiatives developed by the components to improve asset visibility. According to OSD officials, they plan to issue an update to the 2015 *Strategy*, but the release date for this update has not been determined. These officials stated that the update to the 2015 *Strategy* will outline about 10 new initiatives.

Overview of DOD's Efforts to Guide and Monitor Asset Visibility Initiatives

As we reported in January 2015, DOD has taken steps to monitor the asset visibility initiatives. Specifically, DOD has established a structure for

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[18]The National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66 (2013) required DOD to submit to Congress a comprehensive strategy and implementation plans for improving asset tracking and in-transit visibility. In October 2014, DOD submitted to Congress its *Report on the Strategy to Improve Asset Tracking and In-Transit Visibility* in satisfaction of the mandate. DOD's October 2014 report to Congress incorporated its January 2014 *Strategy for Improving DOD Asset Visibility* and accompanying implementation plans.

overseeing and coordinating efforts to improve asset visibility.[19] This structure includes the Asset Visibility Working Group, which according to the *Strategies* is responsible for monitoring the execution of the initiatives. Additionally, the components are designated as the offices of primary responsibility to ensure the successful execution of their initiatives, including developing cost estimates and collecting performance data. Working Group members include representatives from OSD and the components—Joint Staff, the Defense Logistics Agency, U.S. Transportation Command, and each of the military services. The components submit quarterly status reports to the Working Group about their initiatives—including progress made on implementation milestones, return on investment, and resources and funding. Additionally, as documented in the minutes from its May 2016 Asset Visibility Working Group meeting, DOD uses an electronic repository that includes information about the initiatives.

The 2015 *Strategy* describes a process in which the Asset Visibility Working Group, among other things, reviews and concurs that an initiative has met its performance objectives.[20] The Asset Visibility Working Group files an after-action report, which is added to the status report, for completed initiatives; this after-action report is to include performance measures used to assess the success of the initiative, challenges associated with implementing the initiative, and any lessons learned from the initiative. For example, an after-action report for the U.S. Transportation Command (U.S. TRANSCOM) active radio frequency identification (RFID) migration initiative stated that U.S. TRANSCOM had successfully tracked the use of old and new active RFID tags on military assets and updated an active RFID infrastructure to accommodate the new tags.

Components Have Identified Performance Measures for the Eight Initiatives We Reviewed, but Limitations in the Measures and

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[19]GAO-15-148.

[20]The overall process in which the Asset Visibility Working Group has a role is referred to by DOD as the Life Cycle of a Supporting Execution Plan.

Related Status Reports Affect DOD's Ability to Assess the Success of the Initiatives

DOD components have identified performance measures for the 8 initiatives we reviewed, but the measures do not generally include the key attributes of successful performance measures (i.e., the measures were not generally clear, quantifiable, objective, and reliable). We also found that after-action reports for some initiatives did not always include information on the performance measures and therefore prevent DOD from effectively evaluating the success of the initiatives in achieving the goals and objectives described in the *Strategies*.

DOD Components Have Identified Performance Measures for Selected Initiatives

DOD components have identified at least one performance measure for each of the 8 initiatives we examined. These initiatives are described in table 1. (For more details on each of the 8 initiatives, see appendix II.) DOD's *Strategies* direct that expected outcomes or key performance indicators (which we refer to as performance measures) be identified for assessing the implementation of each initiative.[21] The 2015 *Strategy* notes that these performance measures enable groups, such as the Asset Visibility Working Group and the Supply Chain Executive Steering Committee—senior-level officials responsible for overseeing asset visibility improvement efforts—to monitor progress toward the implementation of an initiative and to monitor the extent to which the initiative has improved asset visibility in support of the *Strategy's* goals and objectives. For example, one of the performance measures for a U.S. TRANSCOM initiative on the migration to a new active radio frequency identification (RFID) tag is to track the use of old and new active RFID tags on military assets. Additionally, one of the performance measures for the Defense Logistics Agency's (DLA) initiative on passive RFID technology for clothing and textiles is to track the time it takes to issue

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[21]In the 2014 and 2015 *Strategies*, OSD used the terms "measures of success" and "metrics (measures of effectiveness)." Measures of success and metrics identify the expected outcomes and key performance indicators. Expected outcomes are generic statements of improvements expected from the actions being taken. Key performance indicators are specific characteristics that, when measured, will indicate success or failure.

new uniforms to military personnel.[22] The 2015 *Strategy* also notes that the performance measures are reviewed before an initiative is closed by the Asset Visibility Working Group.

Table 1: Purposes of the Eight Initiatives GAO Reviewed, as Identified in the Strategies

Initiative	Responsible component	Purpose of the initiative
Mortuary Affairs Reporting and Tracking System (MARTS)	Army	Manage receipt, collection, processing, and shipping of human remains and personal effects using a web-based tool.
Afloat/Ashore Implementation of Navy Ordnance Information System Automatic Identification Technology (AIT)[a] Capability	Navy	Implement Navy Ordnance Information System AIT within classified domains both afloat and ashore and match existing capabilities at continental U.S. and unclassified sites.
Defense Logistics Agency (DLA) Item Level Passive Radio Frequency Identification (RFID) for Clothing and Textiles	DLA	Improve inventory management and accountability and reduce the time and resources expended, by streamlining the process for issuing uniforms.
Active RFID (aRFID) Migration	U.S. Transportation Command	Eliminate the risk of having a shortage of active RFID tags or having tags with duplicate identification numbers by migrating from a proprietary tag to a non-proprietary tag.
Air Force Global Enterprise Tracking- (AFGET) Maintenance Operations Center (MOC) Visualizer Module	Air Force	Provide a solution for tracking Air Force assets to improve cost, schedule, and quality in depot operations.
Develop Condition Code[b] Visibility in Global Combat Support System-Joint (GCSS-J)	Joint Staff	Maximize visibility of condition codes of non-munitions assets in GCSS-J to support joint logistics planning and execution.
Implement Transportation Tracking Number per Joint Requirements Oversight Council Memorandum 034-09	U.S. Transportation Command	Support operational-level command and control by creating unclassified tracking numbers that enable linkage and visibility of force packages without compromising operational security.[c]
Non-nodal In-Transit Visibility	Marine Corps	Improve combat effectiveness by providing near real-time visibility of sustainment cargo at the tactical level and provide confirmation of delivery of the cargo to forward bases and units.

Source: GAO analysis of DOD data. | GAO-17-183

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[22]Radio frequency identification (RFID) is a family of technologies enabling hands-off processing of materiel deploying through the Defense Transportation System. Materiel marked with RFID tags may be remotely identified, categorized, and located automatically within relatively short distances. Active RFID tags can hold relatively large amounts of data, are continuously powered, and are normally used when it is necessary that the tag be readable from a longer distance. Passive RFID tags temporarily store a small amount of energy received from the tag reader in order to generate a tag response. Passive RFID is used at the item, case, or pallet level.

[a]DOD defines AIT as a suite of technologies enabling the automatic capture of data, thereby enhancing the ability to identify, track, document, and control assets (e.g., materiel) and deploy and redeploy forces, equipment, personnel, and sustainment cargo.

[b]There are two different and distinct types of condition codes under the definition of federal condition codes. Supply condition codes are used to classify materiel in terms of readiness for issue and use or to identify action under way to change the status of materiel. Disposal condition codes, which describe the materiel's physical condition, are assigned by the Defense Logistics Agency Disposition Services Field Office based on inspection of materiel at time of receipt.

[c]A force package contains the equipment, supplies, and other commodities necessary to support a military operation.

Performance Measures for the Selected Initiatives Did Not Generally Include the Key Attributes of Successful Performance Measures

Our prior work on performance measurement has identified several important attributes that performance measures should include if they are to be effective in monitoring progress and determining how well programs are achieving their goals.[23] (See table 2 for a list of selected key attributes.) Additionally, *Standards for Internal Control in the Federal Government* emphasizes using performance measures to assess performance over time.[24] We have previously reported that by tracking and developing a performance baseline for all performance measures, agencies can better evaluate whether they are making progress and their goals are being achieved.[25] Based on an analysis of the 8 initiatives we reviewed, we found that these performance measures did not generally include the key attributes of successful performance measures. Moreover, DOD's *Strategies* lack sufficient direction on how components are to develop measures for these initiatives that would ensure that the performance measures developed include the key attributes for successful measures. This hinders DOD's ability to ensure that effective measures are developed which will allow it to monitor the performance of the individual initiatives and whether the initiatives are likely to achieve the goals and objectives of the *Strategies*.

[23]*See* appendix I for a more complete description of our methodology, including how we selected the six key attributes that we used to assess DOD's asset visibility performance measures.

[24]GAO, *Standards for Internal Control in the Federal Government*. GAO-14-704G (Washington, D.C.: Sept. 2014).

[25]*See* GAO, *Defense Health Care Reform: Additional Implementation Details Would Increase Transparency of DOD's Plans and Enhance Accountability*, GAO-14-49 (Washington, D.C.: Nov. 6, 2013), p. 17 for a description of why having a baseline measure was added as an attribute of effective performance measures.

Table 2: GAO's Selected Key Attributes of Successful Performance Measures

Attribute	Description of measure
Clarity	Is clearly stated, and the name and definition are consistent with the methodology used to calculate it.
Measurable target	Has a numerical goal; that is, the measure is quantifiable or otherwise has quantifiable, numerical targets or other measurable values that permit expected performance to be compared with actual results.
Objectivity	Is reasonably free from significant bias or manipulation that would distort the accurate assessment of performance. We have previously reported that to be objective, performance measures should indicate specifically what is to be observed, in which population or conditions, and in what time frame, and be free of opinion and judgment.
Reliability	Produces the same result under similar conditions. Reliability is increased when verification and validation procedures exist, such as checking performance data for significant errors by formal evaluation or audit.
Baseline and trend data	Has baseline and trend data associated with it to identify, monitor, and report changes in performance and to help ensure that performance is viewed in context. Performance baselines allow agencies to better evaluate progress made and whether or not goals are being achieved and can provide key decision makers with feedback for improving both policy and operational effectiveness.
Linkage	Is aligned with division and agency-wide goals and missions, and is clearly communicated throughout the organization.

Source: GAO. | GAO-17-183

Note: Our prior work has identified ten key attributes for successful performance measures. We selected six attributes relevant to the sample of initiatives we examined. The remaining four attributes—government-wide priorities, core program activities, limited overlap, and balance—are used to assess agency-wide performance and are not applicable to our analysis, because we did not assess agency-wide initiatives. Instead, we selected a subset of the component-level initiatives to review; therefore these attributes would not apply.

We found that some of the performance measures for the 8 initiatives we reviewed included the key attributes of successful performance measures, such as linkage to goals and objectives in the *Strategies*. However, the measures for most of the initiatives did not have many of the key attributes of successful performance measures. As shown in table 3, for three initiatives there were no clearly identified performance measures; for five there were no measurable targets to allow for easier comparison with the initiatives' actual performance; for five the measures were not objective; for five the measures were not reliable; for six there were no baseline and trend data associated with the measures; and for three the performance measures were not linked to the goals and objectives of the *Strategies.*

Table 3: GAO Analysis of the Extent to Which the Initiatives Included Performance Measures with the Key Attributes of Successful Performance Measures

Key Attribute	Number of Initiatives that Included the Key Attributes of Successful Performance Measures		
	Fully Included	Partially Included	Not Included
Clarity	0	5	3
Measurable Target	3	0	5
Objectivity	0	3	5
Reliability	0	3	5
Baseline and Trend Data	0	2	6
Linkage[a]	5	0	3

Source: GAO analysis of DOD performance measures. | GAO-17-183

Note: We assessed an initiative as "fully included" if all the performance measures met the definition of the relevant key attribute; "partially included" if some, but not all, of the measure met the definition of the relevant key attribute; and "not included" if none of the measures met the definition of the relevant key attribute.

[a]Three of the initiatives that we selected were identified in the 2014 *Strategy*, and we recommended that DOD link performance measures for the initiatives to the goals and objectives outlined in the 2014 *Strategy*. DOD concurred and included in the 2015 *Strategy* 5 of the 8 selected initiatives that showed such linkage.

A detailed discussion of our assessment of the performance measures for each key attribute follows:

1. Clarity:

- Measures for 5 of the 8 initiatives partially included the key attribute of "clarity." For example, a performance measure for a Defense Logistics Agency initiative was to reduce the time required to issue uniforms by improving cycle times and reducing customer wait time. We identified "to reduce the time required to issue uniforms" as the name of the measure. However, the definition we identified for this measure, which is to improve cycle times and reduce customer wait time, did not include the methodology for computing the measure. Therefore, for the clarity attribute, we could not determine if the definition of this measure was consistent with the methodology used to calculate it. We reported in September 2015 that if the name and definition of the performance measure are not consistent with the methodology used to calculate it, data may be confusing and misleading to the component.[26]

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[26]GAO, *Defense Health Care Reform: Actions Needed to Help Ensure Defense Health Agency Maintains Implementation Progress*, GAO-15-759 (Washington, D.C.: Sept. 10. 2015).

- For 3 of the 8 initiatives the performance measures were not clearly stated. For example, a performance measure for an Army initiative was to expand current capabilities by accessing data through a defense casualty system and integrate reporting and tracking into one application. We found that there was an overall description of the initiative, but it did not include a name or definition for the measure or a methodology for calculating it.

2. **Measurable Target:**

    - Measures for 3 of the 8 initiatives fully included the key attribute of measurable targets. For example, a performance measure for a Joint Staff initiative is to have 100 percent visibility of condition codes for non-munitions inventory.

    - Measures for 5 of the 8 initiatives did not identify a measurable target. For example, a performance measure for a Marine Corps initiative is to increase non-nodal visibility and the delivery status of materiel in transit within an area of responsibility, but the component did not provide a quantifiable goal or other measure that permits expected performance to be compared with actual results so that actual progress can be assessed.

3. **Objectivity:**

    - Measures for 3 of the 8 initiatives partially included the key attribute of objectivity. For example, the performance measures for a Navy initiative indicated what is to be observed (timeliness, accuracy, and completeness), but the measures did not specify what population and time frames were to be observed.

    - Measures for 5 of the 8 initiatives did not include the key attribute of objectivity. For example, the performance measures for an Army initiative did not indicate what is to be observed, in which population, and in what time frame.

4. **Reliability:**

    - Measures for 3 of the 8 initiatives partially included the key attribute of reliability. For example, some of the performance measures for a Navy initiative included data quality control processes to verify or validate information such as automated or manual reviews and the frequency of reviews. However, the Navy did not specify how often it would perform these reviews.

    - Measures for 5 of 8 initiatives did not include the key attribute of reliability. For example, the performance measures for an Army initiative did not include a name for the measures, definitions for these measures, or methodologies for calculating them.

Therefore, we could not determine whether the measures would produce the same results under similar conditions.

5. **Baseline and Trend data:**

    *   Measures for 2 of 8 initiatives partially included the key attribute of baseline and trend data. For example, a Joint Staff initiative included a baseline (e.g., improve the visibility of condition codes of non-munitions assets in the Global Combat Support System – Joint (GCSS-J) from 48 percent to 100 percent), but it did not include trend data.

    *   Measures for 6 of 8 initiatives did not include the key attribute of baseline and trend data. For example, the performance measures for a U.S. TRANSCOM initiative for implementing transportation tracking numbers did not include baseline and trend data to identify, monitor, and report changes in performance.

6. **Linkage:**

    *   Measures for 5 of 8 initiatives fully included the key attribute of linkage. For example, the performance measures for the Joint Staff initiative, intended to maximize the visibility of the condition codes of non-munitions assets in GCSS-J to support joint logistics planning, are linked to the 2015 *Strategy*'s goals of:

        o   improving visibility into customer materiel requirements and available resources;

        o   enhancing visibility of assets in transit, in storage, in process, and in theater; and

        o   enabling an integrated accessible authoritative data set.

    *   Measures for 3 of the 8 initiatives did not include the key attribute of linkage because they were not aligned with agency-wide goals and mission and were not clearly communicated throughout the organization. These initiatives were identified in the 2014 *Strategy* and the descriptions of the initiatives did not specify which of the goals and objectives they were intended to support. We reported in January 2015 that the 2014 *Strategy* did not direct that the performance measures developed for the initiatives link to the goals or objectives in the 2014 *Strategy*, and we found that it was not clear whether the measures linked to the *Strategy's* goals and objectives.[27] Therefore, we recommended that DOD ensure that

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[27] GAO-15-148.

the linkage between the performance measures for the individual initiatives and the goals and objectives outlined in the 2014 *Strategy* be clear. DOD concurred with our recommendation and in its 2015 *Strategy* linked each initiative to the goals and objectives.

The deficiencies that we identified in the performance measures can be linked to the fact that the *Strategies* have not included complete direction on the key attributes of successful performance measures. The 2014 *Strategy* provided direction on the types of expected outcomes and key performance indicators. For example, an expected outcome is to increase supply chain performance and the key performance indicator is to improve customer wait time. However, when OSD updated the 2014 *Strategy* it did not include in the 2015 *Strategy* an example of the types of expected outcomes and key performance indicators for components to use when developing performance measures. The lack of direction on successful performance measures may have resulted in measures that lacked key attributes, such as clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage, as we previously discussed. While OSD officials stated that they believed the performance measures for the selected initiatives were sufficient to report on the status of the initiatives, our review of these measures determined that they could not be used to effectively assess the performance of the initiatives to improve asset visibility. Without sufficient direction in subsequent updates to the *Strategy* on developing successful performance measures, DOD has limited assurance that the components are developing measures that can be used to determine how the department is progressing toward achieving its goals and objectives related to improving asset visibility.

After-Action Reports for Initiatives Have Not Always Included Performance Measures to Assess the Initiatives' Success

As described in the 2015 *Strategy*, the Asset Visibility Working Group and the component review the performance of the initiatives during implementation. As we reported in January 2015, the components report quarterly to the Asset Visibility Working Group on the status of their initiatives—including progress made on implementation milestones, return on investment, and resources and funding. We found that DOD components had included performance measures in their quarterly status reports for the 8 initiatives we reviewed.

However, DOD components have not always included performance measures to assess the success of their initiatives in after-action reports, which are added to the status report for completed initiatives. To close an initiative, the components responsible for the initiative request closure and the Asset Visibility Working Group files an after-action report, which serves as a closure document and permanent record of an initiative's accomplishments. According to the 2015 *Strategy*, the after-action report should include information on the objectives met, problems or gaps resolved, challenges associated with implementing the initiative, any lessons learned from the initiative, and measures of success obtained.[28] The Asset Visibility Working Group approves the closure of initiatives when the components have completed or canceled the initiatives and updated the status report section called the after-action report. Once an initiative is closed, according to DOD officials, the Working Group no longer monitors the initiative, but the components may continue to monitor it. According to these DOD officials, DOD components may update information provided to the Asset Visibility Working Group or the Working Group may request additional information after the initiative is closed, especially when implementation affects multiple components.

We found that the after-action reports did not always include all of the information necessary. According to our review of after-action reports, as of October 2016, the Asset Visibility Working Group had closed 5 of the 8 asset visibility initiatives that we examined.[29] Our review of the after-action reports for the 5 closed initiatives found the following:

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[28]Although the 2015 *Strategy* states that the after-action reports are to include information on the components' challenges and lessons learned while implementing the initiatives, we found that the template for the after-action report did not indicate that the components should include this information. Based on our review of the components' after-action reports for the 5 initiatives among the 8 we selected that were complete, the components have not for the most part included their challenges and lessons learned in these reports. OSD officials stated that they plan to change the after-action report format in an update to the 2015 *Strategy* to include challenges and lessons learned in these reports. Measures of success are defined in the *Strategies* as expected outcomes, key performance indicators, or metrics. We refer to these collectively as performance measures.

[29]The components develop after-action reports only for the initiatives that have been closed. The after-action reports are a section of the charts tracking the status of the initiatives. According to OSD officials, the Asset Visibility Working Group closed 5 of the 8 initiatives we reviewed, leaving 3 that were not closed. According to U.S. TRANSCOM officials, in 2016, U.S. TRANSCOM notified the Asset Visibility Working Group of the Command's intention to close the Transportation Tracking Number initiative. The Asset Visibility Working Group expected to close the U.S. TRANSCOM initiative in December 2016, according to DOD officials.

- Two reports included information on whether the performance measures—also referred to as measures of success—for the initiative had been achieved.

- Three reports did not follow the format identified in the 2015 *Strategy*, and we could not determine whether the intent and outcomes based on performance measures for the initiative had been achieved.

We also reviewed after-action reports for the remaining 15 initiatives that were closed and found the following:

- Seven reports included information on whether the performance measures for the initiative had been achieved.

- Five reports did not include information on performance measures, because these measures were not a factor in measuring the success of the initiative.

- One report was not completed by the component.

- Two reports did not follow the format identified in the 2015 *Strategy*, and we could not determine whether the intent and outcomes based on performance measures for the initiative had been achieved.

Based on our analysis, it appears that while the Asset Visibility Working Group closed 20 initiatives, it generally did not have information related to performance measures to assess the progress of these initiatives when evaluating and closing them. Specifically, the after-action reports for 11 of 20 initiatives did not include performance measures that showed whether the initiative had met its intended outcomes in support of the department's *Strategies*. Officials from the Asset Visibility Working Group stated that they generally relied on the opinion of the component's subject matter experts, who are familiar with each initiative's day-to-day performance, to assess the progress of these initiatives. While including the input of the component's subject matter experts for the initiative in the decision to close the initiative is important, without incorporating after-action reports information relating to performance measures into the information considered by the Asset Visibility Working Group, DOD does not have assurance that closed initiatives have been fully assessed and whether they have resulted in achieving the goals and objectives of the *Strategies*.

DOD Has Met the Criteria for Leadership Commitment, Capacity, and an Action Plan, but

Additional Actions Are Needed to Address Monitoring and Demonstrated Progress

DOD has fully met three of our criteria for removal from the High Risk List by improving leadership commitment, capacity, and its corrective action plan, and it has partially met the criteria to monitor the implementation of the initiatives and demonstrate progress in improving asset visibility. Table 4 includes a description of the criteria and our assessment of DOD's progress in addressing each of them.[30]

Table 4: GAO's Assessment of the Extent to Which the Department of Defense's (DOD) Efforts to Improve Asset Visibility Met Our High-Risk Criteria

Criteria	Description	GAO's 2015 assessment	GAO's 2017 assessment
Leadership commitment	Demonstrate strong commitment and top leadership support.	fully met	fully met
Capacity	Demonstrate the capacity (i.e., the people and other resources) to resolve the risk(s).	partially met	fully met
Corrective action plan	A corrective action plan exists that defines the root causes and solutions, including steps necessary to implement the solutions we recommended.	partially met	fully met
Monitoring	Program instituted to monitor and independently validate the effectiveness and sustainability of corrective measures.	partially met	partially met
Demonstrated progress	Ability to demonstrate progress in having implemented corrective measures and resolving the High-Risk area.	partially met	partially met

Legend:
● Fully met - Indicates that all parts of the criterion were fully addressed
◑ Partially met - Indicates that some, but not all, aspects of the criterion were addressed
○ Not met - Indicates that none of the aspects of the criterion were addressed

Source: GAO analysis of DOD data. | GAO-17-183

[30]For more details on our criteria for removing an area from the High Risk List and our prior work on asset visibility, see appendix III.

DOD Has Fully Met the Leadership Commitment, Capacity, and Corrective Action Plan Criteria for Removal from Our High Risk List

DOD Continues to Fully Meet Our High-Risk Criterion for Leadership Commitment

Our high-risk criterion for leadership commitment calls for leadership oversight and involvement. DOD has taken steps to address asset visibility challenges, and we found—as we had in our February 2015 high-risk report—that DOD has fully met this criterion.[31] Senior leaders at the department have continued to demonstrate commitment to addressing the department's asset visibility challenges, as evidenced by the issuance of DOD's 2014 and 2015 *Strategies*. The Office of the Deputy Assistant Secretary of Defense for Supply Chain Integration provides department-wide oversight for development, coordination, approval, and implementation of the *Strategies* and reviews the implementation of the initiatives. Also, senior leadership commitment is evident in its involvement in asset visibility improvement efforts, including groups such as the Supply Chain Executive Steering Committee—a group of senior-level officials responsible for overseeing asset visibility improvement efforts—and the Asset Visibility Working Group—a group of officials that includes representatives from the components and other government agencies, as needed. The Asset Visibility Working Group identifies opportunities for improvement and monitors the implementation of initiatives. Sustained leadership commitment will be critical moving forward, as the department continues to implement its *Strategies* to improve asset visibility and associated asset visibility initiatives.

DOD Has Fully Met Our High-Risk Criterion for Capacity

Our high-risk criterion for capacity calls for agencies to demonstrate that they have the people and other resources needed to resolve risks in the high-risk area. In our October 2014 management letter to a senior OSD official and our January 2015 and February 2015 reports, we noted that resources and investments should be discussed in a comprehensive strategic plan, to include the costs to execute the plan and the sources and types of resources and investments—including skills, human capital, technology, information and other resources—required to meet

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[31]GAO-15-290.

established goals and objectives.[32] DOD has demonstrated that it has the capacity—personnel and resources—to improve asset visibility. For example, as we previously noted, the department had established the Asset Visibility Working Group that is responsible for identifying opportunities for improvement and monitoring the implementation of initiatives. The Working Group includes representatives from OSD and the components—Joint Staff, the Defense Logistics Agency, U.S. Transportation Command, and each of the military services. Furthermore, DOD's 2015 *Strategy* called for the components to consider items such as manpower, materiel, and sustainment costs when documenting cost estimates for the initiatives in the *Strategy*, as we recommended in our January 2015 and February 2015 reports. For example, DOD identified and broke down estimated costs of $10 million for implementing an initiative to track Air Force aircraft and other assets from fiscal years 2015 through 2018 by specifying that $1.2 million was for manpower, $7.4 million for sustainment, and $1.4 million for one-time costs associated with the consolidation of a server for the initiative. Additionally, DOD broke down estimated costs of $465,000 for implementing an initiative to track Marine Corps assets from fiscal years 2013 through 2015 by specifying $400,000 for manpower and $65,000 for materials.

However, in December 2015 we found that the 2015 *Strategy* included three initiatives that did not include cost estimates. To address this issue, in December 2016, a DOD official provided an abstract from the draft update to the 2015 *Strategy* that provides additional direction on how to explain and document cases where the funding for the initiatives is embedded within overall program funding. The draft update notes that there may be instances where asset visibility improvements are embedded within a larger program, making it impossible or cost prohibitive to isolate the cost associated with specific asset visibility improvements. In these cases, the document outlining the initiatives will indicate that cost information is not available and why. However, if at some point during implementation some or all costs are identified, information about the initiative will be updated. According to OSD officials, DOD plans to issue the update to the 2015 *Strategy*, but a release date has not been determined.

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[32]Letter from Managing Director of Defense Capabilities and Management, GAO, to Acting Assistant Secretary of Defense for Logistics and Material Readiness, Department of Defense, *Re: DOD Supply Chain Management on GAO's High-Risk List* (Oct. 20, 2014); GAO-15-148; and GAO-15-290.

DOD Has Fully Met Our High-Risk Criterion for a Corrective Action Plan

Our high-risk criterion for a corrective action plan calls for agencies to define the root causes of problems and related solutions and to include steps necessary to implement the solutions. The Fiscal Year 2014 National Defense Authorization Act (NDAA) required DOD to submit to Congress a comprehensive strategy and implementation plans for improving asset tracking and in-transit visibility.[33] The Fiscal Year 2014 NDAA, among other things, called for DOD to include in its strategy and plans elements such as goals and objectives for implementing the strategy. The Fiscal Year NDAA also included a provision that we assess the extent to which DOD's strategy and accompanying implementation plans include the statutory elements. In January 2014, DOD issued its *Strategy for Improving DOD Asset Visibility* and accompanying implementation plans that outline initiatives intended to improve asset visibility. DOD updated its 2014 *Strategy* and plans in October 2015. The 2014 and 2015 *Strategies* define the root causes of problems associated with asset visibility and related solutions (i.e., the initiatives). In our October 2014 management letter to a senior OSD official and our January and February 2015 reports, we found that while the 2014 Strategy and accompanying plans serve as a corrective action plan, there was not a clear link between the initiatives and the *Strategy's* goals and objectives. We recommended that DOD clearly specify the linkage between the goals and objectives in the *Strategy* and the initiatives intended to implement the *Strategy*. DOD implemented our recommendation in its 2015 *Strategy*, which includes matrixes that link each of DOD's ongoing initiatives intended to implement the *Strategy* to the *Strategy's* overarching goals and objectives. DOD also added 8 initiatives to its 2015 *Strategy* and linked each of them to the *Strategy*'s overarching goals and objectives.

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[33]The National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66 (2013).

DOD Has Partially Met the Monitoring and Demonstrated Progress Criteria for Removal from the High Risk List

DOD Has Taken Steps to Monitor the Status of Initiatives, but Its Performance Measures Could Not Always Be Used to Track Progress

Our high-risk criterion on monitoring calls for agencies to institute a program to monitor and independently validate the effectiveness and sustainability of corrective measures, for example, through performance measures. DOD has taken steps to monitor the status of asset visibility initiatives, but we found that it has only partially met our high-risk criterion for monitoring. In our February 2015 High-Risk update, we referred to a 2013 report in which we had found that DOD lacked a formal, central mechanism to monitor the status of improvements or fully track the resources allocated to them.[34] We also reported that while DOD's draft 2014 *Strategy* included overarching goals and objectives that addressed the overall results desired from implementation of the *Strategy*, it only partially included performance measures, which are necessary to enable monitoring of progress.

Since February 2015, DOD has taken some steps to improve its monitoring of its improvement efforts. As noted in the 2015 *Strategy*, DOD has described and implemented a process that tasks the Asset Visibility Working Group to review the performance of the component's initiatives during implementation on a quarterly basis, among other things. The Working Group uses status reports from the DOD components that include information on resources, funding, and progress made toward implementation milestones. DOD also identified performance measures for its asset visibility initiatives. However, as previously discussed, the measures for the 8 initiatives we reviewed were not generally clear, quantifiable (i.e., lacked measurable targets and baseline and trend data), objective, and reliable. Measures that are clear, quantifiable, objective, and reliable can help managers better monitor progress, including determining how well they are achieving their goals and identifying areas for improvement, if needed. In December 2016, a DOD official provided an abstract from the draft update to the 2015 *Strategy* that noted that detailed metrics data will be collected and reviewed at the level appropriate for the initiative. High-level summary metrics information will

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[34]GAO-13-201 and GAO-15-290.

be provided to the Working Group in updates to the plan outlining the initiatives. The extent to which this planned change will affect the development of clear, quantifiable, objective, and reliable performance measures remains to be determined.

Additionally, as discussed previously, while the Asset Visibility Working Group has closed 20 initiatives, it generally did not have information related to performance measures to assess the progress of these initiatives. Specifically, after-action reports from 11 of 20 initiatives—which are added to the status reports for completed initiatives—did not include performance measures that showed whether the initiative had met its intended outcomes in support of the department's *Strategies*. Without improved performance measures and information to support that progress has been made, DOD may not be able to monitor asset visibility initiatives.

DOD Has Demonstrated Some Progress but Cannot Demonstrate that Its Initiatives Have Resulted in Measurable Outcomes and Improvements for Asset Visibility

Our high-risk criterion for demonstrated progress calls for agencies to demonstrate progress in implementing corrective measures and resolving the high-risk area. DOD has made progress by developing and implementing its *Strategies* for improving asset visibility.[35] In our October 2014 management letter to a senior OSD official and our January and February 2015 reports, we noted that in order to demonstrate progress in having implemented corrective measures, DOD should continue the implementation of the initiatives identified in the *Strategy*, refining them over time as appropriate.[36] DOD reports that it has closed or will no longer monitor the status of 20 of the 27 initiatives and continues to monitor the

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[35]DOD has implemented the 2014 and 2015 *Strategies.* According to OSD officials, they plan to issue an update to the 2015 *Strategy*, but the release date for this update has not been determined.

[36]Letter from Managing Director of Defense Capabilities and Management, GAO, to Acting Assistant Secretary of Defense for Logistics and Material Readiness, Department of Defense, *Re: DOD Supply Chain Management on GAO's High-Risk List* (Oct. 20, 2014); GAO-15-148; and GAO-15-290.

remaining 7 initiatives.[37] Additionally, in October 2016, DOD officials stated that they plan to add about 10 new initiatives in the update to the 2015 *Strategy*. For example, the U.S. Transportation Command's new initiative, Military Service Air Manifesting Capability, is expected to promote timely, accurate, and complete in-transit visibility and effective knowledge sharing to enhance understanding of the operational environment. OSD officials have not yet determined a date for the release of the update to the 2015 *Strategy*.

As discussed previously, we found that DOD cannot use the performance measures associated with the initiatives to demonstrate progress, because the measures are not generally clear, quantifiable (i.e., lack measurable targets and baseline and trend data), objective, and reliable. Additionally, we found that DOD has not taken steps to consistently incorporate information on an initiative's performance measures in closure reports, such as after-action reports, in order to demonstrate the extent to which progress has been made toward achieving the intended outcomes of the individual initiatives and the overall goals and objectives of the *Strategies*. Without clear, quantifiable, objective, and reliable performance measures and information to support that progress has been made, DOD may not be able to demonstrate that implementation of these initiatives has resulted in measurable outcomes and progress toward achieving the goals and objectives in the *Strategies*. Also, DOD will be limited in its ability to demonstrate sustained progress in implementing corrective actions and resolving the high-risk area.

Conclusions

DOD has taken some positive steps to address weaknesses in asset visibility. Long-standing management weaknesses related to DOD's asset visibility functions hinder the department's ability to provide spare parts, food, fuel, and other critical supplies in support of U.S. military forces. We previously reported on several actions that we believe DOD should take in order to mitigate or resolve long-standing weaknesses in asset visibility and meet the criteria for removing asset visibility from the High Risk List.

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[37]Upon completion or cancellation of an initiative, the component requests closure of the initiative. The Asset Visibility Working Group approves closure of the initiative, files closure documents—such as the after-action report—and determines if the closed initiative is to be briefed to the Supply Chain Executive Steering Committee. According to DOD officials, after closure of an initiative, the efforts associated with the initiative to improve asset visibility may continue at the component level.

We believe that DOD has taken the actions necessary to meet the capacity and action plan criteria by providing additional direction to the components on formulating cost estimates for the asset visibility initiatives. Additionally, DOD linked the 2015 *Strategy's* goals and objectives with the specific initiatives intended to implement the *Strategy*. However, DOD's efforts to monitor initiatives show that the performance measures DOD components currently use to assess these initiatives lack some of the key attributes of successful performance measures that we have identified. To the extent that these measures lack the key attributes of successful performance measures, they limit DOD's ability to effectively monitor the implementation of the initiatives and assess the effect of the initiatives on the overall objectives and goals of the *Strategies*. Developing clear, quantifiable, objective, and reliable performance measures can help DOD better assess department-wide progress against the *Strategies*' goals and clarify what additional steps need to be taken to enable decision makers to exercise effective oversight.

An important step in determining what effect, if any, the asset visibility initiatives are having on the achievement of the *Strategies*' goals and objectives will be to develop sound performance measures and incorporate information about these measures into the after-action reports when evaluating and closing initiatives. Until DOD components demonstrate that implementation of the initiatives will result in measurable outcomes and progress toward achieving the goals and objectives of the *Strategies*, DOD may be limited in its ability to demonstrate progress in implementing corrective actions and resolving the high-risk area. Once these actions are taken, DOD will be better positioned to demonstrate the sustainable progress needed in its approach to meeting the criteria for removing asset visibility from our High Risk List.

Recommendations for Executive Action

We are making two recommendations to help improve DOD's asset visibility.

We recommend that the Secretary of Defense direct the Assistant Secretary of Defense for Logistics and Materiel Readiness, in collaboration with the Director, Defense Logistics Agency; the Secretaries of the Army, Navy, and Air Force; the Commandant of the Marine Corps; the Commander of the United States Transportation Command; and the Chairman of the Joint Chiefs of Staff, to:

- use the key attributes of successful performance measures—including clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage—in refining the performance measures in subsequent updates to the *Strategy* to improve DOD's efforts to monitor asset visibility initiatives; and

- incorporate into after-action reports information relating to performance measures for the asset visibility initiatives when evaluating and closing these initiatives to ensure that implemented initiatives will achieve the goals and objectives in the *Strategies*.

Agency Comments and Our Evaluation

In its written comments on a draft of this report, DOD partially concurred with our two recommendations. DOD's comments are summarized below and reprinted in appendix IV.

DOD partially concurred with our first recommendation that it use the key attributes of successful performance measures—including clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage—in refining the performance measures in subsequent updates to the *Strategy* to improve DOD's efforts to monitor asset visibility initiatives. DOD stated that it recognizes the need for performance measures to ensure the success of an asset visibility improvement effort but noted that the level of complexity and granularity of the metrics we suggest may not be suitable for all initiatives. DOD also stated that the purpose of the *Strategy* is to create a framework whereby the components can work collaboratively to coordinate and integrate department-wide efforts to improve asset visibility, not to provide complete direction on how to define, implement, and oversee these initiatives. Additionally, DOD stated that the next edition of the *Strategy* will encourage the adoption of our six key attributes for asset visibility initiatives to the extent appropriate, but will not mandate their use. As discussed in our report, use of the key attributes in measuring the performance of asset visibility initiatives would help DOD to better assess department-wide progress against the goals in its *Strategy* and clarify what additional steps need to be taken to enable decision makers to exercise effective oversight. Encouraging adoption of the key attributes, as DOD plans to do, is a positive step, but we continue to believe that DOD needs to use these key attributes to refine its performance measures to monitor the initiatives in the future.

DOD partially concurred with our second recommendation that it incorporate into after-action reports information relating to performance
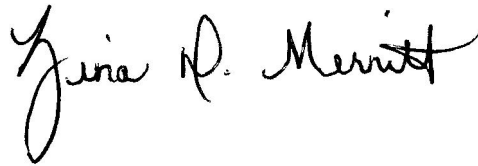
measures for the asset visibility initiatives when evaluating and closing these initiatives to ensure that implemented initiatives will achieve the goals and objectives in the *Strategies*. DOD stated that it is important to capture and review performance data prior to a component closing an asset visibility initiative, but that the *Strategy* after-action report is not intended to be used to evaluate the success of an asset visibility initiative or to determine if an initiative has met its intended objectives. According to DOD, documentation and information to support the evaluation of initiatives is defined by and executed in accordance with component-level policy and procedures. DOD agreed to update its *Strategy* to clarify the purpose and use of the after-action reports and to ensure that the *Strategy* specifies roles and responsibilities for evaluating and closing initiatives. DOD's response, however, did not state whether and how these updates to the *Strategy* would result in more consistent incorporation of information relating to performance measures when closing initiatives in the future. As we noted previously in this report, according to the 2015 *Strategy*, the after-action report for closed initiatives should include information on the objectives met, problems or gaps resolved, and measures of success obtained. We believe our recommendation is consistent with this guidance. Without incorporating this information, DOD does not have assurance that closed initiatives have been fully assessed and have resulted in achieving the goals and objectives of the *Strategies*. Therefore, we continue to believe that full implementation of our recommendation is needed.

We are sending copies of this report to appropriate congressional committees; the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force, and the Commandant of the Marine Corps; the Director of Defense Logistics Agency; the Chairman of the Joint Chiefs of Staff; the Commander of the United States Transportation Command; and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-5257 or merrittz@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made contributions to this report are listed in appendix V.

Zina D. Merritt Director Defense Capabilities and Management
List of Committees

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

The Honorable Mac Thornberry Chairman The Honorable Adam Smith Ranking Member Committee on Armed Services House of Representatives

Appendix I: Scope and Methodology

To determine the extent to which DOD identified performance measures that allow it to monitor the progress of selected asset visibility initiatives identified in DOD's 2014 and 2015 *Strategy for Improving DOD Asset Visibility* (*Strategies*), we reviewed documents such as the 2014 *Strategy* and its subsequent update in October 2015 (2015 *Strategy*); minutes from the Asset Visibility Working Group meetings; and documents showing the status of the implementation, including charts that track the development and closure of the asset visibility initiatives. Thirty initiatives have been included in the 2014 and 2015 *Strategies*, but 3 of these were halted, for a variety of reasons.[1] From the remaining 27 initiatives, we selected a non-generalizable sample of 8 initiatives. We selected at least one from each of the components to review and assess, including analyzing the performance measures associated with each initiative. In our selection of 8 initiatives to review, we also considered the stage of implementation of the initiative, to ensure that our review encompassed initiatives at different stages, from some that were just beginning to some that had already been completed. Specifically, we made selections based on the status of the initiatives as of December 2015 to include the earliest completion dates by component. In order to cover a range of initiatives— from some just beginning to some already completed—we selected for review 3 initiatives from the 2014 *Strategy* that had been closed, 2 ongoing initiatives that had been included in both *Strategies*, and 3 new initiatives that were included for the first time in the 2015 *Strategy*. The results from this sample cannot be generalized to the other 19 initiatives.[2] We did not assess the initiatives to determine if they (1) met milestones, (2) lacked resources, or (3) had performance issues. Instead we assessed the initiatives to determine what progress DOD had made toward meeting the criteria for removing an area from our High Risk list.

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[1]The Defense Logistics Agency initiative, intended to improve asset tracking with materiel transfer at retail industrial activities in the continental United States and identify underperforming points in the supply chain, was halted because DOD was unable to provide meaningful performance measures. Initiatives were also canceled for other reasons, such as lack of funding or not meeting performance measures.

[2]Results from nongeneralizable samples cannot be used to draw inferences about a population, because in a nongeneralizable sample some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample.

We surveyed program managers and other cognizant officials (hereafter referred to as component officials) responsible for the respective asset visibility initiatives we selected. We included questions in our survey related to the development and closure of the initiatives and took several steps to ensure the validity and reliability of the survey instrument. We also reviewed the *Strategies* to identify performance measures necessary to monitor the progress of the 8 initiatives we had selected. Two analysts independently assessed whether (1) DOD had followed the guidance set forth in the *Strategies* and (2) the measures for the initiatives included selected key attributes of successful performance measures (for example, are the measures clear, quantifiable —i.e., have measurable targets and baseline and trend data—objective, and reliable); any initial disagreements in assessments were resolved through discussion.[3] We assessed these measures against 6 of 10 selected key attributes for successful performance measures—clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage—identified in our prior work that we identified as relevant to the sample of initiatives we were examining. The remaining 4 attributes—government-wide priorities, core program activities, limited overlap, and balance—are used to assess agency-wide performance and are not applicable to our analysis, because we did not assess agency-wide initiatives. Because we had selected a subset of the component-level initiatives to review, these attributes did not apply. If all of the performance measures for an initiative met the definition of the relevant key attribute, we rated the initiative as having "fully included" the attribute. On the other hand, if none of the measures met the definition of the relevant key attribute, we rated the initiative as having "not included" the attribute. If some, but not all, of the measure met the definition of the relevant key attribute, then we rated the initiative as having "partially included" the attribute.

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[3]*See* GAO, *Tax Administration: IRS Needs to Further Refine Its Tax Filing Season Performance Measures,* GAO-03-143 (Washington, D.C.: Nov. 22, 2002), p. 45, for a description of how we developed the attributes of effective performance goals and measures. We also reviewed the Government Performance and Results Act of 1993, as amended by the Government Performance and Results Act Modernization Act of 2010, Pub. L. No. 111-352 (2011). *See also,* GAO *GPRA Performance Reports,* GAO/GGD-96-66R, (Washington, D.C.: Feb. 14, 1996); GAO, *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management,* GAO-13-432 (Washington, D.C.: Apr. 26, 2013); GAO, *Performance Measurement and Evaluation: Definitions and Relationships,* GAO-11-646SP (Washington, D.C.: May 2011); and, GAO, *Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers*, GAO/GGD/AIMD-99-69 (Washington, D.C.: Feb. 26, 1999).

We also selected sites to observe demonstrations of initiatives that were intended to show how they have achieved progress in improving asset visibility. We selected these demonstrations based on the location of the initiative, the responsible component, and the scope of the initiative. Additionally, we reviewed the after-action reports for all of the initiatives that had been closed—20 of 27 initiatives, including 5 of the 8 initiatives we reviewed in detail—by the Asset Visibility Working Group, as of October 31, 2016. We performed a content analysis in which we reviewed each of these after-action reports to determine whether it was completed for the initiative, documented whether measures were obtained, and identified challenges and lessons learned. One analyst conducted this analysis, coding the information and entering it into a spreadsheet; a second analyst checked the first analyst's analysis for accuracy. Any initial disagreements in the coding were discussed and reconciled by the analysts. The analysts then tallied the responses to determine the extent to which the information was identified in the after-action reports. We also interviewed component officials and officials at the Office of the Deputy Assistant Secretary of Defense for Supply Chain Integration (hereafter referred to as OSD) to clarify survey responses and to discuss plans to develop the initiatives, including any efforts to monitor progress and demonstrate results.

To determine whether DOD had addressed the five criteria—leadership commitment, capacity, corrective action plan, monitoring, and demonstrated progress—that would have to be met for us to remove asset visibility from our High Risk List, we reviewed documents such as DOD's 2014 and 2015 *Strategies* and charts that track the implementation and closure of asset visibility initiatives.[4] We included questions in our survey to collect additional information from officials on their efforts to address the high-risk criteria. For example, we asked how the component monitors the implementation of the initiative and whether there has been any demonstrated progress in addressing the opportunity, deficiency, or gap in asset visibility capability that the initiative was designed to address. One analyst evaluated DOD's actions to improve asset visibility against each of our five criteria for removing an area from

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[4]Improvements made to asset visibility as a result of initiatives may continue after the initiative has been implemented and is closed for the purpose of Asset Visibility Working Group review. However, according to DOD officials, DOD components may update information provided to the Working Group, or the Working Group may request additional information after the initiative has been closed, especially when implementation affects multiple components.

the High Risk list.[5] A different analyst checked the first analyst's analysis for accuracy.[6] Any initial disagreements were discussed and reconciled by the analysts. We assessed DOD's effort to meet each of the high-risk criteria as "not met" (i.e., none of the aspects of the criterion were addressed), "partially met" (i.e., some, but not all, aspects of the criterion were addressed), or "fully met" (i.e., all parts of the criterion were fully addressed). We shared with DOD officials our preliminary assessment of asset visibility relative to each of the criteria. To help ensure that our evaluation of improvements made relative to the high-risk criteria were consistent with our prior evaluations of Supply Chain Management and other issue areas, we reviewed our prior High Risk reports to gain insight into what actions agencies had taken to address the issues identified in these past reports.[7] Additionally, we interviewed component officials and OSD officials to clarify their survey responses and to discuss plans to continue to make progress in improving asset visibility.

We met with officials from the following DOD components during our review:

- Office of the Secretary of Defense

- Department of the Army

- United States Navy

- United States Marine Corps

- Department of the Air Force

- Defense Logistics Agency

- Joint Staff

- U.S. Transportation Command

We surveyed component officials responsible for the asset visibility initiatives we reviewed. We included questions in our survey related to our high-risk criteria. As part of the survey development, we conducted an expert review and pre-tested the draft survey. We submitted the

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[5]For the criteria and process for assessing agency activities and determining whether performance and accountability challenges warrant designation as high risk, *see* GAO-01-159SP.

[6]GAO, *Determining Performance and Accountability Challenges and High Risks*, GAO-01-159SP (Washington, D.C.: November 2000).

[7]See the Related GAO Products list at the end of this report.

questionnaire for review by an independent GAO survey specialist and an asset visibility subject matter expert from OSD. The expert review phase was intended to ensure that content necessary to understand the questions was included and that technical information included in the survey was correct. To minimize errors that might occur from respondents interpreting our questions differently than we intended, we pre-tested our questionnaire with component officials and other cognizant officials for 4 of the initiatives. During the pre-tests, conducted by telephone, we asked the DOD officials to read the instructions and each question aloud and to tell us how they interpreted the question. We then discussed the instructions and questions with them to identify any problems and potential solutions by determining whether (1) the instructions and questions were clear and unambiguous, (2) the terms we used were accurate, (3) the questionnaire was unbiased, and (4) the questionnaire did not place an undue burden on the officials completing it. We noted any potential problems and modified the questionnaire based on feedback from the expert reviewers and the pre-tests, as appropriate.

We sent an email to each selected program office beginning on June 16, 2016, notifying them of the topics of our survey and when we expected to send the survey. We then sent the self-administered questionnaire and a cover email to the asset visibility program officials on June 20, 2016, and asked them to fill in the questionnaire and email it back to us by July 6, 2016. We received 8 completed questionnaires, for an overall response rate of 100 percent. We also collected data—such as the number of RFID tags and number of inventory amounts for clothing and textiles—from a sample of initiatives. The practical difficulties of conducting any survey may introduce errors, commonly referred to as non-sampling errors. For example, differences in how a particular question is interpreted, the sources of information available to respondents, how the responses are processed and analyzed, or the types of people who do not respond can influence the accuracy of the survey results. We took steps, as described above, in the development of the survey, the data collection, and the data analysis to minimize these non-sampling errors and help ensure the accuracy of the answers that we obtained. Data were electronically extracted from the questionnaires into a comma-delimited file that was then imported into a statistical program for analysis. We examined the survey results and performed computer analyses to identify inconsistencies and other indications of error, and we addressed such issues as necessary. Our survey specialist conducted quantitative data analyses using statistical software, and our staff conducted a review of open-ended responses with subject matter expertise. A data analyst

conducted an independent check of the statistical computer programs for accuracy.

We conducted this performance audit from February 2016 to March 2017 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: Selected DOD Initiatives Identified in the 2014 and 2015 Strategies

This appendix provides an overview of the non-generalizable sample of initiatives that we reviewed. These initiatives are intended to improve asset visibility as part of the Department of Defense's (DOD) 2014 *Strategy* for Improving DOD Asset Visibility (2014 *Strategy*) and its subsequent update in October 2015 (2015 *Strategy*). The process by which we selected these initiatives for this review is described in appendix I. The initiatives are shown in table 5.

Table 5: Selected Asset Visibility Initiatives Identified in the Department of Defense's Strategies (as of October 31, 2016)

Initiative	Responsible component	Purpose of initiative	Key milestones	Estimated costs	Actual results
Mortuary Affairs Reporting and Tracking System (MARTS)	Army	Manage receipt, collection, processing, and shipping of human remains and personal effects using a web-based tool.	Began efforts in 2009. Proposed by the Army to the Asset Visibility Working Group and approved in April 2014. Closed by the Asset Visibility Working Group.	Estimated cost is $550 thousand (fiscal years 2018-2023).	According to the Army's status report, this initiative enables access and authorization based on user roles and maintains an audit trail of all data entries and changes. MARTS assists users with recording data on the recovery, transportation, processing and retrograde of human remains and personal effects. In addition, the system directly links to the Radio Frequency In-Transit Visibility site to monitor and accurately track the movement and location of human remains and personal effects, and it provides full data archival capability.
Afloat/Ashore Implementation of Navy Ordnance Information System Automatic Identification Technology (AIT)[a] Capability	Navy	Implement Navy Ordnance Information System AIT within classified domains both afloat and ashore and match existing capabilities at continental U.S. and unclassified sites.	Began efforts in 2007. Proposed by the Navy to the Asset Visibility Working Group and approved in January 2014. Closed by the Asset Visibility Working Group.	Estimated implementation cost is $3,293.5 thousand (fiscal years 2013-2016)	According to the Navy's status report, it implemented an Ordnance Information System AIT within classified domains for both afloat and ashore sites and provides capability to those activities that matches existing capabilities at the continental U.S. and/or unclassified sites in order to institute a common approach, process, and capability throughout the Navy, Marine Corps, and Coast Guard.

Initiative	Responsible component	Purpose of initiative	Key milestones	Estimated costs	Actual results
Defense Logistics Agency (DLA) Item Level Passive Radio Frequency Identification (RFID) for Clothing and Textiles	DLA	Improve inventory management and accountability and reduce time and resources expended by streamlining the process for issuing uniforms.	Began research and development efforts in 2009. Proposed by DLA to the Asset Visibility Working Group and approved in October 2013. Closed by the Asset Visibility Working Group.	Existing contract was in place for $1.18 million. DLA had an additional contract for $431 thousand.	According to the DLA's status report, this initiative resulted in the following: passive RFID-enabled issue of uniforms; realized return on investment in less than a year; improved inventory accuracy; and reduced time to issue uniforms
Active RFID (aRFID) Migration	U.S. Transportation Command (U.S. TRANSCOM)	Eliminate the risk of having a shortage of active RFID tags or having tags with duplicate identification numbers by migrating from a proprietary tag to a non-proprietary tag.	Began efforts in 2007. An existing U.S. TRANSCOM initiative that the Asset Visibility Working Group approved in July 2014. Closed by the Asset Visibility Working Group.	Initiative could be completed with available resources. No additional manpower or funding was required[b]	In July 2016, we observed a demonstration of the system that comprises about 100 percent of all aRFID tags being used by DOD. U.S. TRANSCOM officials showed that the following tags were in use: 41,219 non-proprietary tags, and 606 proprietary tags. The percentage of proprietary tags remaining in use across DOD was demonstrated to be less than two percent, and officials stated that they have achieved up to 99.7 percent of their goal to replace 100 percent of all aRFID tags. According to a U.S. TRANSCOM official, from 2009 through 2016, DOD has bought 850,031 non-proprietary tags at a cost of $38.1 million and has realized a savings of $17.9 million. The non-proprietary tags cost about 49 percent less than the proprietary tags, and the use of non-proprietary tags allows for a competitive vendor environment.
Air Force Global Enterprise Tracking- (AFGET) Maintenance Operations Center (MOC) Visualizer Module	Air Force	Provide a solution for tracking such items as aircraft, ground support equipment, and parts in Air Force depots to improve cost, schedule, and quality for maintenance operations.	Began efforts in 2012. An existing Air Force initiative that the Asset Visibility Working Group approved in July 2014 Ongoing.	Estimated implementation cost is about $10 million in projected requirements for manpower and sustainment (fiscal years 2015-2018).	The initiative is ongoing. As of November 2016, the AFGET MOC Visualizer is being rolled out at the sustainment centers. According to Air Force officials, during this time users have received multiple benefits, including reductions in time spent looking for ground support equipment.

Initiative	Responsible component	Purpose of initiative	Key milestones	Estimated costs	Actual results
Develop Condition Code[c] Visibility in Global Combat Support System-Joint (GCSS-J)	Joint Staff	Maximize visibility of condition codes of non-munitions assets in GCSS-J to support joint logistics planning and execution.	Began efforts in January 2014. Proposed by the Joint Staff to the Asset Visibility Working Group and approved in January 2014. Closed by the Asset Visibility Working Group.	Initiative could be completed with available resources. No additional manpower, materiel, or sustainment funding was required[b]	In July 2016, we observed a demonstration of the initiative. An official showed us how they can locate serviceable items in the inventory versus having to procure new items.
Implement Transportation Tracking Number per Joint Requirements Oversight Council Memorandum 034-09	U.S. TRANSCOM	Support operational-level command and control by creating unclassified tracking numbers that enable linkage and visibility of force packages without compromising operational security.[d]	Began efforts in 2006 as a research effort to use unique tracking numbers for cargo. Proposed by U.S. TRANSCOM to the Asset Visibility Working Group and approved in January 2014. Pending closure by the Asset Visibility Working Group.	This initiative required a one-time cost of about $14.4 million but did not require additional manpower or ongoing costs.	According to U.S. TRANSCOM, this initiative has enhanced force-closure reporting by improving the data link between classified force requirements with unclassified transportation data and improving execution tracking of units throughout their deployments without compromising operations security.
Non-nodal In-Transit Visibility	Marine Corps	Improve combat effectiveness by providing near real-time visibility of sustainment cargo at the tactical level and confirmation of delivery of the cargo to forward bases and units.	Began efforts in 2012. An existing Marine Corps initiative that the Asset Visibility Working Group approved in July 2014. Ongoing	The estimated cost is $465 thousand (fiscal years 2013-2015) for manpower and materials.	The initiative is ongoing. As of October 2016, according to the Marine Corps, the new system has demonstrated effectiveness outside the continental United States locations but has not been utilized in a combat theater to date. Implementation has been completed and 50 units have been fielded, but up to 86 units may be fielded. Marine Corps officials indicated that the system has resulted in savings of $1.4 million in the first year of use, and additional savings are expected.

Source: GAO analysis of DOD information. | GAO-17-183

[a]DOD defines AIT as a suite of technologies enabling the automatic capture of data, thereby enhancing the ability to identify, track, document, and control assets (e.g., materiel) and deploy and redeploy forces, equipment, personnel, and sustainment cargo.

[b]The component did not provide an estimated cost, because the initiative was part of an existing system or no additional costs were incurred.

[c]There are two different and distinct types of condition codes under the definition of federal condition codes. Supply condition codes are used to classify materiel in terms of readiness for issue and use or to identify action under way to change the status of materiel. Disposal condition codes, which

describe the materiel's physical condition, are assigned by the Defense Logistics Agency Disposition Services Field Office, based on inspection of materiel at the time of receipt.

[d]A force package is the equipment, supplies, and other commodities necessary to support a military operation.

Appendix III: Criteria for Removal from Our
High Risk List and GAO's Prior Work on Asset
Visibility

Appendix III: Criteria for Removal from Our High Risk List and GAO's Prior Work on Asset Visibility

In 1990, we began a program to report on government operations that we identified as "high risk," and we added the Department of Defense's (DOD) supply chain management area to our High Risk List. Our high-risk program has served to identify and help resolve serious weaknesses in areas that involve substantial resources and provide critical services to the public. Our experience with the high-risk series over the past two decades has shown that the key elements needed to make progress in high-risk areas are congressional action, high-level administrative initiatives, and agencies' efforts grounded in the five criteria we established for removing an area from the high-risk list.[1] These five criteria form a road map for efforts to improve and ultimately address high-risk issues. Addressing some of the criteria leads to progress, while satisfying all of the criteria is central to removing an area from the list. These criteria call for agencies to show the following:

1. **Leadership Commitment**—a strong commitment and top leadership support.

2. **Capacity**—the capacity (i.e., the people and other resources) to resolve the risk(s).

3. **Corrective Action Plan**—a plan that defines the root causes and solutions and provides for substantially completing corrective measures, including steps necessary to implement the solutions we recommended.

4. **Monitoring**—a program instituted to monitor and independently validate the effectiveness and sustainability of corrective measures.

5. **Demonstrated Progress**—the ability to demonstrate progress in implementing corrective measures and resolving the high-risk area.

We have reported on various aspects of DOD's supply chain, including asset visibility, and noted that DOD has taken several actions to improve asset visibility. We also noted a number of recommendations, actions, and outcomes needed to improve asset visibility, as shown in table 6.

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[1]GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015).

Appendix III: Criteria for Removal from Our
High Risk List and GAO's Prior Work on Asset
Visibility

Specifically, in an October 2014 management letter to a senior Office of the Secretary of Defense (OSD) official, we reported on 7 actions and outcomes across the 5 criteria that we believed DOD should take to address long-standing weaknesses in asset visibility. Most recently, in our January 2015 report and February 2015 High Risk update, we reported on progress that DOD has made in addressing weaknesses in its asset visibility, including developing its 2014 *Strategy* for Improving DOD Asset Visibility, and we made a number of recommendations.[2]

Table 6: GAO' High-Risk Criteria, Previous GAO Recommendations, and Department of Defense (DOD) Actions and Outcomes Needed to Improve DOD Asset Visibility

| High-Risk Criteria	October 2014 management letter to Office of Secretary of Defense (OSD) official— actions and outcomes	January 2015 GAO-15-148 recommendations	February 2015 GAO-15-290 actions
Capacity	Provide guidance in the *Strategy* or supporting execution plans on what to consider when developing cost estimates for resources and investments. Develop cost estimates for resources and investments based on developed guidance.	Include information in subsequent updates to the *Strategy* and accompanying supporting execution plans about which elements—such as human capital, information technology, and contracts—were used in developing cost estimates for resources and investments.	Include information in the *Strategy* and accompanying supporting execution plans on the factors—such as, but not limited to, human capital, information, and contracts—used in developing cost estimates for resources and investments.
Corrective-Action Plan	Ensure there is a clear linkage between goals and objectives and the initiatives intended to implement the *Strategy*.	Clearly specify the linkage between the goals and objectives in the *Strategy* and the initiatives intended to implement the *Strategy*.	Clearly specify the linkage between the goals and objectives in the *Strategy* and the initiatives intended to implement the *Strategy*.
Monitoring	Assess, and refine as appropriate, existing performance measures to ensure that the measures assess the implementation of individual initiatives as well as progress toward achieving the overarching goals and objectives outlined in the *Strategy*. Establish a mechanism for periodically assessing the effect the initiatives are having on realizing the goals and objectives in the *Strategy*, such as inclusion of such assessments in the quarterly updates provided to the Asset Visibility Working Group.	Assess, and refine as appropriate, existing performance measures to ensure that the measures assess the implementation of individual initiatives as well as progress toward achieving the overarching goals and objectives outlined in the *Strategy*.	Assess, and refine as appropriate, existing performance measures to ensure that the measures assess the implementation of individual initiatives as well as progress toward achieving the overarching goals and objectives outlined in the *Strategy*.

[2]GAO-15-290 and GAO, *Defense Logistics: DOD Has a Strategy and Has Taken Steps to Improve Its Asset Visibility, but Further Actions Are Needed*, GAO-15-148 (Washington, D.C.: January 2015).

Appendix III: Criteria for Removal from Our
High Risk List and GAO's Prior Work on Asset
Visibility

High-Risk Criteria	October 2014 management letter to Office of Secretary of Defense (OSD) official— actions and outcomes	January 2015 GAO-15-148 recommendations	February 2015 GAO-15-290 actions
Demonstrated Progress	Continue the implementation of initiatives identified in the *Strategy*, refining them over time as appropriate. Demonstrate that implementation of initiatives results in measurable outcomes and progress toward realizing the goals and objectives in the *Strategy*.	Continue the implementation of initiatives identified in the *Strategy*, refining them over time as appropriate. Demonstrate that implementation of initiatives results in measurable outcomes and progress toward achieving improvements in asset visibility.	Continue the implementation of initiatives identified in the *Strategy*, refining them over time as appropriate. Demonstrate that implementation of initiatives results in measurable outcomes and progress toward realizing the goals and objectives in the *Strategy*.

Source: GAO. | GAO-17-183

Appendix IV: Comments from the Department of Defense
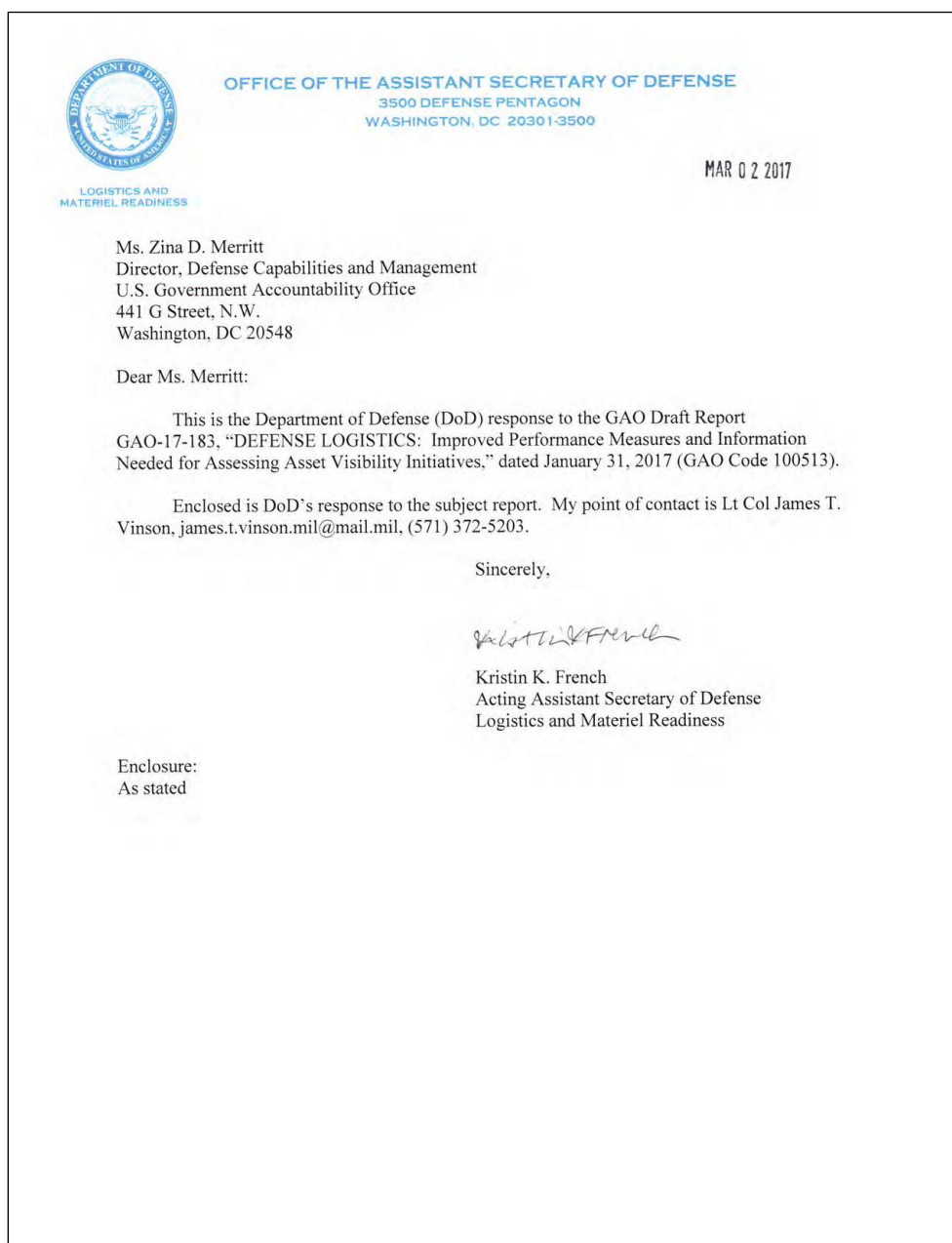
GAO DRAFT REPORT DATED JANUARY 31, 2017
GAO-17-183 (GAO CODE 100513)

"DEFENSE LOGISTICS: IMPROVED PERFORMANCE MEASURES AND
INFORMANTION NEEDED FOR ASSESSING ASSET VISIBILITY INITATIVES"

DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATION

RECOMMENDATION 1: The GAO recommends that the Secretary of Defense direct the Assistant Secretary of Defense for Logistics and Materiel Readiness, in collaboration with the Director, Defense Logistics Agency; the Secretaries of the Army, Navy, and Air Force; the Commandant of the Marines Corps; the Commander of the United States Transportation Command; and the Chairman of the Joint Chiefs of Staff to use the key attributes of successful performance measures, including clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage in refining measures in subsequent updates to the *Strategy* to improve DoD's efforts to monitor asset visibility initiatives.

DoD RESPONSE: Partially concur. DoD recognizes the need for performance measures to ensure success of an asset visibility improvement effort. However, the level of complexity and granularity of those metrics may not be suitable for all initiatives as suggested by GAO in this report.

Metrics for each initiative have been developed to the level of detail appropriate for the capability being implemented and in accordance with Component-level policy and procedures. For example, the United States Transportation Command's (USTRANSCOM) Transportation Tracking Number initiative was a one-time investment by USTRANSCOM and the Services to modify 18 existing Joint and Service systems to carry two new data elements. The baseline metric for this initiative was zero out of 18. The only other relevant data was about the completion of those 18 system updates which was monitored until all 18 were completed. GAO considered this metric insufficient according to their criteria. However, with the data provided by this metric USTRANSCOM was able to effectively monitor the progress of the implementations and determine that this effort was successful.

Additionally, the purpose of the *Strategy* is to create a framework whereby the Components can work collaboratively to coordinate and integrate Department-wide efforts to improve asset visibility, not to provide complete direction on how to define, implement, and oversee these initiatives. Therefore, in the next edition of the *Strategy* DoD will encourage the adoption of GAO's six key attributes for DoD asset visibility initiatives to the extent appropriate, but will not mandate their use. DoD will continue to remove barriers, encourage innovation and information sharing, along with demonstrating progress toward improving asset visibility.

RECOMMENDATION 2: The GAO recommends that the Secretary of Defense direct the Assistant Secretary of Defense for Logistics and Materiel Readiness, in collaboration with the Director, Defense Logistics Agency; the Secretaries of the Army, Navy, and Air Force; the

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Commandant of the Marines Corps; the Commander of the United States Transportation Command; and the Chairman of the Joint Chiefs of Staff to incorporate into after-action reports information relating to performance measures for the asset visibility initiatives when evaluating and closing these initiatives to ensure that implemented initiatives will achieve goals and objectives in the *Strategies*.

DoD RESPONSE: Partially concur. DoD understands the importance of capturing and reviewing performance data prior to a Component closing an asset visibility initiative. However, the *Strategy* "after-action report" referenced in this report is not intended to be used by DoD to evaluate the success of an asset visibility initiative or to determine if an initiative has met its intended objectives. Documentation and information to support the evaluation of initiatives is defined by and executed in accordance with Component-level policy and procedures.

The *Strategy* "after-action report" is a section in the quad charts that make up a Supporting Execution Plan (SEP). In accordance with the *Strategy*, a SEP is a simple format that provides a high-level snap shot of an asset visibility capability being implemented along with its ultimate results. The SEP is a tool used by the DoD Asset Visibility Working Group (AVWG) to help facilitate collaborative discussion among the AVWG members, identify capabilities of interest across the DoD, and to look for opportunities to potentially leverage capabilities within or across DoD Components.

In the next edition of the *Strategy*, DoD will provide additional clarity around the purpose and use of a SEP and its "after-action reports." DoD will also ensure the *Strategy* specifies roles and responsibilities for the evaluation and closing of Component-level asset visibility initiatives.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Zina D. Merritt, (202) 512-5257 or merrittz@gao.gov

Staff Acknowledgments

In addition to the contact named above, Carleen C. Bennett, Assistant Director; Mary Jo LaCasse; Joanne Landesman; Amie Lesser; Felicia Lopez; Mike Silver; John E. Trubey; Angela Watson; and John Yee made key contributions to this report.

Appendix VI: Accessible Data

Agency Comment Letter

Text of Appendix IV: Comments from the Department of Defense

Page 1

MAR 2, 2017

Ms. Zina D. Merritt

Director, Defense Capabilities and Management

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

Washington, DC 20548

Dear Ms. Merritt:

This is the Department of Defense (DoD) response to the GAO Draft Report GA0-17-183, '·DEFENSE LOGISTICS: Improved Performance Measures and Information Needed for Assessing Asset Visibility Initiatives:·dated January 31, 201 7 (GAO Code 100513).

Enclosed is DoD·s response to the subject report. My point of contact is Lt Col James T.

Vinson, james.t.vinson.mi l@mail.mil , (571) 372-5203.

Sincerely,

Kristin K. French

Acting Assistant Secretary of Defense Logistics and Materiel Readiness

Enclosure: As stated

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GAO DRAFT REPORT DATED JANUARY 31, 2017 GA0-17-183 (GAO CODE 100513) "DEFENSE LOGISTICS: IMPROVED PERFORMANCE MEASURES AND INFORMANTION NEEDED FOR ASSESSING ASSET VISIBILITY INITATIVES"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

RECOMMENDATION 1:

The GAO recommends that the Secretary of Defense direct the Assistant Secretary of Defense for Logistics and Materiel Readiness, in collaboration with the Director, Defense Logistics Agency; the Secretaries of the Army, Navy, and Air Force; the Commandant of the Marines Corps; the Commander of the United States Transportation Command; and the Chairman of the Joint Chiefs of Staff to use the key attributes of successful performance measures, including clarity, measurable target, objectivity, reliability, baseline and trend data, and linkage in refining measures in subsequent updates to the Strategy to improve DoD's efforts to monitor asset visibility initiatives.

DoD RESPONSE: Partially concur.

DoD recognizes the need for performance measures to ensure success of an asset visibility improvement effort. However, the level of complexity and granularity of those metrics may not be suitable for all initiatives as suggested by GAO in this report.

Metrics for each initiative have been developed to the level of detail appropriate for the capability being implemented and in accordance with Component-level policy and procedures. For example, the United States Transportation Command's (USTRANSCOM) Transportation Tracking Number initiative was a one-time investment by USTRANSCOM and the Services to modify 18 existing Joint and Service systems to carry two new data elements. The baseline metric for this initiative was zero out of 18. The only other relevant data was about the completion of those 18 system updates which was monitored until all 18 were completed. GAO considered this metric insufficient according to their criteria. However, with the data provided by this metric USTRANSCOM was able to effectively monitor the progress of the implementations and determine that this effort was successful.

Additionally, the purpose of the Strategy is to create a framework whereby the Components can work collaboratively to coordinate and integrate Department-wide efforts to improve asset visibility, not to provide complete direction on how to define, implement, and oversee these initiatives. Therefore, in the next edition of the Strategy DoD will encourage the adoption of GAO's six key attributes for DoD asset visibility initiatives to the extent appropriate, but will not mandate their use. DoD will continue to remove barriers, encourage innovation and information sharing, along with demonstrating progress toward improving asset visibility.

RECOMMENDATION 2:

The GAO recommends that the Secretary of Defense direct the Assistant Secretary of Defense for Logistics and Materiel Readiness, in collaboration with the Director, Defense Logistics Agency; the Secretaries of the Army, Navy, and Air Force; the

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Commandant of the Marines Corps; the Commander of the United States Transportation Command; and the Chairman of the Joint Chiefs of Staff to incorporate into after-action reports information relating to performance measures for the asset visibility initiatives when evaluating and closing these initiatives to ensure that implemented initiatives will achieve goals and objectives in the Strategies.

DoD RESPONSE: Partially concur.

DoD understands the importance of capturing and reviewing performance data prior to a Component closing an asset visibility initiative. However, the Strategy "after-action report" referenced in this report is not intended to be used by DoD to evaluate the success of an asset visibility initiative or to determine if an initiative has met its intended objectives. Documentation and information to support the evaluation of initiatives is defined by and executed in accordance with Component-level policy and procedures.

The Strategy "after-action report" is a section in the quad charts that make up a Supporting Execution Plan (SEP). In accordance with the Strategy, a SEP is a simple format that provides a high-level snap shot of an asset visibility capability being implemented along with its ultimate results. The SEP is a tool used by the DoD Asset Visibility Working

Group (AVWG) to help facilitate collaborative discussion among the AVWG members, identify capabilities of interest across the DoD, and to look for opportunities to potentially leverage capabilities within or across DoD Components.

In the next edition of the Strategy, DoD will provide additional clarity around the purpose and use of a SEP and its "after-action reports." DoD will also ensure the Strategy specifies roles and responsibilities for the evaluation and closing of Component-level asset visibility initiatives.

Related GAO Products

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