

DEPARTMENT OF DEFENSE

Strategy for Improving DoD Asset Visibility

Third Edition ~ August 2017



**Assistant Secretary of Defense
for Logistics and Materiel Readiness**

EXECUTIVE SUMMARY

During Operations DESERT SHIELD and DESERT STORM, 20,000 to 40,000 containers entering the theater were required to be stopped, opened, inventoried, resealed, and reprocessed into the transportation system, resulting in delays in receipt of critical equipment with significant demurrage (delay penalties) and detention costs. These delays, combined with poor reporting, resulted in the shortage of shipment and asset visibility information en-route to theater. Additionally, it was largely these deficiencies that led to the Department of Defense (DoD) asset visibility being added to GAO's high-risk list for supply chain management.

However, since this time and based on the lessons learned from Operations DESERT SHIELD and DESERT STORM, and through 15 years of war in Iraq and Afghanistan, DoD has continued to field robust automatic identification technology (AIT) and asset visibility capabilities. These capabilities improved the ability to track assets as they progress from posts, camps, and stations to include commercial industry distribution facilities in Geographic Combatant Command (GCC) areas of responsibility. DoD asset visibility has been realized through the implementation of enterprise-level asset visibility systems, by refining business processes and shipper reporting, enhancing component-level automated information system (AIS) capabilities, and by using AIT and other in-transit visibility (ITV) data events such as commercial electronic data interchanges (EDI) as mandated in transportation service contracts.

Today, the Department has the tools in place to support enterprise-level asset visibility. There are multiple methods of documenting deployment and distribution events that enable asset visibility within and across the enterprise. Data from both DoD component-level logistics activities and commercial carriers is collected and integrated to provide comprehensive near "real-time" visibility of equipment and supplies at the wholesale and retail level. Critical asset visibility capabilities already implemented and in use that provide enterprise-level visibility include:

- The *Integrated Data Environment (I)/Global Transportation Network (G) Convergence (C) (IGC)* became fully operational in 2012, and in 2014 added Defense Logistics Agency's (DLA) Asset Visibility functionality for visibility of eight million lines of items on the shelf. Through IGC, 7,500 users have access to near-real-time, in-transit visibility information of shipments in the Defense Transportation System (DTS) along with wholesale and retail stock levels in all classes of supply.
- DoD has the world's largest active radio frequency identification (aRFID) network (37 countries, 1,650 tag read/write sites with over 530 satellite-enabled tracking systems), which provides visibility of unit cargo and sustainment materiel transiting the supply chain. These data resides in Army's *RF-ITV Tracking Portal* and is shared with IGC and other AISs.
- *Global Combat Support System – Joint (GCSS-J)* provides an unprecedented level of joint logistics visibility, including in-transit visibility, across Combatant Commands

(CCMD), the Services, and Defense Agencies. GCSS-J aggregates and visualizes data and information from 34 disparate authoritative data sources to provide visibility of data to help the joint Warfighter plan, execute, and control logistics operations.

- The *Coalition Mobility System (CMS)* is an unclassified logistics information sharing system enabling rapid coordination of movement planning and execution between the DoD and its partners throughout the world. It is currently used by 15 countries including the United States to maintain visibility of assets supporting numerous operations including military convoys and humanitarian assistance/disaster recovery. CMS is being used in Operation Juniper Micron to support coalition operations in the Central African Republic, providing U.S. Africa Command critical visibility of materiel flowing from national sources to the theater and ultimately the end customer.

An effective DoD supply chain is essential to Warfighter readiness and to the success of the Department's logistics operations. The United States Transportation Command (USTRANSCOM), DLA, and the Services provide the logistics capabilities that deliver the supply chain and deployment/distribution support necessary to meet the demands of the Warfighter whenever and wherever required. Maintaining and continuously improving end-to-end visibility of assets, from acquisition to disposal, origin to employment, and all points in between, including the "point of need,"¹ is required to achieve a seamless and effective DoD supply chain. This level of visibility requires collaboration and integration among DoD organizations and industry partners that operate the DoD supply chain.

The *Strategy for Improving DoD Asset Visibility* (hereinafter called the *Strategy*) creates the framework to guide and integrate Department-wide efforts to continuously improve asset visibility and to enable collaborative identification of sustainment and improvement opportunities such as policy updates, process improvements enabled by AIT, AIS upgrades, and/or revision/development of DoD standards. With effectiveness as a top priority, representatives from the Services, USTRANSCOM, DLA, and the Joint Staff meet monthly to identify asset visibility improvement opportunities across the supply chain, and to address these with synchronized and coordinated DoD solutions. Improvement efforts are captured and shared across the DoD to ensure they are leveraged to the maximum extent practicable.

Highlighted in this third edition of the *Strategy* are asset visibility efforts to be focused on in the near-term. These efforts represent improvements to sustain existing asset visibility capabilities as well as improvements to ensure more accurate and timely data are captured and delivered to the DoD and/or Component-level enterprise. Examples of improvement efforts with demonstrated benefits that are included in this *Strategy* as supporting execution plans (SEP) are:

¹ Point of need — in distribution operations, a physical location within a desired operational area designated by the geographic combatant commander or subordinate commander as a receiving point for forces or materiel, for subsequent use or consumption. (JP 1-02)

- DoD’s *Active RFID Policy and Procedure Review, and Way Ahead* is an enterprise-level effort to determine, “What’s next for aRFID.” Currently, ITV is being achieved with under 50 percent of Defense Transportation System shipments being associated with active RFID tags. This effort will take a comprehensive look at the use of aRFID in DoD and provide recommendations for a way ahead.
- U.S. Marine Corps’ *Non-nodal In-transit Visibility* provides near-real-time visibility of sustainment cargo during the tactical-level battlefield distribution process (\$1.4 million of annual cost savings).
- U.S. Air Force’s *Air Force Global Enterprise Tracking (AFGET)* uses real-time location system technology to track aircraft and critical assets (reduced aircraft flow-days, reduced equipment levels, and increased overall asset visibility).
- U.S. Navy *Littoral Combat Ship (LCS) Passive RFID Capability* uses a pRFID-based inventory system to perform fast and accurate inventories of mission modules containers (96 percent inventory accuracy and a 99 percent reduction in inventory workload).

Also included in this edition of the *Strategy* are “Improvement Opportunities.” These are areas that will be examined for their potential to proactively and collaboratively support improvements in the efficiency and effectiveness of the supply chain via AIT-enabled enhancements to processes and systems. For example:

- **Automated Armory** – This capability will assess the potential to increase access controls through biometric, common access card (CAC), and user signature in order to track check-in of both serialized and non-serialized weapons and ordnance equipment.
- **Non-Nodal Visibility** – This capability will be used to provide commanders and logisticians with enhanced visibility of their assets through the last tactical mile, extending the traditional Supply Chain nodes (Aerial Ports, Theater Consolidation and Shipping Points, etc.) through the use of GPS or cellular tracking devices.
- **Class IV Visibility** – The Class IV supply category includes fortification materials, obstacle and barrier materials, and construction materials for base development and general engineering. As the DoD Executive Agent (EA) for Class IV Construction/Barrier Materiel, the Director, Defense Logistics Agency established the Class IV Council to assist in providing guidance and direction to the DoD Class IV program. The Council coordinates with the DoD Asset Visibility Working Group (AVWG) for activities that improve visibility and control of all Class IV assets until they are consumed or disposed of. This coordination helps to ensure Class IV efforts are aligned and synchronized with this *Strategy*.

To further support DoD asset visibility in the most efficient and cost effective manner, DoD engages with AIT industry leaders in a number of forums, such as RFID Journal Live. This is where AIT industry leaders, international standards representatives, and DoD representatives

meet to obtain information about AIT and its many business applications including issues, implementations, and lessons learned.

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CHAPTER 1 - DoD ASSET VISIBILITY OVERVIEW

Asset visibility is not an end in and of itself, but a means to make informed decisions at all levels in the logistics enterprise. It encourages efficiencies and promotes effectiveness throughout the DoD supply chain. It is also an objective DoD will continually strive to improve. As DoD's budget and operational environments continue to change, there will always be additional information requirements and/or demands for improved timeliness and accuracy of asset visibility data. Continued sustainment and enhancement of the existing asset visibility enterprise supports increased readiness, optimized decision making, and improved customer confidence. Combatant commanders previously asked, "Where's my stuff?" and waited while subordinates researched the response. Asset tracking and in-transit visibility (ITV) stakeholders now have the ability to provide not only the answer to, *Where's my stuff?*, but also provide the location of units, the status of requisitions, or what sustainment cargo is in the distribution pipeline. Asset visibility has "arrived" through the implementation of enterprise-level asset visibility systems, by refining business processes, enhancing component-level automated information system (AIS) capabilities, and by using automatic information technology (AIT) as the primary enabler for capturing asset tracking and ITV data. Successful examples and benefits include:

- The Integrated Data Environment (I)/Global Transportation Network (G) Convergence (C) (IGC) became fully operationally capable in 2012, and in 2014 added Defense Logistics Agency's (DLA) Asset Visibility functionality for visibility of eight million lines of items on the shelf. By accessing IGC, 7,500 users have access to near real-time, in-transit visibility information of shipments in the Defense Transportation System along with wholesale and retail stock levels in all classes of supply.
- DoD has the world's largest active radio frequency identification (aRFID) network (37 countries, 1,600 tag read/write sites with over 470 satellite-enabled tracking systems), which provides visibility of unit cargo and sustainment materiel transiting the supply chain by reporting data to the Radio-Frequency In-transit Visibility (RF-ITV) Tracking Portal.

Strategy Definitions

Asset Visibility – *The ability to determine the location, movement, status, and identity of units, personnel, equipment, and supplies. It facilitates the capability to act upon information to improve overall performance of DoD logistics practices. (Source: JP 3-35)*

In-transit Visibility (ITV) – *The ability to track the identity, status, and location of DoD units, and non-unit cargo (excluding bulk petroleum, oils, and lubricants) and passengers; patients; and personal property from origin to consignee or destination across the range of military operations. (Source: JP 4-01.2)*

Supply Chain – *The linked activities associated with providing materiel from a raw material stage to an end user as a finished product. (Source: JP 4-09)*

Supply Chain Management – *A cross-functional approach to procuring, producing, and delivering products and services to customers. The broad management scope includes sub-suppliers, suppliers, internal information, and funds flow. (Source: JP 4-09)*

- The Coalition Mobility System (CMS) is an unclassified logistics information sharing system enabling rapid coordination of movement planning and execution between the DoD and its partners throughout the world. It is currently used by 15 countries including the United States to maintain visibility of assets supporting numerous operations including military convoys and humanitarian assistance/disaster recovery. CMS is being used in Operation Juniper Micron to support coalition operations in the Central African Republic, providing U.S. Africa Command critical visibility of materiel flowing from national sources to the theater and ultimately the end customer.
- The U.S. Marines Corps' Blount Island Command implemented long-range passive RFID (pRFID) for visibility and accountability of principal end items and containers from the time they are delivered to the command, move throughout maintenance, transfer to and from holding areas, and ultimately are loaded to maritime prepositioning ships. This resulted in increased read ranges from 30 feet to 240 feet, reduced inventory cycle times from 12 days to 10 hours, and decreased stock positioning and stock pick times from approximately two hours to near-real-time.
- The DLA implemented pRFID for inventory of military clothing items issued at Service recruit training facilities, resulting in reduced issue times from 150 minutes to 55 minutes, and receipt processing times from 120 minutes to 60 minutes.

For purposes of this *Strategy*, asset visibility is inclusive of the subcomponents: asset tracking and ITV.

ASSET VISIBILITY VISION

This *Strategy* document is the integrating tool for current and future DoD efforts to sustain and continuously improve DoD asset visibility capabilities. It describes the supporting execution plans (SEP) and supporting activities necessary to increase and improve asset visibility, resulting in achievement of the following vision:

Enhanced asset visibility, through continuously improving data capture and innovating business processes, will support more effective deployment/redeployment, sustainment, and retrograde operations and decisions, yielding integrated, end-to-end Warfighter support with increased customer confidence.

PROBLEM STATEMENT

Today, logistics data necessary to make responsive logistics decisions are being captured at major supply chain nodes. However, there are still opportunities to improve data capture capabilities along with the use of captured asset visibility data. Key factors contributing to the space between the *availability* of asset visibility data and its *use* are:

- Customers not knowledgeable or trained on where or how to access data that are available in logistics and operations information systems,

- Inability to effectively use key asset visibility data within key business and decision support processes and systems,
- Inconsistent use of defined enterprise data and transaction standards, and
- Supporting AISs not enabled to share captured or transacted data.

GOALS AND OBJECTIVES

While DoD has the tools and infrastructure in place that deliver enterprise-level asset visibility, this environment is not static. Continuously changing budgets and operational requirements/demands will result in changes to how, which, and when asset visibility data are captured and delivered to the enterprise. The goals and objectives stated below represent areas of opportunity for sustainment and continuous improvements in efficiency and effectiveness. Asset visibility as the enabler of logistics and other DoD business processes will never be “finished” and will always be reactive to support changes in the operational and business environments. Activities and improvements undertaken within the framework of this *Strategy* will support the following goals:

- Goal 1:** Improve visibility into customer materiel requirements and availability of resources to meet those requirements;
- Goal 2:** Enhance visibility of assets in-transit, in-storage, in-process, and in-use;
- Goal 3:** Improve efficiency of physical inventories, receipt processing, cargo tracking, and unit moves;
- Goal 4:** Increase inventory existence and completeness in support of audit readiness;
- Goal 5:** Ensure asset visibility authoritative data are discoverable, accessible, and understandable in order to support informed logistics decision making across the Joint Logistics Enterprise;
- Goal 6:** Implement AIS strategies for improved asset visibility data integration, and interoperability; and
- Goal 7:** Improve use of AIT (e.g., RFID and 2-dimensional Data Matrix symbols) to capture data about items and shipments for enhanced accuracy, reliability, and timeliness with the least amount of human intervention.

In support of the above goals, this *Strategy* provides a foundation for identifying opportunities across the end-to-end supply chain that meet one or more of the following objectives:

- Objective 1:** Increase efficiencies, such as delivery accuracy and cycle times;
- Objective 2:** Provide better customer service by changing or adjusting supply chain or asset movement processes;
- Objective 3:** Increase the accuracy, reliability, and timeliness of asset data, and the ability to identify and track assets with AIT;

Objective 4: Increase interoperability and visibility of asset data using common standards-based AIS infrastructure and enterprise-wide exchange of standard asset and supply chain event data; and

Objective 5: Improve trend and predictive analysis, enterprise performance metrics, and logistics decision making through the use of actionable asset visibility information.

The relationship of goals to objectives is portrayed in Figure 1.

Objectives / Goals	Goal 1 Improve visibility into customer materiel requirements and available resources.	Goal 2 Enhance visibility of assets in-transit, in-storage, in-process, in-theater.	Goal 3 Improve efficiency of physical inventories, receipt processing, cargo tracking, unit moves.	Goal 4 Increase inventory existence and completeness.	Goal 5 Enable an integrated accessible authoritative data set.	Goal 6 Implement AIS strategies for improved AV, data integration, interoperability	Goal 7 Deploy AIT to capture accurate, reliable, and timely data.
Objectives 1 & 2 Supply Chain Execution (SCE) Increase Efficiencies: 1. Delivery accuracy and/or cycle times; 2. Improve supply chain processes	✓	✓	✓	✓			
Objective 3 Data Capture & Collection (DCC)- Improve Data Capture: • Accurate, reliable, timely data; • Identify, track, control assets	✓	✓	✓	✓	✓		✓
Objective 4 Data Standards & Integration (DSI)- Increase Visibility of Asset Data • Standards-based AIS infrastructure; • Interoperable asset/supply chain event data	✓	✓	✓	✓	✓	✓	
Objective 5 Data Analysis (DA)- Improve Decision Making • Trend/predictive analysis; • Enterprise metrics; • Actionable visibility information	✓	✓			✓		

FIGURE 1 – MAPPING OF STRATEGY GOALS AND OBJECTIVES

CONCEPT OF DOD ASSET VISIBILITY

Asset visibility provides users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies. More important, asset visibility facilitates the ability to act upon this information to improve overall performance of DoD’s logistics practices.

AIT and AISs are the basic building blocks in DoD’s effort to provide timely asset visibility in the logistics pipeline, whether assets are in-storage, in-transit, in-process, or in-use. AIT media include barcodes, aRFID, pRFID, and premium AIT such as satellite and cellular technology. By enabling data collection and transmission to AISs, AIT provides DoD with the capability to track, document, and control units and materiel. In turn, AISs translate the supply and

transportation data into human-usable formats (user interfaces or visualizations) that provide actionable information for decision makers.

To ensure a high-performing and agile supply chain, DoD will continue to integrate AIT with AISs to facilitate DoD-wide asset visibility data capture, when there is a defined operational need and business case. Implementing and maintaining AIT and AIS capabilities allows for the creation of actionable management information to be used in support of:

- Effective cost management, maintaining accountability, and controlling assets
- Improved shipping, receiving, and transportation timeliness and accuracy
- Elimination of duplicate orders
- Inventory management improvements
- Increased labor productivity
- Automated receipt and acceptance processes
- Reduced shrinkage

Further, enhancing aRFID and satellite-enabled tracking with sensor technology has demonstrated the potential for intrusion detection and cargo condition and integrity monitoring.

STRATEGIC ALIGNMENT

This *Strategy* enables identification of improvement activities in support of the *DoD Logistics Strategic Plan* dated June 2010. Each activity describes supporting execution actions, milestones, and measures directly related to improving asset visibility. As such, this *Strategy* directly supports the following *DoD Logistics Strategic Plan* goals:

- **Goal 1:** Provide logistics support in accordance with Warfighter requirements.
- **Goal 4:** Improve supply chain processes, synchronizing from end-to-end and adopting challenging but achievable standards for each element of the supply chain

Figure 2 shows how the *Strategy* document links to the DoD Logistics Strategic Plan, other related plans and strategies, and supporting execution plans.

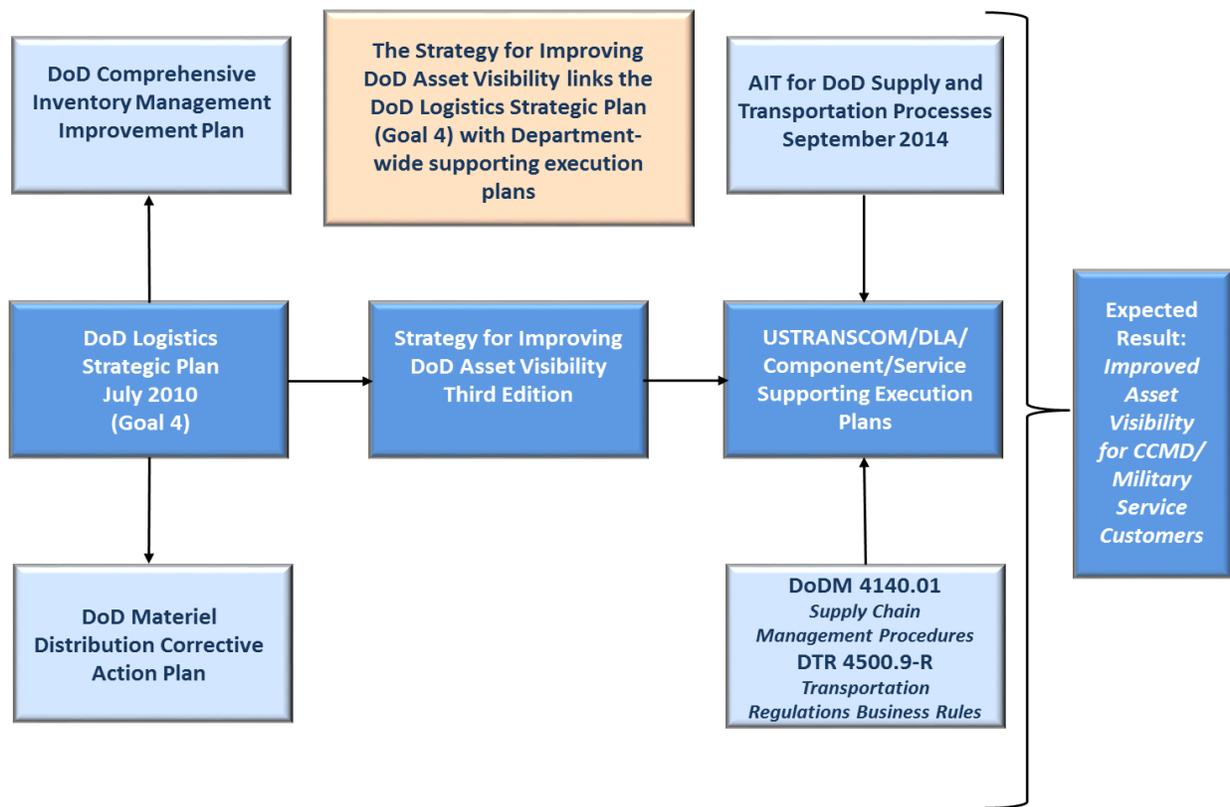


FIGURE 2 – STRATEGY RELATIONSHIP TO DOCTRINE, PLANS, AND OTHER DoD EFFORTS

DOCTRINE AND POLICY ALIGNMENT

The goals and objectives outlined in this *Strategy* support the requirements established in the following doctrine and policy.

Joint Publication (JP) 4-0, Joint Logistics

JP 4-0 provides foundational joint doctrine that mandates end-to-end synchronization of all elements of deployment and distribution, and the requirement to improve supply chain visibility to provide optimal end-to-end support to deployment, redeployment, sustainment, and retrograde operations.

JP 3-35, Deployment and Redeployment Operations

JP 3-35 highlights the requirement for “force visibility,” including asset visibility of deploying and redeploying forces and sustainment materiel en route to an operation or a unit. ITV, as a component of asset visibility, preserves the link between the in-transit force and a deployment force’s mission.

DoD Manual (DoDM) 4140.01, DoD Supply Chain Materiel Management Procedures and DTR 4500.9-R, Defense Transportation Regulation (DTR)

Since 2000, it has been DoD’s policy for components to leverage AIT, such as active and passive RFID, and linear and two-dimensional (2D) bar codes, where appropriate for DoD supply chain execution and asset movement. This is based on business rules documented in DoDM 4140.01,

DoD Supply Chain Materiel Management Procedures and DTR 4500.9-R, *Defense Transportation Regulation*. In 2004, in support of this joint doctrine, DoD intent was codified in policy. This policy was established to take full advantage of the inherent end-to-end supply chain efficiencies enabled by technology to improve Warfighter logistics support. Following these documents, pRFID became a mandatory DoD requirement on solicitations issued after October 1, 2004, to suppliers who ship to DLA depots, based on the conclusion that “an RFID-capable DoD supply chain... will provide a key enabler for the asset visibility support down to the last tactical mile that is needed by our Warfighters.” (**Appendix A - Reference n**)

Defense Federal Acquisition Regulation Supplement (DFARS)

DoD continues to clarify and amend the DFARS related to supplier requirements on the application of AIT. DoD issued its most recent rule on pRFID effective September 20, 2011 (DFARS Case 2010-D014). The case clarified that RFID requirements apply only to passive RFID; supplied a link to a web site in lieu of individually listing ship-to addresses; enabled contracting officers to add tagging requirements to contracts shipping to DoD Activity Address Codes (DODAAC) not specifically listed at the web site; and made pharmaceuticals subject to the Supply Class VIII RFID tagging requirements.

Defense Logistics Manual (DLM) 4000.25 Defense Logistics Management Standards (DLMS)

Logistics data exchange standards are published and continually updated in DLM 4000.25, *Defense Logistics Management Standards (DLMS)*, to promote the use of business standards and visibility systems interoperability.

Distribution Process Owner (DPO)

DoD Directive (DoDD) 5158.06, *United States Transportation Command*, designates the Commander, USTRANSCOM, as the DoD DPO. It further designates USTRANSCOM as the lead functional proponent for RFID and related AIT implementation in the DoD supply chain. In that capacity, they are responsible for developing a centralized approach for the use of asset visibility technologies, to include satellite tracking and synchronization of DoD-wide implementations, in conjunction with the Deputy Assistant Secretary of Defense for Supply Chain Integration, and proposing changes to supply chain policies. Secretary of Defense memorandum, dated August 17, 2011, designated USTRANSCOM as the DoD lead proponent for ITV, charged with developing a comprehensive and integrated approach for achieving ITV from point of origin to point of delivery. In coordination with the Joint Staff, Services, and Defense Agencies, this designation will also ensure policies, business processes, procedures, systems, data elements, and technologies are synchronized for effective ITV throughout the deployment/redeployment and distribution/retrograde pipeline. The Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD, L&MR) will retain policy and oversight responsibility and will work with USTRANSCOM to develop ITV governance rules.

These and other major policy references are listed in **Appendix A – References**.

CHAPTER 2 – STRATEGY FOR IMPROVING DOD ASSET VISIBILITY

This edition of the *Strategy* highlights the asset visibility improvement opportunities for DoD to focus on in the near-term. Examples of the improvement efforts that are in this *Strategy* as SEPs include:

- DoD’s *Active RFID Policy and Procedure Review*, is an enterprise-level effort to determine, “What’s next for aRFID.” Currently, ITV is being achieved with under 50 percent of Defense Transportation System shipments being associated with active RFID tags. This effort will take a comprehensive look at the use of aRFID in DoD and provide recommendations for a way ahead.
- U.S. Marine Corps’ *Nonnodal In-transit Visibility* provides near-real-time visibility of sustainment cargo during the tactical level battlefield distribution process (\$1.4 million of annual cost savings).
- U.S. Air Force’s *Air Force Global Enterprise Tracking (AFGET)* uses real-time location system technology to track aircraft and critical assets (reduced aircraft flow-days, reduced equipment levels and increased overall asset visibility).
- U.S. Navy’s *Littoral Combat Ship (LCS) Passive RFID Capability* uses a pRFID-based inventory system to perform fast and accurate inventories of mission modules containers (96 percent inventory accuracy and a 99 percent reduction in inventory workload).

USTRANSCOM, DLA, and other DoD Components provide logistics capabilities that deliver the supply chain and deployment and distribution support necessary to meet the demands of the Warfighter wherever and whenever required. End-to-end visibility of assets, from acquisition to disposal, from origin to employment, and all points in between, including the "point of need," is essential to achieve an effective DoD supply chain. Maintaining this visibility requires integration among DoD Components and industry partners that operate the DoD supply chain. DoD will sustain and continually improve asset visibility in a coordinated and integrated fashion using the following four key steps to implement this *Strategy*:

- 1) Analyzing and prioritizing pertinent deployment and distribution processes or logistics improvement opportunities,
- 2) Taking appropriate action to improve end-to-end visibility (e.g., process improvement, technology application, AIS changes, training, and/or policy changes) that will enhance deployment and redeployment, sustainment, retrograde, and operational effectiveness and efficiency,
- 3) Monitoring measures of success to drive continuous improvement, and
- 4) Ensuring leaders are educated and users (and potential users) are trained to make best use of existing data, processes, systems, and infrastructure.

To address opportunities for continuous improvement of asset visibility, this *Strategy* follows a repeatable approach to include:

- Following processes, along with systems and tools used within deployment and redeployment, sustainment, and retrograde operations, to ensure compliance with established policies in accordance with DTR procedures,
- Identifying roles and responsibilities at each supply chain node within the process,
- Identifying materiel asset “hand-offs” and associated visibility data,
- Understanding existing data management and technology infrastructure including needed upgrades based on performance requirements,
- Documenting logistics improvement opportunities impacting asset visibility and ITV to determine appropriate improvement actions to be taken, and
- Facilitating a common understanding of efficiency and effectiveness of end-to-end deployment and redeployment, sustainment, and retrograde operations to continuously identify and analyze improvement opportunities.

Improving asset visibility using this approach will increase customer confidence across the enterprise and reduce supply chain risk.

Further, the *Strategy* includes SEPs that build on efforts to date to sustain and improve asset visibility and materiel distribution. These SEPs describe the approach for addressing specific process, data, and technical improvements, and logistics-related opportunities that would measurably improve asset visibility.

KEY CAPABILITIES IMPLEMENTED

The DoD has made significant progress toward improving near real time asset visibility support to the warfighting customer since Operations DESERT SHIELD/STORM. Today, there are multiple methods of documenting deployment and distribution events enabling item-level asset visibility within and across the enterprise. Data from both DoD component-level logistics activities and commercial carriers is collected and integrated to provide comprehensive “real-time” visibility of equipment and supplies at the wholesale and retail levels.

Critical enterprise-level visibility capabilities already implemented and in use, are captured below. Capabilities currently being implemented represent efforts to sustain these capabilities as well as local-level improvements to ensure accurate and timely data are delivered by the Components to the DoD or Service-level enterprise. (SEPs referenced in this section can be found at the USTRANSCOM IntelShare/Intelink website, “DoD Asset Visibility (AV)), Automatic Identification Technology (AIT), and Active RFID Tagging Reports” community (<https://intelshare.intelink.gov>).

Integrated Data Environment (I)/Global Transportation Network (G) Convergence (C) (IGC)
 IGC is a system developed through a partnership between USTRANSCOM and DLA that merged USTRANSCOM’s Global Transportation Network (GTN) with DLA’s Integrated Data Environment (IDE) for the purpose of *providing the joint logistics community with an*

integrated set of networked, end-to-end visibility, deployment, and distribution capabilities.

IGC receives data from logistics systems from all Services and provides data to many common operating picture and visibility systems currently used by logisticians from all the Services and many Defense Components.

In 2014, DLA's Asset Visibility (AV) system was integrated with IGC. ***AV provides global visibility of assets to the Warfighter in all classes of supply and is equipped with query and reporting capabilities to facilitate enhanced logistics decision making.*** Supply classes tracked by AV include bulk fuel, wholesale and retail inventory, and ammunition. ***Integration of AV into IGC provides users with a single portal for viewing integrated supply and transportation data, giving DoD logisticians a level of total asset visibility never before available.*** Efforts to merge IGC with DLA's AV were documented in ***SEP – DSI-01 Asset Visibility Migration to IGC. The result of this effort is 7,500 users have access to near-real-time, in-transit visibility information of shipments in the Defense Transportation System along with wholesale and retail stock levels in all classes of supply.***

In order to expand the availability of the visibility data stored in IGC, USTRANSCOM began offering a fully functional web services capability to IGC customers. These web services are a standardized method of interoperability between software applications running on a variety of platforms and networks and make it possible for customers to view data collected by IGC either directly by accessing IGC or through their system of preference. A noteworthy use case of IGC involves the partnership with U.S. Naval Supply Systems Command Weapons System Support. Each day, IGC sends out a report on 10,000 to 15,000 line items in the DoD Supply Chain that are destined for 132 surface vessels and submarines. These ***daily notifications not only deliver the necessary visibility of cargo movements, they provided sufficient confidence to U.S. Navy personnel resulting in the reduction of manual tracking efforts and re-ordering of materiel.***

The merger of the supply data contained in AV with the data contained in IGC into a single portal, combined with proliferation of the availability of the data via web services, makes it possible to support virtually any business process with improved asset visibility data.

Figure 3 details the system interfaces for both the UNCLASSIFIED (low side) and CLASSIFIED (high-side) IGC data warehouses.

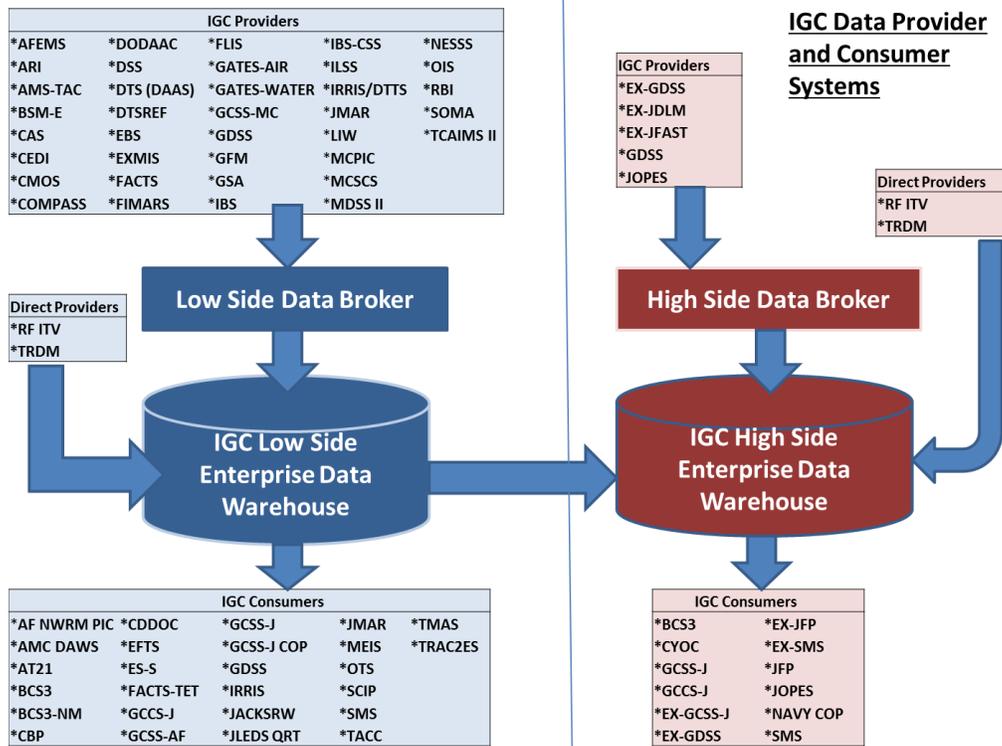


FIGURE 3 – IGC SYSTEM INTERFACE (ACRONYMS EXPLAINED IN APPENDIX D)

Radio Frequency ITV (RF-ITV) Tracking Portal

The RF-ITV Tracking Portal is part of a mission essential information network that supports joint operations. RF-ITV uses RFID devices to support the dissemination of ITV information required by the DoD, coalition partners, and allies of the United States. Using data collected by RFID tags on shipments, the RF-ITV network enables tracing of the identity, status, and location of cargo from origin (depot or vendor) to destination. It also receives near-real-time position reports for conveyances equipped with various satellite tracking systems (STS). Data from these two technologies are combined, processed, and accessed via web-based maps and reports, delivering a Logistics Common Operational Picture and improved efficiencies in providing global logistics support to the joint force. The RF-ITV infrastructure includes over 1,600 nodal read and write sites located in 37 countries worldwide. These readers (interrogators) are placed at strategic choke points (nodes) throughout the DTS (e.g., all DLA depots and strategic aerial ports and seaports). The aRFID network, using the RF-ITV Tracking Portal as the data repository, is a DoD-approved infrastructure that provides ITV beyond the theater distribution center (TDC).

In 2015, the migration from an American National Standards Institute (ANSI)-based aRFID network to an International Organization for Standardization (ISO)-only network was completed. *(SEP DCC 02 – Active RFID Migration)* The results of this initiative eliminated the risk of reduced ITV caused by a shortage of tag identification numbers on the ANSI tags. This shortage would have resulted in the introduction of tags with duplicate ID numbers, a problem

that was inherent with the single-vendor proprietary solution DoD had been using. Additionally, because of the competitive environment created by using the open international communication standard (ISO), ***aRFID products are significantly lower priced (dropping from \$75 to ~\$37/tag) and functional improvements related to better technology are also being realized.***

Global Combat Support System – Joint (GCSS-J)

GCSS-J is a web-based logistics program that aggregates data and information from various and disparate authoritative data sources to provide visibility of authoritative data to help the joint Warfighter plan, execute, and control logistics operations. The application is managed by the Defense Information Systems Agency (DISA), under the functional auspices of the Joint Staff Director for Logistics (JSJ4). GCSS-J is the capstone software capability for the Global Combat Support System (GCSS) concept and strategy as approved by the Joint Requirements Oversight Council (JROC).

GCSS-J provides an unprecedented level of joint logistics visibility, including in-transit visibility, across Combatant Commands (CCMD), the Services, and Defense Agencies. GCSS-J visualizes data from 34 authoritative data sources including: IGC, National Level Ammunition Capability (NLAC), DLA-Energy Enterprise External Business Portal (EEBP), web-based Reporting Emergency Petroleum, Oils, and Lubricants (WebREPOL), Inventory Management Plan (IMP), Office of Naval Intelligence (ship tracks), Global Status of Resources and Training System (GSORTS), Joint Operation Planning and Execution System (JOPES), Modernized Integrated Database (MIDB), Real Property Assets Database (RPAD), and Defense Manpower Data Center (DMDC). GCSS-J's design facilitates sharing information by allowing single sign-on access to authoritative data sources, and displaying information in user-defined dashboards to quickly view and assess resources and capabilities in order to support logistics decision-making. GCSS-J dramatically improved functionality over the last several program releases by transitioning to the use of widgets to access and visualize logistics information. For example, the Requisition Document Details widget displays all transactions in date order for a single requisition or document number, as well as requisition history, last status, and shipment status. It also includes transportation control numbers (TCN) which are hyperlinked to the Cargo and Cargo Contents widgets that display the cargo items associated with a specified container, pallet, and RFID tag or TCN. In other words, a user can determine the status and location of an item they ordered with just a few clicks. Other applications within GCSS-J which visualize materiel in-transit include:

- ***Airfield Schedule and Workload: Allows the user to view detailed information about missions arriving and departing at an airfield.*** The user enters an airfield by International Civil Aviation Organization (ICAO) code, geographic location (GEOLOC), or military air (MILAIR) and a specified (from-to) date range. The widget is mappable and synchronizes to Itinerary, Cargo, Passenger, and Airfield Facility Details widgets for more information on the airfield and mission.

- ***Seaport Schedule: Allows the user to view the activity of inbound ships (container ships only) at a seaport.*** The user enters a seaport code by military seaport (MILSEA) code and a specified (from-to) date range. The widget is mappable and synchronizes to Cargo and Seaport Facility Details widgets for more information on the schedule and ship.

Because GCSS-J's system design links widgets, users can achieve in-transit visibility knowing just a few data points. Furthermore, ongoing GCSS-J development will increase functionality by incorporating additional authoritative data sources and by developing new functionality identified through user requirements and vetted through the General Officer's Steering Committee (GOSC). ***After the most recent software version release, users graded GCSS-J as exceeding their expectations with a 96 percent customer satisfaction rating.*** Additionally, U.S. Africa Command (USAFRICOM) extensively used GCSS-J to develop a logistics common operational picture supporting Operation UNIFIED ASSISTANCE. Improvements to GCSS-J were identified in ***SEP – DA-02 Development of ITV Capabilities within GCSS-J.***

National Level Ammunition Capability (NLAC)

NLAC is a web-based total asset visibility and decision-support system that enhances munitions logistics planning and management throughout the DoD. NLAC provides users from each of the Services, OSD, the Joint Staff, the CCMDs, and the National Guard with timely and accurate information on the location, movement, status, and identity of war reserve munitions, unit basic loads, training ammunition, and munitions in transit. NLAC also provides ammunition logisticians with advanced decision support and management tools that significantly improve their ability to direct and manage the distribution of Class V items.

NLAC was designed to aggregate data from Service ammunition management and visibility systems and DoD transportation and document tracking systems. These data include worldwide stockpile information that ammunition users, managers, and planners can sort by identifiers such as location, serial number, lot number, condition code, Service ownership, and location within the transportation pipeline.

NLAC is a tool that helps its users collect, filter, and organize joint ammunition asset and asset visibility data and create classified and unclassified ammunition reports. ***By combining advanced decision-support tools and transportation status data, NLAC significantly enhances strategic and operational decision-making and the management of Service wholesale, retail, and unit munitions operations.*** Figure 4 details the system interfaces for both the classified and unclassified NLAC data repositories.

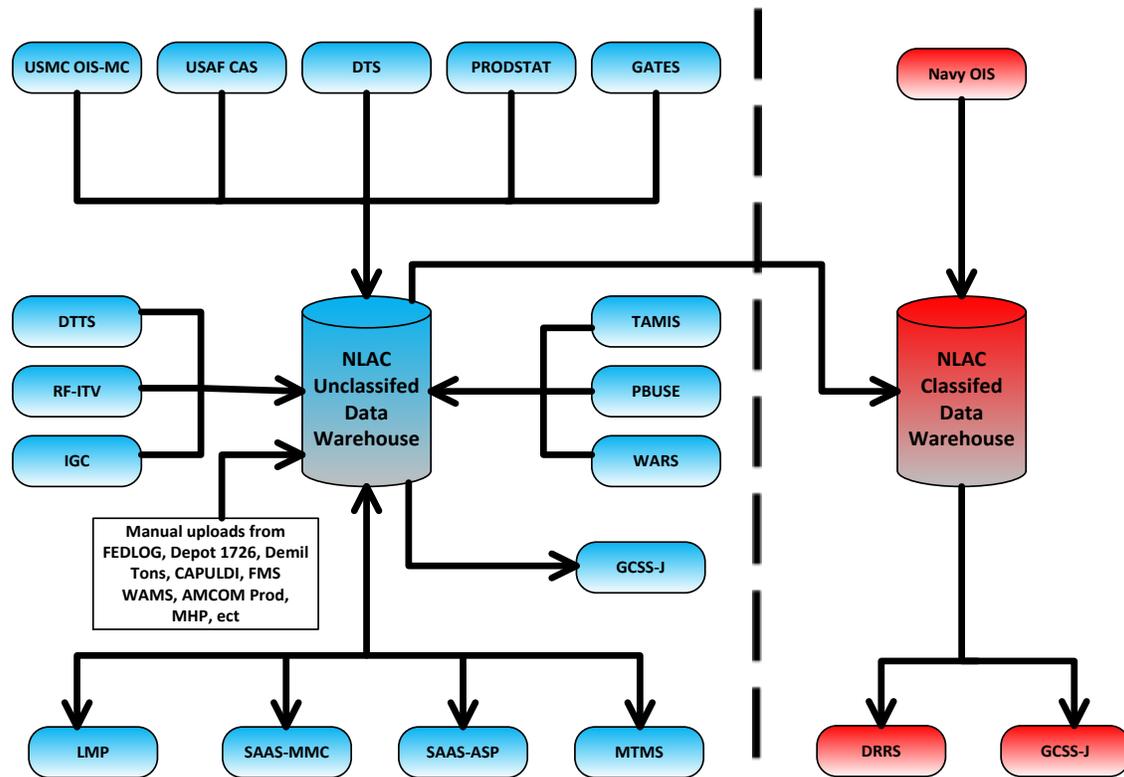


FIGURE 4 – NLAC SYSTEM INTERFACE (ACRONYMS EXPLAINED IN APPENDIX D)

DEFENSE LOGISTICS MANAGEMENT STANDARDS (DLMS)

The DLMS prescribes the logistics management responsibilities, procedures, rules, and electronic data communications standards for use in DoD to conduct logistics operations. The Supply Process Review Committee (PRC) is the forum through which the DoD Components and other participating organizations may participate in the development, expansion, improvement, maintenance, and administration of supply requirements, Military Standard Requisitioning and Issue Procedures (MILSTRIP), Military Standard Transaction Reporting and Accountability Procedures (MILSTRAP), and Reporting of Supply Discrepancies. DoD is in the process of replacing MILSTRIP and MILSTRAP transactions with equivalent DLMS transactions that allow significantly enhanced data content and structure, and facilitate automated electronic data flow between DoD components and our commercial business trading partners. These include the following electronic data interchange (EDI) transaction sets: 511R Requisition, 856S Advance Shipment Notice, 527R Materiel Receipt Acknowledgement, and similar transaction sets affecting asset visibility.

DEFENSE TRANSPORTATION ELECTRONIC BUSINESS (DTEB)

The DTEB mission is the development, maintenance, and publication of XML Schemas, EDI Implementation Conventions, Data Maintenance, and other technical guidelines established for the electronic exchange of defense transportation related information. DTEB enables standardized data exchange between DoD components, systems, and commercial trading

partners, and ensures compliance with the ANSI Accredited Standards Committee (ASC) X12 standard for EDI as directed by DoDD 8190.01e - DLMS Compliance Directive. Standards maintained and developed by the DTEB span processes across the entire Defense Transportation System. These include the following EDI transaction sets: 858B Transportation Control and Movement Document (TCMD), 858R Freight Bill of Lading (BOL) Information, 315A Status Detail (Ocean), 214A Motor Carrier Shipment Status, and similar transaction sets affecting asset visibility.

DoD AUTOMATIC IDENTIFICATION TECHNOLOGY

AIT for Supply and Transportation Processes (hereinafter called the *AIT Framework*) was published by the DPO on September 26, 2014, as an update to the *DoD AIT Concept of Operations for Supply and Distribution Operations*, which was published in June 2007. The *AIT Framework* specifically addresses how AIT should be used, the types of AIT media to be applied at the DoD supply chain and movement nodes, and key AIT attributes. It evaluates each process segment within the end-to-end deployment, redeployment, and distribution process and designates a common set of AIT media to drive interoperability and integration across the supply chain. ***The AIT Framework reinforces a technology standards-based approach at every node within the supply chain where asset or supply chain event data are captured and shared at the enterprise-level to provide improved asset visibility information. (SEP SCE-07 DoD AIT Concept of Operations for Supply and Distribution Operations Review)***

DoD EXPLOSIVE ORDNANCE DISPOSAL

The Naval Surface Warfare Center (NSWC) Indian Head Explosive Ordnance Disposal Technology Division (IHEODTD) Indian Head, MD, one of DoD's premier organizations responsible for Explosive Ordnance Disposal (EOD) mission-related requirements, is at the forefront of United States efforts to counter improvised explosive devices (IEDs). It is a unique support activity administered by the U.S. Navy working together with all of the Services to determine and address joint service EOD requirements. In one of its mission functions, the organization is responsible for the repair, inventory control, and shipment of numerous EOD robots designed to support the Warfighter's stand-off capability to counter the IED threat. As a result of the Iraq and Afghanistan wars, demand for counter-IED robotic capabilities grew significantly.

The organization urgently needed a system to effectively maintain EOD capability inventory assets, track shipping and receiving, manage configuration changes, and maintenance actions, to significantly improve on their efficiencies in Supply Chain Management (SCM) operations. IHEODTD turned to technology in an attempt to solve some of its inventory management challenges, and decided on a financial investment into RFID and a real-time locating system (RTLS).

Recognizing that DoD-mandated IUID requirements evolved, EODTD focused their implementation strategies to integrate pRFID and IUID technologies as complimentary enablers to support their SCM and asset tracking needs.

IHEODTD adjusted its business process actions and incorporated the IUID concept to meet its internal logistics operational needs; these actions resulted in the ability to maintain 100 percent supply accuracy for forward deployed units. With a web-based automated inventory management capability, inventory managers effectively monitor the inventory at each site and adjust as necessary to keep no more than a 7-day supply of parts on the shelf. By comparison to the manual intensive approach to inventory management, the integrated and pRFID/IUID enabled process (modified via technology to meet specific organizational requirements) was found to significantly increase the chances of 100 percent accountability for all assets identified within the inventory.

Section Summary

With the implementation of these enterprise-wide asset visibility capabilities and significant progress to date at the Component-level, DoD is well positioned to focus on sustainment and continuous identification of opportunities for asset visibility to continue to deliver end-to-end supply chain optimization.

Technical advancements and future trends in supply chain practices will continue to be assessed in order to take advantage of opportunities to better integrate processes within the supply chain and make necessary technical refreshment actions.

INDUSTRY COLLABORATION

To further support DoD efforts to improve asset visibility in the most efficient and cost effective manner, DoD engages with AIT industry leaders in a number of forums, where AIT industry leaders, members of academia, international standards representatives, and DoD representatives meet to review AIT issues, implementations, and lessons learned.

The DoD has a long history of working with and benchmarking from industry on AIT best practices. Most importantly, DoD makes every effort to align its AIT program to mirror that of commercial industry, using AIT devices that are in widespread, common use. DoD also participates in many national and international AIT standards bodies to ensure DoD, commercial industry, and academia AIT efforts are in harmony. Joining these civilian groups engenders an open dialogue that is otherwise unavailable. This synchronized effort also ensures DoD is in a proactive rather than reactive mode as the technology grows, standards change, and use cases adjust. In similar fashion, DoD also works closely with our international and coalition partners, including North Atlantic Treaty Organization (NATO), to ensure interoperability.

DoD's engagement with industry occurs primarily through information exchange symposia. DoD also participates in trade shows such as RFID Journal Live, which is a source of

information on both AIT technological advances and on how the technology is being used. The use case presentations at RFID Journal Live, for example, are an ideal way to learn exactly what industry is doing and the tangible benefits they are experiencing. Additionally, the DoD AIT community receives the monthly RFID Journal e-newsletter that covers the latest developments in AIT technology and use cases around the world.

DoD's aRFID program uses a competitive bidding acquisition process for aRFID tags and hardware based on the internationally recognized International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC) 18000-7 standard. Using the ISO/IEC 18000-7 standard, DoD aligns with commercial industry and allows for a competitive, multivendor acquisition environment to lower costs. *(SEP – DCC-02 DoD Active RFID Migration. Progress to date: 99.7 percent ISO aRFID tags in use; 82 percent ISO-only interrogator infrastructure; aRFID tag price reduced from \$75 to ~\$37/tag)*

With regard to emerging technologies, DoD has numerous processes to keep abreast of and to evaluate and/or incorporate those technologies that show promise for enhancing DoD business processes. These include: participation/membership in the various AIT standards bodies; review of trade journals and participation in trade forums; the Research, Development, Testing, and Evaluation (RDT&E) program; Joint Capability Technology Demonstrations; and Cooperative Research and Development Agreements.

Examples of DoD working with industry to leverage AIT include:

Satellite-enabled Technology

In order to improve cargo tracking and security of containerized cargo through Pakistan en route to or from Afghanistan, DoD conducted a proof of principle with a commercial satellite tag (transponder) provider. The satellite transponders were affixed to the containers at the container door to provide near-real-time tracking and intrusion detection using a variety of sensors, including door open, light, and temperature monitoring. The transponders could transmit from almost anywhere in the world via satellite to get required information to appropriate DoD automated information systems. DoD worked closely with the provider to not only test the satellite technology, but to also test the fee-for-information process. By using an industry-proven process where the third party logistics provider owns the tracking system and provides the service as an "add on," the DoD customer gets more affordable advanced cargo tracking.

Passive RFID Technology – Clothing and Textile

As the use of RFID continues to grow in the commercial sector, DoD continues to incorporate industry's lessons learned and to use DoD's established RDT&E program to work with commercial partners to develop capability not currently available. DLA's use of pRFID to improve the initial process for issuing uniforms at DoD's basic training facilities grew from industry best practices, as the commercial sector has had many of its earliest pRFID successes in the apparel industry. The initial proof of principle conducted at the Air Force Basic Military

Training Center, Lackland Air Force Base, Texas, proved the applicability for this business use case. It has since expanded to all eight remaining basic training facilities. Not only has this pRFID implementation improved inventory accuracy, but it also reduces the time to process the new recruits by over 50 percent. *(SEP - DCC-05 DLA Item-level pRFID for Clothing and Textiles – Results: Reduced issue times from 150 minutes to 55 minutes, and receipt processing times from 120 minutes to 60 minutes)*

Passive RFID Technology – Long Range

The long-range pRFID proof of principle conducted at U.S. Marine Corps' Blount Island Command is an example of DoD's RDT&E efforts to partner with commercial industry to achieve additional technological capability. While pRFID tags had been viewed as more of a short-range technology (less than 30 feet), Blount Island Command saw the benefit in using pRFID for its yard management business process. With equipment spread over many acres, normally an aRFID solution would be put in place. Through this RDT&E effort the pRFID read range was expanded to over 240 feet. This allows Blount Island Command to have real-time location of all the equipment in the yard. *(SEP – SCE-03 USMC Long-range pRFID – Results: Increased read ranges from 30 feet up to 240 feet, reduced inventory cycle times from 12 days to 10 hours, and decreased stock positioning and pick times from 2 hours to near-real-time)*

Sources Sought – Innovative RFID

DoD also evaluates vendor products and solutions that vendors themselves bring to DoD's attention. Using acquisition channels and processes, the acquisition community coordinates the DoD functional experts dialogue with vendors. For example, USTRANSCOM has released a request for information on fbo.gov requesting white papers regarding the potential to employ a "hybrid tag" for global cargo tracking that utilizes multiple modes of communication (e.g., cellular, RFID) embedded in a single unit. USTRANSCOM will review the white papers to determine the availability, technical maturity, techniques for use, and life-cycle affordability of a "hybrid tag" and with the intent of entering a Cooperative Research and Development Agreement (CRADA) with a United States based non-federal partner in industry or academia. Through the CRADA, USTRANSCOM and the industry/academia partner will collaborate further in terms of the actual exploration, resource commitments, schedules, deliverables, and work to be done to meet the global tracking need.

Section Summary

There are many ways in which DoD takes advantage of the interaction with commercial industry while leveraging lessons learned from early implementers of new and emerging technologies. DoD and our commercial partners understand that using products based on common standards allows for synchronization throughout the community of interest, thereby decreasing cost and increasing efficiency.

STRATEGY DEVELOPMENT

A critical expected result from any strategy to continuously improve asset visibility continues to be timely, accurate, actionable information regarding the identification, location, quantity, condition, movement, and status of DoD assets, throughout their life cycle, from source of supply to operational customers and return, as well as during repair and disposition. Logistics support to the warfighting customers must be maintained and improved in a constrained funding environment, using practices that ensure excellent stewardship of decreasing budgets. Supply chain execution risk must be reduced by increasing customer confidence in the ability of the supply chain, reducing disruptions in the deployment, redeployment, and distribution of critical assets, and ensuring the right asset is delivered to the right place (point of need), at the right time, in the right condition, and in the right quantity to satisfy the Warfighters' support requirements.

The *Strategy's* development and execution flows from the vision, goals and objectives, which support *DoD Logistics Strategic Plan* Goals 1 and 4, as stated in Chapter 1 of this document. Figure 5 depicts the *Strategy* execution process resulting from vision/goals relationship.

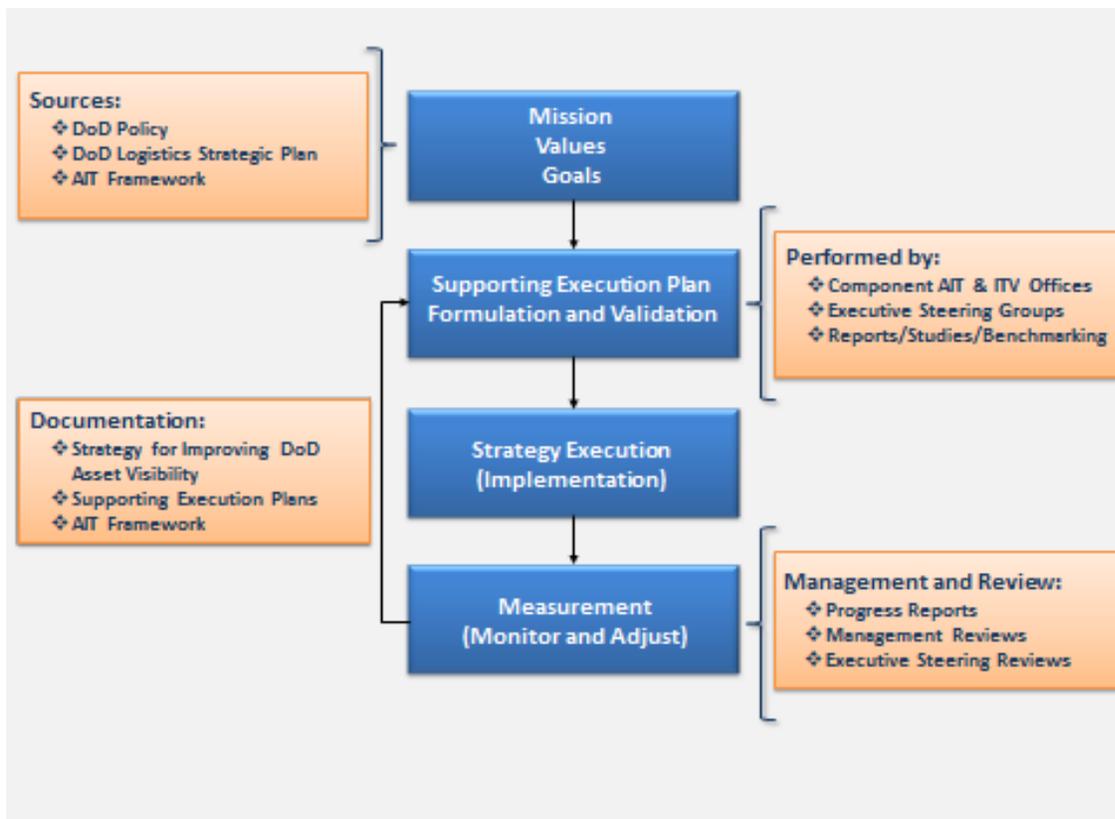


FIGURE 5 – STRATEGY DEVELOPMENT AND EXECUTION

In its efforts to reduce supply chain risk, the Department has been assisted by reports from the Government Accountability Office (GAO). Additionally the 2014 National Defense Authorization Act (NDAA) Sec. 326 prescribed 11 elements that must be included in the

Strategy. Appendix B – GAO High Risk Series (DoD Supply Chain Management) and NDAA Requirements contains GAO references and the NDAA elements used as input to the development of this *Strategy*.

GOVERNANCE, OVERSIGHT, AND RESPONSIBILITIES

To ensure successful implementation of this *Strategy*, a defined and accountable management governance structure has been established to oversee the *Strategy*'s execution and to track progress. Likewise, the organizational responsibilities are assigned both to oversee the *Strategy*'s execution and to accomplish the improvement efforts.

ASSISTANT SECRETARY OF DEFENSE FOR LOGISTICS AND MATERIEL READINESS (ASD(L&MR))

- Prescribes Department-wide policies and procedures for the conduct of asset visibility matters driving the content of this *Strategy*.
- Oversees development, implementation, and updating of the *Strategy*.

DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR SUPPLY CHAIN INTEGRATION (DASD(SCI))

- Develops, implements, and updates the *Strategy*.
- Develops and coordinates Department-wide policies and procedures necessary for improving asset visibility in accordance with this *Strategy*.
- Facilitates collaboration and resolution of asset visibility issues on the most common and interoperable way possible.
- Chairs the Supply Chain Executive Steering Committee (SCESC) for the purpose of ensuring DoD Component awareness, development, updating, implementation, and status reporting of Component-level efforts.

SUPPLY CHAIN EXECUTIVE STEERING COMMITTEE (SCESC)

- Conducts in-process reviews, as requested by the Asset Visibility Working Group (AVWG), of enterprise-level asset visibility efforts in order to ensure they are:
 - Achieving milestones, expected outcomes, and measures of success of Component-level efforts,
 - Coordinated and shared across DoD, and
 - Used to inform resource planning and investment decisions to achieve Department-wide improvements in asset visibility.
- Provides a common forum for inter-Component discussion and input to this *Strategy*.
- Is chaired by DASD(SCI) and is comprised of flag-level representatives from ODASD (Transportation Policy), Joint Staff, the Military Services, DLA, USTRANSCOM, and the General Services Administration (GSA) Director of Supply Operations.

- Reviews this *Strategy* document at least annually to identify new opportunities or amend supporting actions and to respond to changing or emerging DoD logistics challenges.

MILITARY SERVICES, DLA, JOINT STAFF, AND USTRANSCOM

- Identifies opportunities to continuously improve asset visibility, within their respective organizations and across DoD, to support the goals and objectives stated in this *Strategy*.
- Provides representation on Asset Visibility Working Group to support initiatives related to continued *Strategy* development, implementation, studies, and analysis.
- Ensures the successful execution of all Component-level efforts for which their organization is the office of primary responsibility (OPR); collaborate on SEPs for which their organization is an office of collateral responsibility (OCR).
- Develops and submits, to the asset visibility working group (AVWG), SEPs that reflect asset visibility efforts planned or underway.

ASSET VISIBILITY WORKING GROUP

The AVWG, chaired by the Office of the DASD(SCI) (ODASD(SCI)), supports the development and execution of this *Strategy* and includes representatives from the Military Services, USTRANSCOM, DLA, Joint Staff, and other government agencies as needed. The working group identifies and shares visibility capabilities and opportunities for improving end-to-end asset visibility. The working group also determines if improvement efforts that are underway or planned can be collaborated on and leveraged across DoD. The AVWG:

- Identifies opportunities across the end-to-end supply chain to further improve asset visibility within DoD.
- Interfaces with industry to keep current on new and emerging AIT technologies and trends in supply chain management practices.
- Reviews current SEPs for opportunities to exploit capabilities across the DoD enterprise.
- Monitors the status of improvement initiatives.
- Identifies and collects additional SEPs, with associated implementation cost
- Reports progress to the SCESC, as needed.
- Meets monthly.

The USTRANSCOM IntelShare/Intelink website, “DoD Asset Visibility (AV), Automatic Identification Technology (AIT), and Active RFID Tagging Reports” community (<https://intelshare.intelink.gov>), is used to capture, track, manage, and share detailed information about asset visibility improvement efforts across DoD. Consolidation and tracking of such efforts will provide the SCESC and the AVWG information necessary to help focus and prioritize the efforts and to influence where resources are being leveraged.

SUPPORTING EXECUTION PLAN (SEP)

Current and future activities build on DoD progress to date in executing efforts that successfully improve or enhance asset visibility. The focus is to leverage the successes and lessons learned, to address current and future improvement opportunities, and to optimize end-to-end deployment, redeployment, sustainment and retrograde operations. SEPs can either represent efforts for a single Component or for enterprise-level improvement, where a single improvement is (or can be) leveraged by more than one Component. Both contribute to improving asset visibility for DoD.

SEPs are a high-level depiction of an asset visibility improvement initiative underway and are used by the AVWG and the SCESC to support enterprise collaboration and integration. Detailed execution information about an initiative resides with the OPR and is available through the Component point of contact listed in the metadata section of the SEP. SEPs are structured to:

- Enable collaboration across the Department,
- Identify and capture information about asset visibility improvements being implemented relative to the supply chain segment(s) being improved,
- Focus on resolution of a defined issue and analysis of what is required to improve, whether it is process improvement, technology enhancement, system change, policy change, training, or other enhancement,
- Provide measures of success, as defined by the OPR, to demonstrate asset visibility improvement,
- Include implementation cost to the extent that specific asset visibility costs can be decoupled from overall program cost,
- Identify internal and external factors that may inhibit the achievement of an initiative's objectives, and
- Document final disposition of an initiative including improvements achieved.

SEP REQUIRED ELEMENTS

At a minimum, SEPs will include the information described in the following paragraphs. Additional information may be provided as deemed appropriate by the submitting organization. The SEP template can be found at **Appendix C**.

Description/Objectives

Describe the project and the primary objective(s) the OPR wants to achieve upon implementation, as it relates to improving asset visibility.

Action Plan/Milestones (Measures of Performance)

Provide a high-level plan of action and milestones that describe the target milestones for each activity and the lead accountable organizational element and any supporting organizational element.

Resources/Funding

Provide current and future implementation costs by fiscal year (FY). In developing SEP cost estimates, Military Services, DLA, USTRANSCOM and the Joint Staff should consider cost elements such as manpower, materiel, and sustainment. 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 the specific asset visibility requirement. In these cases, the SEP will indicate that cost information is not available and explain why. However, if at some point during implementation some or all costs are identified, the SEP will be updated to reflect as such.

Results/Return on Investment

Identify actual outcomes both quantitative and qualitative.

Metrics (Measure of Effectiveness)

While this *Strategy* is not intended to provide complete guidance on how to develop performance measures for Component initiatives, OPRs in concert with Component-level policy and procedures, should consider the GAO’s key attributes of successful performance measures, shown in Table 1 below, during metric development.

Attribute	Definition
Clarity	Measure is clearly stated, and the name and definition are consistent with the methodology used to calculate it.
Measurable Target	Measure has a numerical goal, 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	Measure 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	Measure produces the same result under similar conditions. Reliability is increased when verification and validation procedures, such as checking performance data for significant errors by formal evaluation or audit, exist.
Baseline and Trend Data	Measure 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 organizations 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	Measure is aligned with Component-wide goals and missions, and is clearly communicated throughout the organization.

TABLE 1 - GAO'S KEY ATTRIBUTES OF SUCCESSFUL PERFORMANCE MEASURES

High-level summary metric/outcome information will be provided to the AVWG via updates to the SEP. Detailed metrics data will be collected, monitored, and used for decision making at the level appropriate for the effort and in accordance with Component-level policy and guidance.

Key External Factors

List factors external to the organization and beyond its control that could significantly affect the achievement of the SEP objectives.

Meta Data

Provide OPR point of contact details for obtaining additional information and status of the initiative. Additionally, provide the approval authority, by position, who will make the decision to initiate the effort, and who will determine it is complete or cancelled.

After Action Information

This section is completed after the initiative capabilities have been implemented and the results and return on investment (ROI) are determined, or if the initiative is cancelled. It serves as a summary for the AVWG and completes the documentation of the SEP. The after action section includes content such as:

- Summary of outcomes. For initiatives that are cancelled, document the reasons for the cancellation,
- Objectives met/not met,
- Performance measure results, qualitative and/or quantitative,
- Benefits realized, qualitative and/or quantitative,
- Problem/gap resolved,
- Challenges, if any,
- Lessons learned, if any, and
- Other possible uses in the enterprise – Is the capability applicable for other DoD asset visibility activities?

LIFE CYCLE OF A SEP

SEPs are actively reviewed by the AVWG. Responsibility for assessing and evaluating performance of an initiative resides with the OPR and is conducted at the level appropriate for the initiative. In the case of enterprise-level efforts, the AVWG will monitor performance. Below describes how a SEP is initiated, tracked, and completed.

- 1) SEPs are either requested by the AVWG or proposed to the AVWG for inclusion in this *Strategy*.
- 2) The OPR for a SEP presents a draft to the AVWG following the template available on IntelShare/Intelink.
- 3) The AVWG:

- Accepts or rejects the SEP being included as part of the *Strategy* for collaboration purposes. The AVWG does not approve or cancel Component-level acquisition programs/initiatives. For enterprise-level efforts the AVWG will monitor performance and progress metrics with status being provided to the SCESC, as needed.
 - Assigns an improvement category and number, (e.g., DCC-04)
 - Files the SEP on IntelShare/Intelink
 - Determines if the capability can/should be leveraged across the Department
 - Determines if the new SEP or SEP status update is to be briefed to the SCESC
- 4) The OPR reports status quarterly to the AVWG. This allows the AVWG to keep track of the initiative's progress and continue collaboration as needed during implementation. The AVWG may also assist the OPR in resolving issues and challenges.
- 5) Upon completion or cancellation of an initiative/program, the OPR completes the after action section of the SEP template and submits the final document to the AVWG. The AVWG:
- Determines if the SEP contains the information necessary to enable future use by the enterprise
 - Files the completed SEP quad chart on IntelShare/Intelink
 - Files any completion documents, e.g., outcomes, business case analyses, etc., on IntelShare/Intelink
 - Determines if the completed SEP is to be briefed to the SCESC

Figure 6 depicts a high-level view of the SEP life cycle.

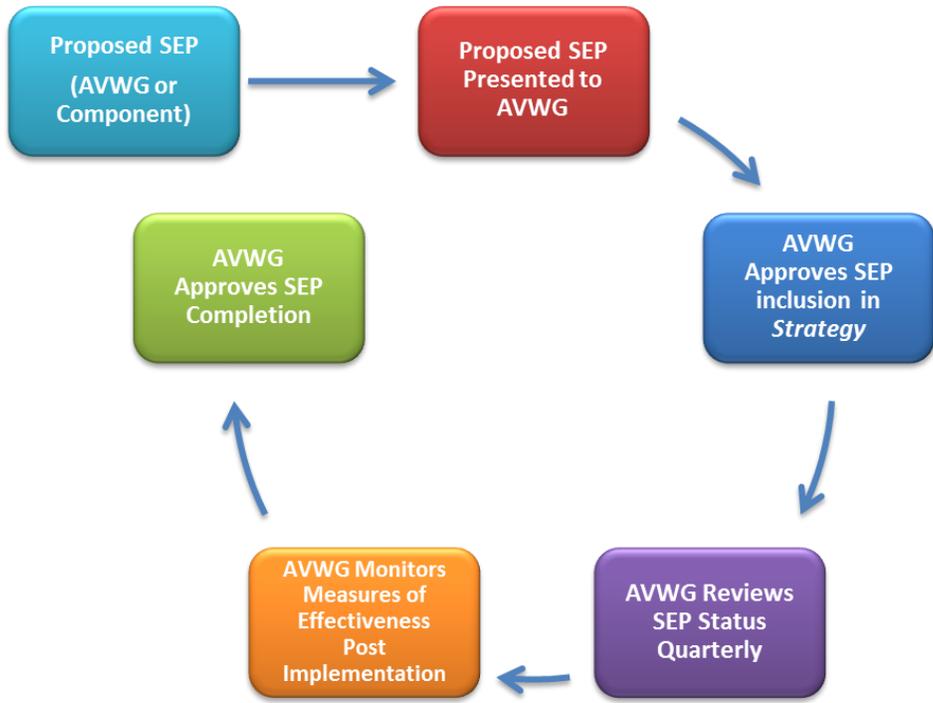


FIGURE 6 – LIFE CYCLE OF A SEP

CHAPTER 3 – DoD ASSET VISIBILITY IMPROVEMENT PLAN

Logistics support to the warfighting customers must be maintained and improved in a constrained funding environment, using practices that ensure excellent stewardship of the Nation’s funds. Supply chain execution risk can be reduced, and customer confidence in the supply chain increased, by reducing disruptions in the deployment, redeployment, and distribution of critical assets and ensuring the right asset is delivered to the right place (point of need), at the right time, in the right condition, and in the right quantity to satisfy the Warfighters’ support requirements.

To this end, this *Strategy* is focused on improvements in operational performance, reduced execution risk, and improved decision making. Successful improvement requires continuous identification, integration, and monitoring of coordinated Component and Department-wide efforts – whether process improvement, new or modified training, technology insertion, AIS updates, and/or policy changes – to improve end-to-end supply chain management and deployment, redeployment, sustainment, and retrograde support to the combatant commands and Services.

Active, completed, and proposed SEPs may be found at the USTRANSCOM IntelShare/Intelink website, “DoD Asset Visibility (AV), Automatic Identification Technology (AIT), and Active RFID Tagging Reports” community (<https://intelshare.intelink.gov>). SEPs posted at this site are considered part of this Strategy document and will be updated as circumstances warrant.

IMPROVEMENT OPPORTUNITIES

The first edition of the *Strategy* along with the included SEPs established a management framework to ensure planned schedules were met or adjusted based on expected, reportable results, and that favorable outcomes and the desired end-state goals and objectives for asset visibility were achieved. Beginning with the second edition, this section introduces additional efforts with the objective of proactively identifying opportunities to improve asset visibility at the Departmental level. The results of these efforts may or may not result in the development of SEPs for implementation.

AUTOMATED ARMORY

The Marine Corps has prototyped an “Automated Armory” tool to increase access controls through biometric, CAC, and user signature in order to track check-in of both serialized and non-serialized weapons and ordnance equipment. The tool increases accountability by maintaining an audit trail of who checked out what and when. It increases efficiency by reducing check-out time of weapons within units, and reduces human error. Additionally, it enables more comprehensive product lifecycle management because it can be used to manage maintenance and equipment availability.

NON-NODAL VISIBILITY

While the DoD has significant visibility of items when they enter and when they leave traditional supply chain nodes--including Aerial Ports, Sea Ports, or Theater Consolidation and Supply Points--there is demand for improved visibility in-between those nodes or from a final node or distribution point to its end destination. There are technologies that exist that can fill the demand including GPS or cellular tags that could be attached to cargo travelling by air, sea, or land. A pilot solution with GPS technology was developed by the Marine Corps and has proven that the capability can provide increased visibility in the “last tactical mile” using Iridium GPS tags for local/end of the supply chain distribution where traditional aRFID infrastructure currently does not exist.

In the Marine Corps example, the pilot was successful in using existing GPS networks and Logistics AIS. Due to this, they were able to field capability quickly and with limited costs. This solution can be expanded to provide commanders and logisticians with more information to make better and quicker decisions. Additionally, these data can be integrated into larger common operating pictures and dashboards to provide COCOMs with a full picture of their AORs without the need for an expensive fixed infrastructure that may not be available during a natural disaster or other catastrophic event.

EDUCATION AND TRAINING

Multiple AISs across the JDDE provide an ITV snapshot or segmented ITV information while IGC provides the comprehensive ITV picture. As the primary information broker for the JDDE and as DoD’s lead proponent for ITV, USTRANSCOM, in coordination with its national partners, is charged with ensuring ITV data are available to Warfighters at all levels.

In an environment with shrinking manning and budgets, the ability to track cargo and assets throughout the DTS is mission essential. It is critical for combatant commanders to be equipped with the knowledge of the location and status of their cargo and passengers now more than ever in order to execute successfully in an agile fashion.

Since frustration over “not having the ability to see my stuff in transit” is a recurring theme throughout the JDDE, education and training are necessary to exploit the wealth of ITV data that are currently available. By following published policy and procedures, using proven execution systems, and following generally accepted business processes, operators can provide an excellent holistic picture of ITV. The current state of ITV is very robust. Policy and procedures exist that outline the requirements to provide the ITV necessary at all levels. ITV data reside in IGC, where authorized users can access the data 24 hours a day. Other execution systems can provide useful ITV information as a byproduct of their operational processes; however, IGC is the DoD single source for ITV distribution information.

There is room for improvement in the various business processes, compliance, and education of users. The AVWG will work to identify where additional emphasis on education and

compliance may be required. Below is a short case study illustrating how the use of policies, processes, and capabilities, already in place, can provide asset visibility in an operational exercise.

Exercise VIBRANT RESPONSE 15 (VR15) Summary

VR15 provided an opportunity to use the newly established Cargo Movement Operations System (CMOS) mobile database to support passenger movements during the exercise. A USTRANSCOM team supported the exercise with the goal of capturing the outbound military air missions and also receiving the Air Force personnel deploying to Camp Atterbury under the commercial ticket program (CTP). The Traffic Management Offices at the various Air Force origin locations processed their surface manifests correctly when CTP travelers left, which allowed the advance manifest to appear in the CMOS mobile database at Camp Atterbury. Once passengers arrived at Camp Atterbury, the manifest was closed out to show arrival at destination.

The USTRANSCOM team also worked with the Army Theater Sustainment Command (TSC) supporting the exercise to collect the names for the military air flights. The TSC provided to the USTRANSCOM team a spreadsheet containing the information about the travelers. The USTRANSCOM team used the information in the spreadsheet to populate the XMAN template (Manifest File in Microsoft Excel format) to import into CMOS the names and associated information of the Army passengers. The process worked as expected. The USTRANSCOM team monitored the missions in the Single Mobility System and released the manifests immediately following aircraft departure. All manifest information was visible in IGC within the timeframes established in the DTR. This was the first time a live database was used in a deployed location in such a short timeframe. The United States Northern Command (USNORTHCOM) normally works with short timelines, so VR15 provided a good test to determine if the new “quick” timeline followed to establish the deployable database is something that can be used in the future to support other operations.

Overall, the exercise validated that there are existing capabilities that can be used to send valuable ITV data to IGC as the system of record. It also showed the need for USNORTHCOM to establish some new business processes and document the new requirements within their ITV support plan. Training will be paramount and will be more likely to succeed if USNORTHCOM components work together to form a joint movement team and train and practice together.

CLASS IV COUNCIL

The Class IV supply category includes fortification materials, obstacle and barrier materials, and construction materials for base development and general engineering. As the DoD Executive Agent (EA) for Class IV Construction/Barrier Materiel, the Director, Defense Logistics Agency has established the Class IV Council to assist in providing guidance and direction to the DoD

Class IV program. The Council has representation from DLA, Military Services, Joint Staff, and USTRANSCOM; and it is chartered with the following functions:

- Coordinate and resolve Class IV issues.
- Promote collaborative requirements forecasting.
- Provide a channel for sharing “best practices” regarding construction/barrier materiel among the Military Services.
- Provide support to assure adequate resources are programmed in support of contingency operations.
- Propose legislative/policy changes affecting the program.
- Foster inter-service cooperation to promote standardization and eliminate redundant processes that impact on other Department of Defense processes/systems.
- Provide management oversight/support for working groups.
- Promote asset visibility.
- Perform other functions as required.

The Council also employs an advisory group and ad hoc working groups. The advisory group is responsible for coordinating Council efforts, being the conduit between working groups and the Council, and recommending Council meeting dates and agenda. Working groups are responsible for researching and resolving issues brought before the Council. The Council, advisory group, and/or working groups coordinate with the DoD Asset Visibility Working Group (AVWG) for activities that improve visibility and control of all Class IV assets until they are consumed or disposed of. This coordination ensures Class IV efforts are aligned and synchronized with the Department’s Strategy for Improving DoD Asset Visibility.

CAMPAIGN PLAN FOR GLOBAL DISTRIBUTION (CP-GD 9033) – THEATER ITV

USTRANSCOM, as the DPO, is responsible for implementing a robust and efficient capability to track materiel within the DoD, including multimodal movements. Visibility is a factor and is an integral part of CP-GD 9033 because distribution-related data are critical for making timely decisions. CP-GD 9033 strives to enable resource-informed decisions and provide an agile, scalable and resilient distribution network through the synchronization of global distribution planning. USTRANSCOM has made vast strides in capturing visibility in the supplier/vendor to port, and port of embarkation (POE) to port of debarkation (POD) segments. However, USTRANSCOM must continue to work toward maturing and synchronizing the visibility capabilities (business systems and processes as they relate to and interact with IGC) in the theater segment (POD to point-of-need). Concerning CP-GD 9033, it is the theater segment of asset visibility where resources, solutions, and efficiencies should be applied.

To this end, USTRANSCOM team has included “Theater ITV” as a main discussion point for the geographic combatant command (GCC) ITV Outreach Program. The outreach program is an initiative to provide ITV-related support/information to the GCCs and strengthen relationships

among the ITV community. It is designed to provide a one-stop shop for all ITV-related issues with an end goal of aligning distribution ITV processes, policies, and systems. The Theater ITV main topics of discussion are: Theater ITV Plans and GCC ITV (continuity among the Distribution Community of Interest), asset visibility and known gaps, and IGC as the system of record for ITV. The continued focus for theater ITV this year is on synchronizing GCC's TDPs and ITV support plans. USTRANSCOM has provided all GCCs with an updated version of the ITV Issuance Template, known as the Geographic Combatant Command ITV Issuance Template. This template is used to guide each GCC's efforts in drafting and standardizing their respective ITV support plans and executing CP-GD 9033 TDP synchronization. (*SEP – DCC-04 Geographic Combatant Command ITV Issuance Template*)

IMPROVEMENT PLAN

To achieve the defined goals and objectives stated in this *Strategy*, DoD will improve the capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies. It will also include the capability to act upon that information to improve overall performance of the Department's logistics practices.

Finally, this *Strategy* outlines asset visibility capabilities and the benefits of taking the various data sets from across the logistics community to provide usable data down to the end user. Through use of AIT media, information technology enablers, and AISs, asset visibility helps the end user better allocate lift resources, project manpower decisions, maintain right size inventories, and reduce customer wait time. Actionable information available at all times about the location, quantity, and state of materiel assets will optimize customer confidence and minimize unnecessary duplicate orders from customers who are unable to determine shipment status.

These plans build on the AIT infrastructure, business process, and system improvement efforts currently ongoing and implemented to date.

Each DoD Component has diverse requirements but enjoys a common focus – successful supply chain support of deployment, redeployment, sustainment, and retrograde requirements. Cohesively executing this *Strategy* in an integrated manner will require the DoD Components to perform their responsibilities, in their respective locations, with their respective systems, and using their respective processes, while recognizing the interrelationships, key touch-points, and linkages among all capabilities. This will ensure logistics decision makers are provided common information concerning the identification, location, quantity, condition, movement, and status of DoD assets throughout their life cycle from source of supply to operational customers and return, as well as during repair and disposition.

As additional SEPs are identified and submitted, they will be made available across DoD via the IntelShare/Intelink website and included in future updates to this document.

IMPROVEMENT CATEGORIES AND SUPPORTING EXECUTION PLANS

In developing this *Strategy*, DoD focused on the major categories of effort required to provide readily available, actionable information about the location, quantity, and state of materiel assets, thus contributing to the successful achievement of the overall goals and objectives of this *Strategy*. These categories are Supply Chain Execution (SCE), Data Capture and Collection (DCC), Data Standards and Integration (DSI), and Data Analysis (DA). Table 2 illustrates the relationship between the improvement categories and the objectives of this *Strategy*.

Improvement Category	Objective
Supply Chain Execution (SCE)	<p>Objective 1: Increase efficiencies such as delivery accuracy and cycle times.</p> <p>Objective 2: Improve customer service by changing or adjusting supply chain or asset movement processes.</p>
Data Capture and Collection (DCC)	<p>Objective 3: Increase the accuracy, reliability, and timeliness of data, and the ability to identify and track assets by using common standards-based and interoperable AIT.</p>
Data Standards and Integration (DSI)	<p>Objective 4: Increase interoperability and visibility of asset data with the use of common standards-based AIS infrastructure and enterprise-wide exchange of standard asset and supply chain event data.</p>
Data Analysis (DA)	<p>Objective 5: Improve trend and predictive analysis, enterprise performance metrics, AV related policy, and logistics decision making through the use of actionable asset visibility information.</p>

TABLE 2 – SEP IMPROVEMENT CATEGORIES

The following is a high-level summary of each SEP by improvement category and their alignment to the *Strategy* goals and objectives along with high-level costs by category. Additionally, for each SEP, measures of performance and measures of effectiveness have been identified by the OPR. These measures enable the AVWG and SCESC to track progress toward the implementation of an improvement capability (measures of performance) and to monitor the extent to which the capability improved asset visibility in support of this *Strategy*'s goals and objectives (measures of effectiveness). Measures of effectiveness are captured and reviewed prior to a SEP being closed.

The actual SEP documents, both open and completed, can be found at the IntelShare/Intelinkwebsite, “DoD Asset Visibility (AV), Automatic Identification Technology (AIT), and Active RFID Tagging Reports” community (<https://intelshare.intelink.gov>).

Supply Chain Execution (SCE)

Supply chain execution improvements may result in operational deployment/redeployment and materiel distribution efficiencies, such as better delivery accuracy and/or cycle times and optimized performance with better customer service results.

Strategy Goals	Strategy Objectives	Supporting Execution Plans	SEP Owner
<p>Goal 1 Improve visibility into customer materiel requirements and available resources</p>	<p>Objective 1 Increase efficiencies such as delivery accuracy and/or cycle times.</p> <p>Objective 2 Provide better customer service by changing or adjusting supply chain or asset movement processes.</p>	<p>SCE 8. Nonnodal ITV – Improve combat effectiveness with near-real-time visibility of sustainment cargo during tactical-level battlefield distribution process.</p>	USMC
<p>Goal 2 Enhance visibility of assets in transit, in storage, in process, in theater</p>		<p>SCE 9. Enhanced Yard Management – Improve inventory accountability and equipment visibility with automation of current manual processes and data interface with existing inventory management and distribution systems.</p>	USMC
<p>Goal 3 Improve efficiency of physical inventories, receipt processing, cargo tracking, unit moves</p>		<p>SCE 12. pRFID Capability on Littoral Combat Ship (LCS) – Improve on logistics and related inventory management accountability.</p>	Navy
<p>Goal 4 Increase inventory existence and completeness</p>		<p>SCE 14. Air Force Classified Processing/Storage Areas (CPA/CSA) – Air Force policy does not provide standard and systemic process for PED evaluation and approval.</p>	Air Force
		<p>SCE 15. aRFID Review and Way Ahead – Review of policy and practices to determine what changes, if any, are required for active RFID.</p>	Enterprise

FIGURE 7 – ALIGNMENT OF SCE SEPS TO GOALS AND OBJECTIVES

SCE Summary of Cost and Metrics

SCE SEP	Cost by Category	Measures of Performance	Measures of Effectiveness
SCE-08 USMC Nonnodal ITV	<ul style="list-style-type: none"> Manpower \$400K Materiel \$100K Sustainment \$Fair Share 	<ul style="list-style-type: none"> Fielding – September 2015 Continue monitoring 	<ul style="list-style-type: none"> Reduced cost of service and equipment Near-real-time visibility of materiel in transit Increased accuracy of order ship time metrics
SCE-09 USMC Enhanced Yard Management	<ul style="list-style-type: none"> Manpower \$0 Materiel \$2.075M Sustainment \$1.33M 	<ul style="list-style-type: none"> Phase II – All wholesale storage operations – FY15 Phase III – Deployable to austere environments - FY15-16 Phase IV – Marine Corps enterprise – FY16 Continue monitoring 	<ul style="list-style-type: none"> Increased throughput velocity (50-75%) Improved inventory accuracy and accountability Reduced manual input transactions Reduced search time for assets
SCE-12 Navy Littoral Combat Ship (LCS) pRFID Capability	<ul style="list-style-type: none"> Manpower \$2.1M Materiel \$35K Sustainment \$1.1M Other \$86K 	<ul style="list-style-type: none"> Project on-hold by OPR pending further review 	<ul style="list-style-type: none"> Inventory accuracy, 95% Man-hours required to conduct inventory, 15 minutes Human factors, 50% reduction in inventory workload
SCE-14 Air Force Classified Processing/ Storage Areas (Secure Areas)	<ul style="list-style-type: none"> Manpower \$250K Other \$5K 	<ul style="list-style-type: none"> Implement AF-wide CPA process 	<ul style="list-style-type: none"> Standardized guidance for using PEDs in CSAs across the Air Force
SCE-15 aRFID Review and Way Ahead	<ul style="list-style-type: none"> Effort conducted organically 	<ul style="list-style-type: none"> Conduct necessary analysis Make recommendations, garner support - Q4FY2017 Conduct proof of principles/test, if needed – Q1FY2018 Implement changes, if any – Q2FY2018 	<ul style="list-style-type: none"> Analysis completed Recommendations presented Follow-on efforts completed, if any

TABLE 3 – SCE SEP SUMMARY

DATA CAPTURE AND COLLECTION (DCC)

Deploy technology to automatically capture data about an item or person thereby enhancing the ability to identify, track, document, and control assets. Automatic data capture increases the accuracy, reliability, and timeliness of data collection with the least amount of human intervention.

Strategy Goals	Strategy Objectives	Supporting Execution Plans	SEP Owner
<p>Goal 1 Improve visibility into customer materiel requirements and available resources</p> <p>Goal 2 Enhance visibility of assets in transit, in storage, in process, in theater</p> <p>Goal 3 Improve efficiency of physical inventories, receipt processing, cargo tracking, unit moves</p> <p>Goal 4 Increase inventory existence and completeness</p> <p>Goal 5 Enable an integrated accessible authoritative data set</p> <p>Goal 7 Deploy AIT to capture accurate, reliable, and timely data</p>	<p>Objective 2 Increase the accuracy, reliability, and timeliness of data, and the ability to identify and track assets by using common standards-based and interoperable AIT.</p>	<p>DCC 3. Transportation Tracking Number (TTN) – Enable linkage and visibility of force packages without compromising OPSEC.</p> <p>DCC 12. aRFID Intrusion Detection Transponder Test – Confirm viability of the Intrusion Detection Transponder with Global Positioning System (IDT-GPS) in an operational environment.</p> <p>DCC 13. Evaluation of HERO Testing Requirements – Standardize Air Force guidance for the use of PEDs. Enable use of PEDs with zero safe standoff distance for AIT</p> <p>DCC 14. Air Force Supply AIT Pilot – Improve data quality, accuracy, and timeliness.</p>	<p>TRANSCOM</p> <p>TRANSCOM</p> <p>Air Force</p> <p>Air Force</p>

FIGURE 8 – ALIGNMENT OF SCE SEPs TO GOALS AND OBJECTIVES

DCC Summary of Cost and Metrics

DCC SEP	Cost by Category	Measures of Performance	Measures of Effectiveness
DCC-03 USTC Transportation Tracking Number	<ul style="list-style-type: none"> Manpower \$0 Materiel \$14.4M Sustainment \$0 	<ul style="list-style-type: none"> Completion of TCAIMS II modification – September 30, 2016 CLOSURE pending 	<ul style="list-style-type: none"> Establish link between classified force requirements and unclassified transportation data without compromising OPSEC
DCC-12 USTC aRFID Intrusion Detection Transponder Operational Test	<ul style="list-style-type: none"> Manpower \$0 Materiel \$13K Sustainment \$0 Other \$23K 	<ul style="list-style-type: none"> Determine organizations involved with test – December 31, 2015 Finalize test plan – January 31, 2016 Conduct operational test - February 2016 – April 2016 Issue report – May 31, 2016 CLOSURE pending 	<ul style="list-style-type: none"> Transponder and hand-held device performance in accordance with RFID IV contract Timeliness of transactions to RF-ITV and IGC Performance in operational setting
DCC-13 Air Force Evaluation of HERO Testing Requirements	<ul style="list-style-type: none"> Manpower \$5K Materiel \$5K 	<ul style="list-style-type: none"> Obtain AATC validation of test results – October 2016 Continue monitoring 	<ul style="list-style-type: none"> Standardized USAF guidance for the use of PEDs Use of PEDs with zero safe standoff distance for AIT
DCC-14 Air Force Supply AIT Pilot	<ul style="list-style-type: none"> Manpower \$250K Materiel \$500K Sustainment funded through standard tech refresh process Other \$50k 	<ul style="list-style-type: none"> Test results and formal report for coordination – September 2016 Final Report – October 2016 Memo April 2017 	<ul style="list-style-type: none"> Improve data quality, accuracy, and timeliness

TABLE 4 – DCC SEP SUMMARY

DATA STANDARDS AND INTEGRATION (DSI)

Using a common, standards-based AIS infrastructure, combined with enterprise-wide exchange of standardized asset and supply chain event data between diverse systems, regardless of hardware or software platform, will enable reduced customization, increased interoperability, and visibility.

Strategy Goals	Strategy Objectives	Supporting Execution Plans	SEP Owner
<p>Goal 1 Improve visibility into customer materiel requirements and available resources</p> <p>Goal 2 Enhance visibility of assets in transit, in storage, in process, in theater</p> <p>Goal 3 Improve efficiency of physical inventories, receipt processing, cargo tracking, unit moves</p> <p>Goal 4 Increase inventory existence and completeness</p> <p>Goal 5 Enable an integrated accessible authoritative data set</p> <p>Goal 6 Implement AIS strategies for improved AV, data integration, interoperability</p>	<p>Objective 3 Increase interoperability and visibility of asset data with the use of common standards-based AIS infrastructure and enterprise-wide exchange of standard asset and supply chain event data.</p>	<p>DSI 5. Military Service Air Manifesting Capability – Enables consistent transmission of accurate, timely, and complete automated passenger and cargo air manifest information on USTRANSCOM-owned or controlled airlift missions departing from non-common user terminals.</p> <p>DSI 6. Geolocation Reference Data Improvements – Eliminates the need for programs/projects to spend time and money developing and maintaining one-off solutions translating and/or cleansing data from the enterprise reference data repository.</p> <p>DSI 7. Permanent pRFID Standardization – Institute standard/mandatory data elements to be entered in the ‘user memory’ of a pRFID tag that is permanently affixed to equipment.</p>	<p>TRANSCOM</p> <p>Services, DLA</p> <p>Enterprise</p>

FIGURE 9 – ALIGNMENT OF DSI SEPs TO GOALS AND OBJECTIVES

DSI Summary of Cost and Metrics

DSI SEP	Cost by Category	Measures of Performance	Measures of Effectiveness
DSI-05 USTC Military Service Air Manifesting Capability	<ul style="list-style-type: none"> Total cost \$4.4M 	<ul style="list-style-type: none"> Pending decision from Army – Date TBD 	<ul style="list-style-type: none"> Service COAs provide necessary level of manifest data to IGC. This is a “Pass-fail” determination
DSI-06 USTC Geolocation Reference Data Improvements	<ul style="list-style-type: none"> The only cost is in manpower - \$915K 	<ul style="list-style-type: none"> IGC develop capability for cross-referencing existing location data with potential enterprise consumption – FY16/17 Propose standardized location identifier data sets – FY17/18 	<ul style="list-style-type: none"> Percentage/number of unknown locations and failed transactions as a result Number of misspelled locations passed via EDI Percentage/number of locations identifier types used by transaction
DSI-07 Passive RFID Data Standardization	<ul style="list-style-type: none"> Standard developed organically 	<ul style="list-style-type: none"> Incorporate change in next release of MIL-STD 130. 	<ul style="list-style-type: none"> Change incorporated into the MIL-STD

TABLE 5 – DSI SEP SUMMARY

DATA ANALYSIS (DA)

Using actionable asset visibility information will improve trend and predictive analysis, enterprise performance metrics, and logistics decision-making.

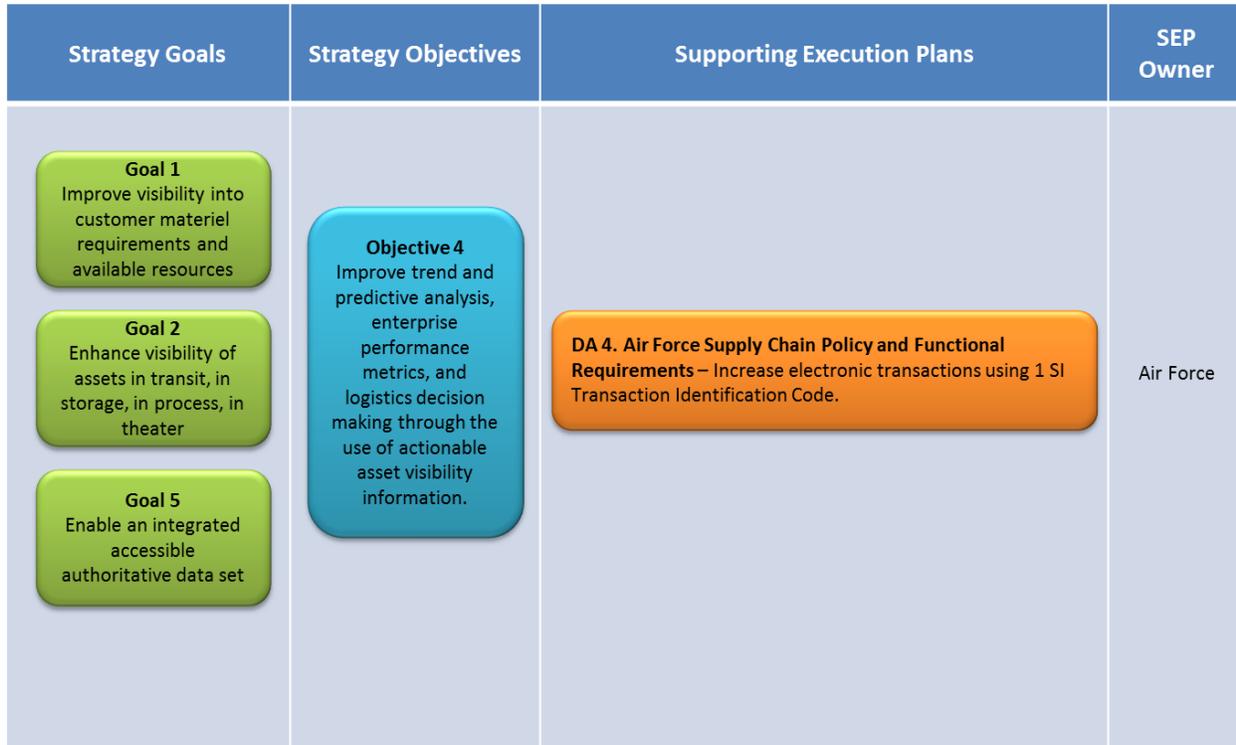


FIGURE 10 – ALIGNMENT OF DA SEPs TO GOALS AND OBJECTIVES

DA Summary of Cost and Metrics

DA SEP	Cost by Category	Measures of Performance	Measures of Effectiveness
DA-04 Air Force Supply Chain Policy and Functional Requirements	<ul style="list-style-type: none"> Effort is accomplished with organic capability 	<ul style="list-style-type: none"> Change policy regarding the use of AIT in Air Force Supply Guidance and document functional requirements for correct A6 governance structure 	<ul style="list-style-type: none"> Publish policy and add to Management Internal Control Toolset to ensure Air Force-wide compliance

TABLE 6 – DA SEP SUMMARY

APPENDIX A – REFERENCES

- a. *Defense Federal Acquisition Regulation Supplement (DFARS) Case 2010-D014*
- b. *Automatic Identification Technology for Supply and Transportation Processes*, 26 September 2014
- c. *DoD Logistics Strategic Plan*, June 2010
- d. DLM 4000.25, *Defense Logistics Management Standards (DLMS)*, 5 June 2012
- e. DoDM 4140.01, *DoD Supply Chain Materiel Management Procedures*
- f. DTR 4500.9-R, *Defense Transportation Regulation*
- g. DoDD 5158.04, United States Transportation Command (USTRANSCOM), 27 July 2007
- h. Department of Defense Instruction (DoDI) 5158.06, Distribution Process Owner (DPO), 11 September 2007
- i. JP 4-0, *Joint Logistics*
- j. JP 3-35, *Deployment and Redeployment Operations*
- k. JP 4-09, *Distribution Operations*, 5 February 2010
- l. Passive RFID DFARS Clause 252.211-7006
- m. Secretary of Defense Memorandum, “Designation of U.S. Transportation Command (USTRANSCOM) as DoD Lead Proponent for In-Transit Visibility (ITV),” 17 August 2011
- n. Under Secretary of Defense Acquisition, Technology, and Logistics (USD(AT&L)) Memorandum, “Radio Frequency Identification (RFID) Policy,” 30 July 2004

APPENDIX B – GAO HIGH RISK SERIES AND NATIONAL DEFENSE AUTHORIZATION ACT (NDAA) REQUIREMENTS

GAO High Risk Series

The GAO High Risk Series has reviewed DoD Supply Chain Management and made observations and recommendations regarding asset visibility and materiel distribution which are addressed in this *Strategy for Improving DoD Asset Visibility*. This document specifically addresses the lack of a “detailed corrective action plan” and a “coordinated and comprehensive management approach” to oversee Department-wide efforts, one that is linked to the DoD Logistics Strategic Plan, to guide and integrate improvement efforts.

Likewise, by addressing the DoD supply chain improvement opportunities in asset visibility (asset tracking and ITV) with specific milestones and measures of success, this Strategy document provides the “tool,” as recommended in the GAO High Risk Series, for managing and validating the effectiveness of supporting plans in demonstrating progress and achieving measureable outcomes.

References:

- DoD’s High-Risk Areas: Challenges Remain to Achieving and Demonstrating Progress in Supply Chain Management, Statement of William M. Solis, Director Defense Capabilities Management, July 2006 (GAO-06-983T)
- DoD’s High-Risk Areas: Progress Made Implementing Supply Chain Management Recommendations, but Full Extent of Improvement Unknown, January 2007 (GAO-07-234)
- DoD’s High-Risk Areas: Efforts to Improve Supply Chain Can Be Enhanced by Linkage to Outcomes, Progress in Transforming Business Operations, and Reexamination of Logistics Governance and Strategy, Statement of William M. Solis, Director Defense Capabilities Management, July 2007 (GAO-07-1064T)
- DoD Plan for Improvement in the GAO High Risk Area of Supply Chain Management, with a Focus on Inventory Management and Distribution, September 2009
- DoD’s High-Risk Areas: Observations on DoD’s Progress and Challenges in Strategic Planning for Supply Chain Management, July 2010 (GAO-10-929T)
- DoD’s High-Risk Areas: DoD Supply Chain Management, February 2011 (GAO-11-278)
- DoD’s High Risk Areas: DoD Supply Chain Management, February 2013 (GAO-13-283)
- DoD’s High Risk Areas: DoD Supply Chain Management, February 2015 (GAO-15-290)
- DoD’s High Risk Areas: DoD Supply Chain Management, February 2017 (GAO-17-317)

Section 326 of the National Defense Authorization Act (NDAA) for Fiscal Year 2014

Section 326 of the NDAA for Fiscal Year 2014 established a formal requirement for the DoD to submit a comprehensive strategy for improving asset tracking and in-transit visibility across the Department, which requires that:

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Defense shall submit to the congressional defense committees a comprehensive strategy for improving asset tracking and in-transit visibility across the Department of Defense, together with the plans of the military departments for implementing the strategy.

(2) ELEMENTS.—The strategy and implementation plans required under paragraph (1) shall include the following elements:

(A) The overarching goals and objectives desired from implementation of the strategy.

(B) A description of steps to achieve those goals and objectives, as well as milestones and performance measures to gauge results.

(C) An estimate of the costs associated with executing the plan, and the sources and types of resources and investments, including skills, technology, human capital, information, and other resources, required to meet the goals and objectives.

(D) A description of roles and responsibilities for managing and overseeing the implementation of the strategy, including the role of program managers, and the establishment of mechanisms for multiple stakeholders to coordinate their efforts throughout implementation and make necessary adjustments to the strategy based on performance.

(E) A description of key factors external to the Department of Defense and beyond its control that could significantly affect the achievement of the long-term goals contained in the strategy.

(F) A detailed description of asset marking requirements and how automated information and data capture technologies could improve readiness, cost effectiveness, and performance.

(G) A defined list of all categories of items that program managers are required to identify for the purposes of asset marking.

(H) A description of steps to improve asset tracking and in-transit visibility for classified programs.

(I) Steps to be undertaken to facilitate collaboration with industry designed to capture best practices, lessons learned, and any relevant technical matters.

(J) A description of how improved asset tracking and in-transit visibility could enhance audit readiness, reduce counterfeit risk, enhance logistical processes, and otherwise benefit the Department of Defense.

(K) An operational security assessment designed to ensure that all Department of Defense assets are appropriately protected during the execution of the strategy and implementation plan.

APPENDIX C – SUPPORTING EXECUTION PLAN TEMPLATE

This SEP template, with filled-in samples, is available on IntelShare/Intelink website, “DoD Asset Visibility (AV), Automatic Identification Technology (AIT), and Active RFID Tagging Reports” community (<https://intelshare.intelink.gov>). Templates and samples on that site may be saved to your computer for use in completing the SEP.

	CONTENT TEMPLATE Change Banners to your organization	UNCLASSIFIED SEP Number and Title (Use Two Lines if Necessary)	CONTENT TEMPLATE																																				
																																							
<p>Description/Objectives: <i>Describe the project and the primary objective(s) the organization wants to achieve upon implementation, as it relates to improving asset tracking and ITV. Concisely describe the objectives in the context of achieving an improved or innovative process improvement, better logistics decision-making, and/or reducing or eliminating a supply chain vulnerability or risk. If this initiative is based on, or benefits from, previous initiative or AIT/ITV/AV initiatives, explain in the last bullet in this quadrant.</i></p>	<p>Resources/Funding – As of DD MMM YY <i>Provide current and future FY implementation costs by FY, beginning with the current FY (CFY), i.e., the FY in which the SEP is submitted. Divide costs into at least the categories of manpower, materiel, and sustainment. The following format may be useful:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="text-align: left;">Category/FY</th> <th>CFY</th> <th>FYxx</th> <th>FYyy</th> <th>FYzz</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Manpower</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">Materiel</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">Sustainment</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">Other (as req)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">Total</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Category/FY	CFY	FYxx	FYyy	FYzz	Total	Manpower						Materiel						Sustainment						Other (as req)						Total					
Category/FY	CFY	FYxx	FYyy	FYzz	Total																																		
Manpower																																							
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Sustainment																																							
Other (as req)																																							
Total																																							
<p>Action Plan/Milestones: <i>Provide a plan of action and milestones that describe the target milestones for each activity and the lead accountable organizational element and any supporting organizational element. This section may be a schedule chart (with milestones) or table.</i></p>	<p>Results/ROI: <i>Identify actual outcomes.</i></p>																																						
Status: New, Update, or Closed as of DD MMM YY (version 11 2017)		UNCLASSIFIED	Page 1 of 8	Together, we deliver.																																			



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Performance Measures:

Identify expected outcomes for the initiative and how the lead organizational element will assess the successful attainment of the measures of success.

Approval authority should ensure the quantifiable measures are clear, measurable, objective, reliable, include baseline and trend data where applicable, and are linked to organizations goals/objectives.

Key External Factors:

List factors external to the organization and beyond its control that could significantly affect the achievement of the SEP objectives.

SEP Meta data

- Sponsor:
- POC:
 - Name
 - E-mail
 - Phone
- SEP Origination Date: DD MMM YY
- Status: *[New, Update or Closed]*
- Status as of: DD MMM YY

Approval Authority: *State who, by position, is the approval authority for starting and completing this initiative.*



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- Complete this slide after the initiative has been completed or cancelled. It serves as an, after action report (AAR), to provide information on what happened as a result of the effort. Use additional slides if required. Complete all sections state below. If there is no information for a section, indicate the reasons why. **Do not leave any sections blank.**

Summary of Outcomes	Short concise statements of what happened. For initiatives that are cancelled, document the reasons for the cancellation.
Objectives Met/Problem Solved	State the objectives that were met/not met. If not met, provide reasons why.
Measure of Success	State the results of the performance measures used to determine success/failure of the initiative. Measures can be quantitative or qualitative. If measures were not met, provide a high-level summary of why.
Benefits Realized	These can be qualitative or quantitative.
Lessons Learned	Document any lessons learned, positive or negative.
Other Uses	Is this initiative applicable to other DoD AV activities?
Leadership	Provide the approval authority, by position, for the completion or cancellation of this initiative.

APPENDIX D – ABBREVIATIONS

Abbreviations from Text

Abbreviation	Term
AIS	Automated Information System
AIT	Automatic Identification Technology
ANSI	American National Standards Institute
aRFID	Active Radio Frequency Identification
ASD(L&MR)	Assistant Secretary of Defense for Logistics and Materiel Readiness
AVWG	Asset Visibility Working Group
BOL	Bill of Lading
CCMD	Combatant Command
CMOS	Cargo Movement Operations System
CP-GD 9033	Campaign Plan for Global Distribution 9033
CTP	Commercial Ticket Program
DA	Data Analysis
DASD(SCI)	Deputy Assistant Secretary of Defense for Supply Chain Integration
DCC	Data Capture and Collection
DFARS	Defense Federal Acquisition Regulation Supplement
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DLM	Defense Logistics Manual
DLMS	Defense Logistics Management Standards
DMDC	Defense Manpower Data Center
DODAAC	Department of Defense Activity Address Code
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DPO	Distribution Process Owner
DSI	Data Standards and Integration
DTEB	Defense Transportation Electronic Business
DTR	Defense Transportation Regulation
DTS	Defense Transportation System
EDI	Electronic Data Interchange
EEBP	Enterprise External Business Portal
EEV	Enhanced Enterprise Visibility
FY	Fiscal Year
GAO	Government Accountability Office
GCC	Geographic Combatant Command
GCSS	Global Combat Support System
GCSS-J	Global Combat Support System - Joint

GEOLOC	Geographic Location
GSA	General Services Administration
GSORTS	Global Status of Resources and Training System
GTN	Global Transportation Network
ICAO	International Civil Aviation Organization
IDE	Integrated Data Environment
IGC	Integrated Data Environment (IDE)/Global Transportation Network (GTN)) Convergence
IMP	Integrated Master Plan
ISO/IEC	International Organization for Standardization and the International Electrotechnical Commission
ITV	In-transit Visibility
JDDE	Joint Deployment and Distribution Enterprise
JOCG	Joint Ordnance Commanders' Group
JOPEs	Joint Operation Planning and Execution System
JP	Joint Publication
JROC	Joint Requirements Oversight Council
JSJ4	Joint Staff J4
MIDB	Modernized Integrated Database
MILAIR	Military Aircraft
MILSEA	Military Sealift
MIL-STD	Military Standard
MILSTRAP	Military Standard Transaction Reporting and Accountability Procedures
MILSTRIP	Military Standard Requisitioning and Issue Procedures
NATO	North Atlantic Treaty Organization
NDAA	National Defense Authorization Act
NLAC	National Level Ammunition Capability
OCR	Office of Collateral Responsibility
OPR	Office of Primary Responsibility
POD	Port of Debarkation
POE	Port of Embarkation
PRC	Process Review Committee
pRFID	Passive Radio Frequency Identification
RDT&E	Research Development Test and Evaluation
RFID	Radio Frequency Identification
RF ITV	RFID ITV Tracking Portal
ROI	Return on Investment
RPAD	Real Property Assets Database
SCE	Supply Chain Execution
SCESC	Supply Chain Executive Steering Committee
SEP	Supporting Execution Plan
SIM	Serialized Item Management

STS	Satellite Tracking System
TCMD	Transportation Control and Movement Document
TCN	Transportation Control Number
TDC	Theater Distribution Center
TLDST	Theater Logistics Decision Support
TSC	Theater Sustainment Command
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology and Logistics
USAFRICOM	United States Africa Command
USNORTHCOM	United States Northern Command
USTRANSCOM	United States Transportation Command
VR15	Exercise VIBRANT RESPONSE 2015
WebREPOL	Web-based Reporting Emergency Petroleum, Oils, and Lubricants

Abbreviations from Figure 3

Abbreviation	Term
AFEMS	Air Force Equipment Management System
AF NWRM PIC	Air Force Nuclear Weapons-Related Materiel Positive Inventory Control
AMC DAWS	Air Mobility Command Data And Web Services
AMS-TAC	Automated Manifest System – Tactical
AT21	Agile Transportation for the 21st Century
ARI	Alaskan RFID Initiative
BCS3	Battle Command Sustainment Support System
BCS3-NM	Battle Command Sustainment Support System’s Node-Management
BSM-E	Business System Modernization-Energy
CAS	Combat Ammunition System
CBP	Customs and Border Protection
CDDOC	CENTCOM Deployment Distribution Operations Center
CEDI	Commercial Electronic Data Interchange
CMOS	Cargo Movement Operations System
COMPASS	Computerized Movement Planning and Status System
CYOC	Cyber Operations Center
DAAS	Defense Automatic Addressing System
DODAAC	Department of Defense Activity Address Code
DSS	Distribution Standard System
DTSREF	DLA Transaction Services Reference
DTTS/IRRIS	Defense Transportation Tracking System/Intelligent Road/Rail Information System
EBS	Enterprise Business System
EFTS	Enhanced Freight Tracking System

ES-S	Enterprise Solution – Supply
EX-GDSS	Exercise Global Decision Support System
EX-GCSS-J	Exercise Global Combat Support System – Joint
EX-JDLM	Exercise Joint Deployment and Logistics Model
EX-JFAST	Exercise Joint Flow and Analysis System for Transportation
EX-JFP	Exercise Joint Force Protection
EX-SMS	Exercise Single Mobility System
EXMIS	Expeditionary Management Information System
FACTS	Financial and Air Clearance Transportation System
FACTS-TET	Financial and Air Clearance - Transportation Exploitation Tool
FIMARS	Force Inventory Management Analysis Reporting System
FLIS	Federal Logistics Information System
GATES (Air)	Global Air Transportation Execution System (Air)
GATES (Water)	Global Air Transportation Execution System (Water)
GCSS-AF	Global Combat Support System-Air Force
GCSS-J	Global Combat Support System-Joint
GCSS-MC	Global Combat Support System-Marine Corps
GCSS-J COP	Global Combat Support System-Joint Common Operating Picture
GDSS	Global Decision Support System
GFM	Global Freight Management System
GSA	General Services Administration
IBS	Integrated Booking System
IBS-CSS	Integrated Booking System-Commercial Sealift Solution
ILSS	Integrated Logistics System – Supply
IRRIS	Intelligent Road/Rail Information Server
ITV	In-transit Visibility
JACKSRW	Joint Acquisition Chemical Biological Radiological Nuclear
JFP	Joint Force Protection
JLEDS QRT	Joint Logistics Enterprise Data Sharing Quick Reaction Test
JMAR	Joint Medical Asset Repository
JOPEs	Joint Operation Planning and Execution System
LIW	Logistics Information Warehouse
MCPIC	Marine Corps Prepositioning Information Center
MCSCS	Marine Corps Stock Control System
MDSS II	Marine Air-Ground Task Force Deployment Support System, Version 2
MEIS	Mobility Enterprise Information Services
Navy LOGCOP	Navy Logistics Common Operating Picture
NESSS	Navy Electronics Supply Support System
OIS	Ordnance Information System
OTS	One Touch Supply
RBI	Reutilization Business Integration
RF ITV	RFID ITV Server

SCIP	Security Cooperation Information Portal
SMS	Single Mobility System
SOMA	Standard Operation and Maintenance Army System
TACC	Tanker Airlift Control Center
TCAIMS II	Transportation Coordinator's Automated Information for Movement System II
TMAS/BIRDTRACK	Transportation Metrics Analysis System/COMPACFLT Requisition and Asset Visibility Tool (BIRDTRACK)
TRAC2ES	TRANSCOM Regulating and Command and Control Evacuation System
TRDM	TRANSCOM Reference Data Management

Abbreviations from Figure 4

Abbreviation	Term
AMCOM	Aviation and Missile Command
CAPULDI	Conventional Ammunition Reporting System
DRRS	Defense Readiness Reporting System
DTS	Defense Transportation System
DTTS	Defense Transportation Tracking System
FEDLOG	Federal Logistics Catalog
FMS WAMS	Foreign Military Sales Web Ammunition Module System
GATES	Global Air Transportation Execution System
GCSS-J	Global Command and Control System-Joint
IGC	Integrated Data Environment (IDE)/Global Transportation Network (GTN) Convergence
LMP	Logistics Modernization Program
MHP	Munitions History Program
MTMS	Munitions Transportation Management System
Navy OIS	Navy Ordnance Information System
NLAC	National Level Ammunition Capability
PBUSE	Property Book Unit Supply Enhanced
PRODSTAT	Production Status System
RF-ITV	Radio Frequency – In-Transit Visibility Server
SAAS-ASP	Standard Army Ammunition System – Ammunition Supply Point
SAAS-MMC	Standard Army Ammunition System – Materiel Management Center
TAMIS	Total Ammunition Management Information System
USAF CAS	Air Force Combat Ammunition System
USMC OIS-MC	Ordnance Information System – Marine Corps
WARS	Worldwide Ammunition Reporting System