



INTRODUCTION TO PARTS MANAGEMENT

**Parts Standardization & Management
Committee meeting**

Boeing - Mesa

November 6, 2013

LMI



COURSE INFORMATION



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THE “PARTS” IN PARTS MANAGEMENT



The term “part” could denote different hardware levels depending on how it is used.

A part is “one or more pieces joined together, which are not normally subject to disassembly without destruction or impairment of their intended design use.”

Several examples of these part types include:



Microcircuits
Connectors
Resistors
Capacitors
Fasteners

Bearings
Valves
Screws
Rivets





OVERVIEW



Today's weapon systems and equipment acquisition environment are characterized by

- Rapidly changing designs
- Increased use of commercial part types
- Offshore manufacturing of parts
- Diminishing manufacturing sources and material shortages (DMSMS)
- Counterfeit parts detected in the supply chain
- Use of lead-free electronic parts



OVERVIEW (Cont'd)



These factors have increased risk for Department of Defense (DoD) weapon systems and equipment acquisition contracts.

The need to have an effective Parts Management Program is greater than ever before.

The Parts Management Program is an integral part of the acquisition process for design, development, and support of weapon systems and equipment.



WHY IS PARTS MANAGEMENT IMPORTANT?



The tasks of selecting, specifying and ensuring proper design applications, as well as managing parts used in complex systems, are major engineering tasks.

Parts are the building blocks from which systems are created and greatly impact hardware dependability and readiness. Since the reliability, maintainability, and supportability of the end item are dependent upon these building blocks, the importance of selecting and applying the most effective parts management program cannot be overemphasized.



WHY IS PARTS MANAGEMENT IMPORTANT? (Cont'd)



Parts management takes on even greater importance in light of the current defense acquisition environment.

In recent DoD acquisition direction, called “Better Buying Power 2.0,” the top two initiatives are focused on cost efficiency:

- ***achieve affordable programs***
- ***control costs throughout the product lifecycle***



» ***Better Buying Power 2.0***
» ***Issued April 24, 2013***



WHAT IS PARTS MANAGEMENT? (Cont'd)



Parts management is an integrated effort to streamline the selection of preferred or commonly used parts during the design of weapon systems and equipment under an overarching Systems Engineering framework.

This process determines the optimum parts while considering all the factors that may affect program outcomes.



WHAT IS PARTS MANAGEMENT? (Cont'd)



MIL-STD-3018 defines parts management as:

“...the practice of considering the application, standardization, technology (new and aging), system reliability, maintainability, supportability, and cost in selecting parts and addressing availability, logistics support, DMSMS, and legacy issues in supporting them throughout the life of the systems.”



WHAT IS PARTS MANAGEMENT? (Cont'd)



Effective parts management will provide the ultimate user, the warfighter, returns that can be measured through the desired DoD performance-based criteria of:

- *Operational availability*
- *Operational reliability*
- *Cost per unit usage*
- *Logistics footprint*
- *Logistics response time*
- *Total ownership costs*





WHY IS PART SELECTION IMPORTANT?



The most crucial element of parts management is part selection. The primary requirement is to meet the performance objectives of the system or equipment. Many factors must be considered when selecting the optimum parts.

These include:

- *Technical characteristics*
- *Reliability*
- *Life cycle costs*
- *Commonality*
- *Performance history*
- *Vendor performance*
- *Qualification*
- *Potential Obsolescence*
- *Standardization*
- *Manufacturing*
- *Maintenance*



WHY IS PART SELECTION IMPORTANT? (Cont'd)



Proper part selection can enhance

- *Reliability*
- *Maintainability*
- *Economies of scale*
- *Supportability*
- *System performance*
- *Logistics readiness*
- *Operational readiness and interoperability*

Proper part selection can decrease

- *Logistics footprint*
- *Weapon systems and equipment total ownership costs*



WHAT ARE THE BENEFITS OF PARTS MANAGEMENT?



Benefits include:

- Cost avoidance
 - Standardization of parts and replacing numerous similar parts with one common part results in larger part-type buys because the common parts are used in multiple applications.
 - Part standardization also helps the contractor avoid the increased cost of maintaining technical data and storing, tracking, and distributing multiple parts.



WHAT ARE THE BENEFITS OF PARTS MANAGEMENT? (Cont'd)



- Enhanced logistics readiness and interoperability
 - When items or systems share common components, repair time is shorter because parts are more likely to be on hand.
 - Using common components simplifies logistics support and enhances substitutability because fewer parts are stocked.
 - This translates into savings in procuring, testing, warehousing, and transporting parts.



WHAT ARE THE BENEFITS OF PARTS MANAGEMENT? (Cont'd)



- Increased supportability and safety of systems and equipment
 - Preferred parts reduce risk and improve the chances of equipment reliability.
 - Preferred parts have a history of proven reliability, withstanding rigorous testing, and performing at stated levels.
 - Their use decreases the number of part failures, reducing the number of maintenance actions, and potentially precluding failures or loss of life.



WHAT ARE THE BENEFITS OF PARTS MANAGEMENT? (Cont'd)



- Reduced acquisition lead-time
 - When preferred parts are used, the Government and industry avoid the expenses and delays of designing and developing parts and the issues of acquiring a new item with no available history or documentation.
 - Using preferred parts often reduces the time between the purchase request and the receipt of the part.



COST BENEFIT ANALYSIS



The average total cost for adding a single new part is about **\$27,500**. Historical acquisition program parts management data has revealed that programs without parts management requirements introduce **2.5 percent** more new parts into the logistics system than do programs with parts management requirements.

Therefore, a program with **10,000 parts** might easily achieve a life-cycle cost avoidance of **\$6.8 million**.



COST BENEFIT ANALYSIS (Cont'd)



Six cost-related program activities:

- *Engineering and design*
- *Testing*
- *Manufacturing*
- *Purchasing*
- *Inventory*
- *Logistics support*



Detailed information can be found in the business case:
“Reduce Program Costs through Parts Management”
(developed by the PSMC)

(See http://www.dsp.dla.mil/APP_UIL/content/documents/partsmgt.pdf).



APPLICABILITY OF PARTS MANAGEMENT REQUIREMENTS



- Acquisition contracts
 - New design
 - Modification of DoD weapon systems
 - Dependent upon program business and support strategies
- Not applicable to
 - Off-the-shelf
 - Not intended for Space systems such as satellites and launch vehicles





WHAT IS DoD's POLICY ON PARTS MANAGEMENT?



DoD 4120.24-M, Defense Standardization Program Policies and Procedures

C3.2 MANDATORY STANDARDIZATION CONSIDERATIONS

C3.2.4. Parts Management: Program offices shall ensure that a parts management process is used to reduce the proliferation of parts and associated documentation and promote the use of parts with acceptable performance, quality, and reliability.

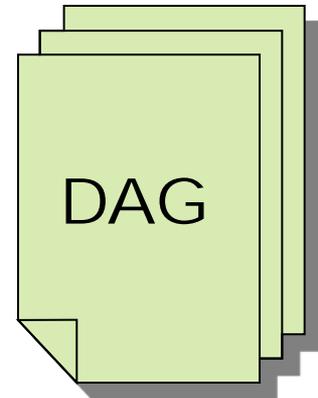


WHAT IS DoD's POLICY ON PARTS MANAGEMENT? (Cont'd)



Parts management information is referenced in the **Defense Acquisition Guidebook (DAG)** in Chapter 4: Systems Engineering and Chapter 5: Life Cycle Logistics:

- Section 4.3.18.8: Diminishing Manufacturing Sources and Material Shortages
- Section 4.3.18.21: Standardization (Parts Management)
- Section 5.3.1: Standardization (Parts Management)





WHEN SHOULD PARTS MANAGEMENT BE IMPLEMENTED?



Technology Maturity and Risk Reduction Phase (Milestone A). All requirements as stated in MIL-STD-3018 should be specified in the request for proposal statement of work for the Engineering and Manufacturing Development Phase.

Engineering and Manufacturing Development Phase (Milestone B). Requirements as stated in MIL-STD-3018 should be implemented under an approved parts management plan.



WHEN SHOULD PARTS MANAGEMENT BE IMPLEMENTED? (Cont'd)



Production and Deployment Phase (Milestone C).

Required for changes or modification to the baseline design or parts obsolescence issues.



HOW ARE PARTS MANAGEMENT REQUIREMENTS IMPLEMENTED?



Parts management requirements should be documented in the

- Statement of work (SOW)
- Statement of objectives (SOO)
- Performance work statements (PWSs)

(Collectively known as the SOW)





HOW ARE PARTS MANAGEMENT REQUIREMENTS IMPLEMENTED? (Cont'd)



SOW Example:

The contractor shall establish and maintain a parts management program in accordance with MIL-STD-3018 for all new designs or modified equipment. The contractor shall describe how the parts management process is validated, how process improvements are incorporated, and how process variation is controlled.

The contractor shall document the plan in accordance with DID DI-SDMP-81748 and deliver the plan in accordance with the CDRL (DD Form 1423).



MIL-STD-3018

“PARTS MANAGEMENT”

27 OCTOBER 2011



-
- Department of Defense Standard Practice
 - Provides requirements for the implementation of an effective Parts Management Program
 - Supports acquisition strategies and systems engineering practices
 - Provides performance-based parts management processes and practices which are intended to be adopted to individual program needs



MIL-STD-3018

“PARTS MANAGEMENT”

27 OCTOBER 2011



-
- Creates consistency across DoD parts management requirements in contracts
 - Requires a parts management plan
 - When used in conjunction with SD-19, “Parts Management Guide,” dated September 2009, it outlines parts management needs in contracts, parts management processes for prime contractors and subcontractors



WHAT IS A PARTS MANAGEMENT PLAN?



“A parts management plan is a contract-specific application of a contractor’s corporate parts management procedures which meets the objectives of the equipment system’s mission profile, support strategy, expected service life, and the DoD parts management goals and objectives of reducing the logistics footprint and total life-cycle cost, and increasing the logistics readiness.”



WHAT IS A PARTS MANAGEMENT PLAN? (Cont'd)



A parts management plan communicates how the contractor's in-house parts management process is conducted under the contract requirements.

The plan is prepared by the contractor.

The contractor must meet plan requirements or recommend changes based on:

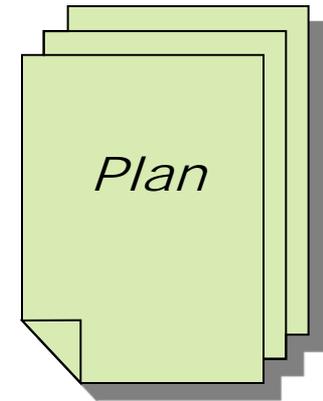
- Changes in part type technical or environmental issues.
- Changes in the parts procurement business environment.



ELEMENTS OF A MIL-STD-3018 PARTS MANAGEMENT PLAN



- Part selection baseline
- Part selection and authorization process
- Obsolescence management
- Parts list
- Subcontractor management
- Part and supplier quality
- Part level documentation procedures
- Substitute and alternative part procedures
- Customer-contractor teaming
- Counterfeit parts
- Lead-Free electronic parts
- Additional elements (e.g. as identified by contract)





MIL-STD-3018

PART SELECTION ORDER OF PREFERENCE



-
- The contractor shall select parts suitable to the design application in the descending order of preference as follows, unless otherwise specified in the contract:
 - Parts required to meet Government regulatory requirements
 - Industry standard parts from DoD adopted non-Government standards
 - Military and other Government standard parts
 - DoD commonly available parts



MIL-STD-3018

PART SELECTION ORDER OF PREFERENCE

(Cont'd)



- Industry standard parts from other non-Government standards.
- Commonly available manufacturers' part numbers from catalogs and/or Vendor Item Drawings.
- Other (e.g., parts documented on source control drawings, selected item drawings, altered item drawings).



WHO DOES PARTS MANAGEMENT?



Both the acquisition activity and the contractor have responsibilities concerning the implementation of parts management requirements.

The acquisition activity is responsible for determining and/or tailoring all initial parts management requirements, coordinating and negotiating those requirements with the contractor, and evaluating and approving the required contractor submitted plans or processes.



WHO DOES PARTS MANAGEMENT? (Cont'd)



The contractor is responsible for teaming with the acquisition activity to implement Parts Management Program contract requirements.

Part selection and application is the responsibility of the contractor whose primary requirement is to meet the performance objectives of the system or equipment.



WHAT ARE THE COSTS OF PARTS MANAGEMENT?



Costs reflected in the contract include the tasking to implement and maintain a parts management process for the life of the contract.

Costs are determined by the individual weapon system or equipment acquisition contract life cycle phase; with the highest cost found in the Engineering and Manufacturing Development Phase.

Costs are reduced during the subsequent life cycle phase depending upon the reduction of design effort concerning changes and modifications to the weapon system or equipment.



WHAT TOOLS SUPPORT PARTS MANAGEMENT?



- ASSIST
(See <https://assist.dla.mil>)
- Weapon System Impact Tool (WSIT)
(See <https://assist.dla.mil/>)
- DMSMS/Obsolescence Tools
(See <https://acc.dau.mil/dmsms>)
- Federal Logistics Information System (FLIS)
(See <http://www.dlis.dla.mil/webflis/>)





WHAT TOOLS SUPPORT PARTS MANAGEMENT? (Cont'd)



- DLA Land and Maritime - Document Standardization Division Website
(See <http://www.dscc.dla.mil/Programs/MilSpec/default.aspx>)
- Government-Industry Data Exchange Program (GIDEP)
(See <http://www.gidep.org/>)
- Defense Parts Management Portal (DPMP)
(See <https://dpmp.lmi.org/>)
- Common Parts Catalog
(See <http://www.nsrp.org/5-CPC.html>)
- Pin Point (in R&D)
(See <https://pinpoint.xsb.com/>)





SE THROUGHOUT LIFE-CYCLE MANAGEMENT



A life-cycle approach to system planning, development, and sustainment is fundamental to systems engineering. The program manager (PM) shall be the single point of accountability for accomplishing program objectives for total life cycle systems management, including sustainment.



SE THROUGHOUT LIFE- CYCLE MANAGEMENT (Cont'd)



PMs shall consider supportability, life cycle costs, performance, and schedule comparable in making program decisions. Planning for Operations and Support and the estimation of total ownership costs shall begin as early as possible. Supportability, a key component of performance, shall be considered throughout the system life cycle.



SE THROUGHOUT LIFE- CYCLE MANAGEMENT (Cont'd)

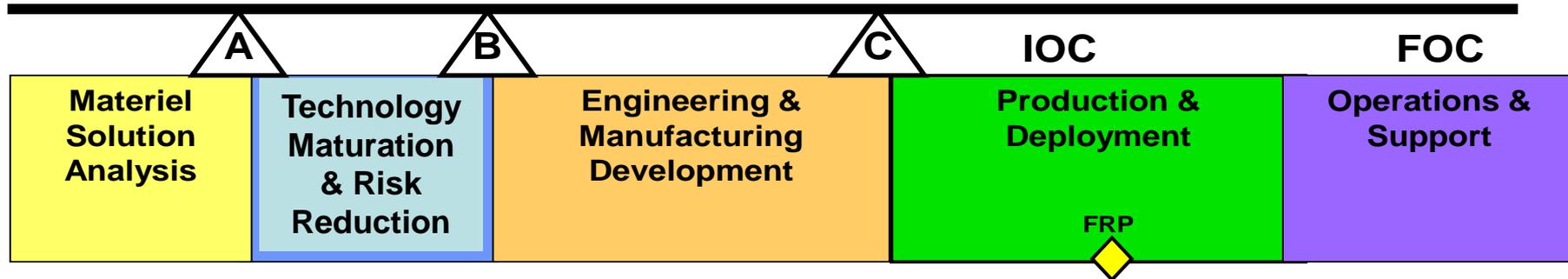


Parts Management along with standardization are SE design considerations. Selecting the right part is fundamental to achieving many SE and manufacturing objectives.

- From a PM perspective, these design considerations ensure the system is made up of proven parts with existing suppliers
- From a systems engineering perspective, these design considerations enable a reliable, maintainable, affordable system that performs well



TECHNICAL REVIEWS & LOGISTICS ASSESSMENTS THROUGHOUT THE LIFE CYCLE



Technical Reviews



Logistical Assessments



ASR: Alternative Systems Review
SRR: System Requirements Review
SFR: System Functional Review

PDR: Preliminary Design Review
CDR: Critical Design Review
PRR: Production Readiness Review



PURPOSE OF THE TECHNICAL REVIEWS (1 of 3)



- **ASR**: Ensure the resulting set of requirements agrees with the customer's needs and expectations and the system under review can proceed into the Technology Maturation & Risk Reduction phase
- **SRR**: Ensure that the system under review can proceed into initial system development, and that all system requirements and performance requirements derived from the Initial Capabilities Document or draft Capability Development Document are defined and testable, and are consistent with cost, schedule, risk, technology readiness, and other system constraints
- **SFR**: Ensure that the system's functional baseline is established and has a reasonable expectation of satisfying the requirements of the Initial Capabilities Document or draft Capabilities Development Document within the currently allocated budget and schedule



PURPOSE OF THE TECHNICAL REVIEWS (2 of 3)



- **PDR**: Establish the physically allocated baseline to ensure that the system under review has a reasonable expectation of being judged operationally effective and suitable
- **CDR**: Establish the initial product baseline to ensure that the system under review has a reasonable expectation of satisfying the requirements of the Capability Development Document within the currently allocated budget and schedule
- **PRR**: Determine if the design is ready for production and if the prime contractor and major subcontractors have accomplished adequate production planning without incurring unacceptable risks that will breach thresholds of schedule, performance, cost, or other established criteria



PURPOSE OF THE TECHNICAL REVIEWS (3 of 3)



-
- **LA**: Conducted to assess if the Program Manager delivered to the user a system that is supportable per the planned requirements, was executed to the program planning documentation, is within the estimated ownership costs, and the status of progress addressing deficiencies noted during previous assessments or during operations, such as low reliability



PARTS MANAGEMENT STATUS AT SRR



-
- **MIL-STD-3018 on contract**
 - **Requirement for BOM on contract**
 - **Substitute parts usage procedures established as configuration management requirement**
 - **Customer-contractor teaming arrangements defined**
 - **Anti-counterfeit requirements established**
 - **Lead-free control requirements established**



PARTS MANAGEMENT STATUS AT SFR



-
- **Preliminary parts management plan developed**
 - **Corporate baseline parts selection list in place**
 - **Parts selection order of preference established**
 - **Obsolescence management risk assessment ongoing**
 - **Substitute parts usage procedures established**
 - **Customer-contractor teaming ongoing**
 - **Preliminary anti-counterfeit plan developed**
 - **Preliminary lead-free control plan developed**



PARTS MANAGEMENT STATUS AT PDR



-
- **Parts management plan implemented**
 - **Corporate baseline parts selection list maintained**
 - **Parts selection process in place**
 - **Obsolescence management risk assessment ongoing**
 - **Parts management requirements being flowed down to subcontractors**
 - **Part and supplier quality established**
 - **Substitute parts usage procedures followed**
 - **Customer-contractor teaming ongoing**
 - **Anti-counterfeit plan implemented**
 - **Lead-free control plan implemented**



PARTS MANAGEMENT STATUS AT CDR



-
- **Parts management plan approved**
 - **Corporate baseline parts selection list maintained**
 - **Parts selection process in place**
 - **Obsolescence management risk assessment ongoing**
 - **BOMs have been submitted**
 - **Parts management requirements being flowed down to subcontractors**
 - **Part and supplier quality established**
 - **Substitute parts usage procedures followed**
 - **Customer-contractor teaming ongoing**
 - **Anti-counterfeit plan being followed**
 - **Lead-free control plan being followed**



PARTS MANAGEMENT STATUS AT PRR



-
- **Parts management plan approved**
 - **Corporate baseline parts selection list maintained**
 - **Parts selection process in place; all parts have been approved**
 - **Obsolescence management risk assessment ongoing**
 - **BOMs have been accepted**
 - **Parts management requirements being flowed down to subs**
 - **Part and supplier quality established**
 - **Part documentation documents meet requirements**
 - **Substitute parts usage procedures followed**
 - **Customer-contractor teaming ongoing**
 - **Anti-counterfeit plan being followed**
 - **Lead-free control plan being followed**



WHO IS RESPONSIBLE FOR DoD PARTS MANAGEMENT?



Currently, DoD weapon systems and equipment programs are experiencing increased risk due to problem part issues.

The Defense Standardization Program Office (DSPO) is responsible for the DoD Parts Management Program. In November 2006, the DSPO chartered the Parts Standardization and Management Committee (PSMC) to advise in the development of policy, procedures, and guidance related to parts management.



WHO IS RESPONSIBLE FOR DoD PARTS MANAGEMENT? (Cont'd)



The DSPO's goal is to establish parts management best practices across DoD to increase weapon system operational availability and reduce life cycle costs. The PSMC offers a standing forum for DoD and industry communication and collaboration to promote and enable effective parts management in support of the warfighter.



CONCLUSION



One cannot overstate the importance of systems engineering—and the specialty engineering disciplines associated with it—to successful, cost-effective acquisition. Parts management contributes to the overall SE mission in the risk identification and management and the life-cycle focus areas.

Today's parts management program is becoming more flexible, more user friendly for contractors, and more comprehensive due to a major reengineering effort that is still underway.



CONCLUSION (Cont'd)



The PSMC will continue to address SE parts management initiatives with help from the SE and parts management communities. To be involved in this effort, please contact the DSPO Project Leader: 703-767-6874.



COURSE REVIEW QUESTIONS



What are the part types addressed by the requirements of MIL-STD-3018?

- Actuators, pumps, and assemblies
- Fasteners, connectors, and microcircuits
- Control box and display panel

A light green rectangular icon with a folded bottom-left corner, representing a document. The text "MIL-STD-3018" is printed in black on the document.

MIL-STD-3018

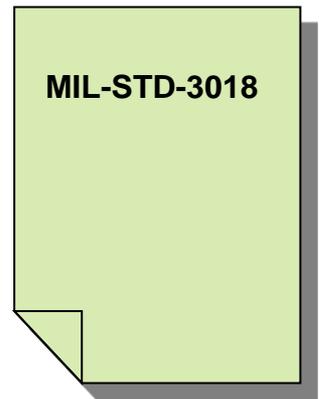


COURSE REVIEW QUESTIONS



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COURSE REVIEW QUESTIONS



Parts Management, as part of the engineering process, is an integrated effort to streamline....

- The selection of the lowest cost parts during design suitable to the design application.
- The selection of preferred or commonly used parts during design suitable to the design application.
- The selection of standard parts during design.



COURSE REVIEW QUESTIONS



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COURSE REVIEW QUESTIONS



What does a parts management process determine concerning part type use?

- It determines the use of the most economical parts while considering all the factors that may affect program outcomes.
- It determines the use of the optimum parts while considering all the factors that may affect program outcomes.
- It determines the use of standard parts while considering all factors that may affect program outcomes.



COURSE REVIEW QUESTIONS



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COURSE REVIEW QUESTIONS



What is the primary objective of the part selection process?

- That parts selected meet the performance objectives of the system or equipment
- That parts selected meet the standardization objectives of the MIL-STD-3018
- That parts selected mitigate DMSMS issues



COURSE REVIEW QUESTIONS



What is the primary objective of the part selection process?

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- That parts selected meet the standardization objectives of the MIL-STD-3018
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COURSE REVIEW QUESTIONS



What is an important element that is addressed in part selection?

- Reliability
- Standardization
- DMSMS
- Part and supplier quality
- All of the above

IMPORTANT!!!



COURSE REVIEW QUESTIONS



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IMPORTANT!!!



COURSE REVIEW QUESTIONS



How does the selection of the optimum parts for design benefit a weapon system or equipment acquisition program over its life cycle?

- Enhanced system performance
- Enhanced logistics readiness
- Enhanced operational readiness
- Reduced total ownership costs
- All of the above





COURSE REVIEW QUESTIONS



How does the selection of the optimum parts for design benefit a weapon system or equipment acquisition program over its life cycle?

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- Enhanced logistics readiness
- Enhanced operational readiness
- Reduced total ownership costs
- All of the above





COURSE REVIEW QUESTIONS



What document provides the requirements for the implementation of an effective parts management program in acquisition contracts?

- SD-19
- MIL-STD-3018
- The Defense Acquisition Guidebook





COURSE REVIEW QUESTIONS



What document provides the requirements for the implementation of an effective parts management program in acquisition contracts?

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- MIL-STD-3018
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COURSE REVIEW QUESTIONS



When should a parts management program requirement be initially implemented in a weapon system acquisition contract?

- Technology maturity and risk reduction phase
- Engineering and manufacturing development phase
- Production and deployment phase
- Operations and support phase





COURSE REVIEW QUESTIONS



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- Technology maturity and risk reduction phase
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- Operations and support phase





COURSE REVIEW QUESTIONS



Where is the parts management requirement called out in a contract?

- CDRL
- DID
- SOW





COURSE REVIEW QUESTIONS



Where is the parts management requirement called out in a contract?

- CDRL
- DID
- SOW





COURSE REVIEW QUESTIONS



A parts management plan....

- Communicates how a contractor designs his or her weapon systems or equipment.
- Communicates how the contractor's in-house parts management process is conducted under the contract requirements.
- Communicates how a contractor conducts parts management on OTS or NDI equipment.



COURSE REVIEW QUESTIONS



A parts management plan....

- Communicates how a contractor designs his or her weapon systems or equipment.
- Communicates how the contractor's in-house parts management process is conducted under the contract requirements.
- Communicates how a contractor conducts parts management on OTS or NDI equipment.



COURSE REVIEW QUESTIONS



When is a parts management program not required?

- For new design systems or equipment
- For modifications to systems or equipment where new parts are introduced in design
- For unmodified OTS or NDI equipment



COURSE REVIEW QUESTIONS



When is a parts management program not required?

- For new design systems or equipment
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COURSE REVIEW QUESTIONS



What is the average total cost for adding a new part into a system?

- \$15,000
- \$27,500
- \$46,000
- \$54,500





COURSE REVIEW QUESTIONS



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COURSE REVIEW QUESTIONS



Who is responsible for ensuring that parts selected meet the performance objectives of the system or equipment?

- Acquisition activity

- Contractor



COURSE REVIEW QUESTIONS



Who is responsible for ensuring that parts selected meet the performance objectives of the system or equipment?

- Acquisition activity
- Contractor



COURSE REVIEW QUESTIONS



What does GIDEP mean?

- Government-Industry Development Equipment Program
- Government-Industry Defense Evaluation Program
- Government-Industry Data Exchange Program



COURSE REVIEW QUESTIONS



What does GIDEP mean?

- Government-Industry Development Equipment Program
- Government-Industry Defense Evaluation Program
- Government-Industry Data Exchange Program



SECDEF QUOTE



“We need to continually move forward with designing an acquisition system that responds more efficiently, effectively and quickly to the needs of troops and commanders in the field—one that rewards *cost-effectiveness and efficiency.*”



X
Secretary of Defense



QUESTIONS?



Standardization – Making Systems Work Together



ADDITIONAL INFO



BACK-UP SLIDES

DoD Direction

- Achieve affordable programs
- Control costs throughout the product lifecycle



Better Buying Power 2.0
Issued April 24, 2013

What Drives Costs?

- Non-standard Parts
- Obsolescence Mismanagement
- Untrustworthy Parts



DSPO Cost Efficiency "Tool Box"



A drive towards:

- Systems that are interoperable (standardization)
- standard parts, (select appropriate parts)
- that are supportable, (mitigate obsolescence)
- and reliable, safe and authentic (mitigate counterfeit)
- Standardization and common processes

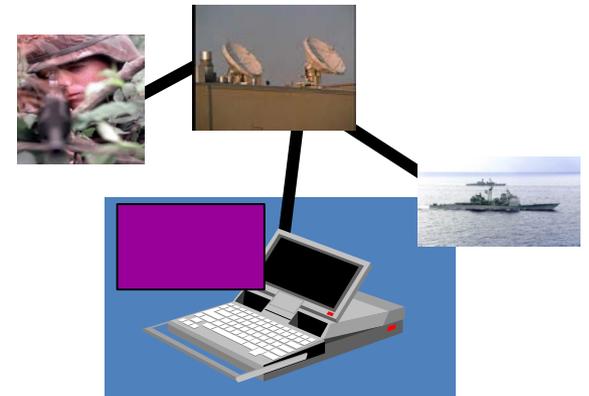
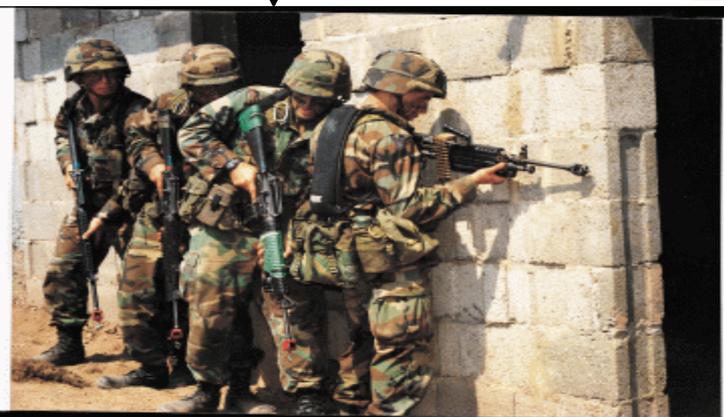
Interoperability



Joint Service Operations & Coalition Warfare

**NATO
Standards**

**International
Standards**



**Safe,
Reliable,
Trustworthy
Parts**



Counterfeit Mitigation in a Nutshell



Reduce overall risk!

Risk is product of:

- Application Risk
- Part Risk
- Supply Risk

Drive any factor to zero and risk becomes small!

Standard Parts

DSPO Parts Management Responsibilities

- DoD Parts Management Program
- Diminishing Manufacturing Sources and Material Shortages (DMSMS)
- Government-Industry Data Exchange Program (GIDEP)
- Support of DoD Counterfeit Mitigation Effort

Parts Management - A Design Strategy

- Selecting “preferred parts” during weapon system design within an SE framework
 - NGS
 - MIL-STDs
 - Already in use in DoD
- Analyzing parts for reliability, availability, quality
 - Mitigating DMSMS is critical
- Screening for common usage
- Minimizing the number of unique parts
- Qualifying products

Parts Standardization & Management Committee (PSMC)

- Government and industry forum
- Chartered and chaired by DSPO
- Subcommittees:
 - Policy, Contracts, Systems Engineering
 - Parts Management Tools and Data
 - DMSMS
 - Counterfeit Parts Mitigation
- Reengineer Defense Parts Management Program



Key Focus Areas of the PSMC

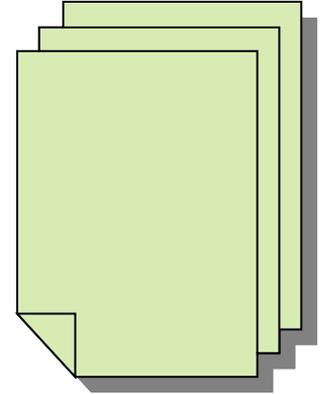
- Reengineering implementation tasks
 - *Support Systems Engineering's revitalization of parts management*
 - *Make Parts Management a requirement*
 - *Provide appropriate guidance and education*
 - *Develop helpful tools (i.e., PinPoint, CPC)*
- Participate in efforts to mitigate counterfeit
- Sell the benefits of parts management

Benefits of Parts Management

- Cost avoidance
- Enhances logistics readiness and interoperability
- Increases system supportability and safety
- Improves reliability, availability, maintainability
- Improves Warfighter support
- Reduces acquisition lead-time
- Mitigates obsolescence and counterfeit
- Reduces parts proliferation (“footprint”)
- Benefits government and industry

Parts Management Reengineering Progress

- MIL-STD-3018, Parts Management
- DID DI-SDMP-81748
- SD-19, Parts Management Guide
- DAU CLL-206, “Introduction to Parts Management”
- Defense Acquisition Guide
- Parts Management Tools (Pin Point, Common Parts Catalog)



Common Parts Catalog - A Collaborative Tool

- The U.S. Navy and four industry shipyards collaborated to develop the Common Parts Catalog (CPC)
- Uses catalog management techniques to promote parts standardization through data sharing
- Reduces inventory, design, engineering, and life-cycle costs across the U.S. marine industry



Pin Point - Part Selection Tool



- Compiles information from many government databases and manufacturer websites into an easily searchable application
- Performs parametric searches on technical and logistics attributes of items of supply
- Useful tool for situations where groups of parts with similar properties need to be identified
- Approximately 100M parts in Pin Point, giving an unprecedented view of the DoD supply chain

Mitigating Risks From Obsolescence

DMSMS

Diminishing Manufacturing Sources and Material Shortages is defined:

- by DoD as the ***"...loss or impending loss of the last known manufacturer or supplier of raw material, production parts, or repair parts,"*** and
- by industry as the ***"...loss or impending loss of the original manufacturer or supplier of raw material, production parts or repair parts."***

An obsolete device is part of a larger system that is no longer manufactured by the original manufacturer.

DMSMS Program

- SD-22, DMSMS Guidebook, August 2012
- Defense Acquisition Guide
- TECHAMERICA-STD-0016, industry DMSMS standard
- Online training courses (Defense Acquisition University)
- DMSMS Knowledge Sharing Portal (online)
- DMSMS “track” at the Defense Manufacturing Conference
 - Tutorials
 - Briefings
 - Technical panel discussions

Standardization In Action

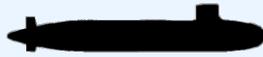
Specs /Standards Are Basic to Weapon System Design, Acquisition, Operation, and Maintenance

▣ M-1 Tank	cites	5,618 Specs/Standards
▣ Apache	cites	7,937 Specs/Standards
▣ C-5 Galaxy	cites	13,557 Specs/Standards
▣ F110-GE-100/129 Engine	cites	2,504 Specs/Standards
▣ Tomahawk Missile	cites	1,561 Specs/Standards

▣ MIL-F-5509	used on	728 Weapon Systems
▪ Flared Tube Fitting		
▣ SAE-AMS7276	used on	618 Weapon Systems
▪ High-Temp Low Compression FKM Rubber Fluid Sealing Ring		
▣ MIL-C-38999	used on	682 Weapon Systems
▪ Quick Disconnect Electrical Connector, Environment Resistant		

Source: Weapon System Impact Tool Database (as of October 2013)

ASSIST database accessible at <https://assist.dla.mil/>



Seawolf Class

Seawolf Problem -

Parts Proliferation

- Many duplicate part numbers created by two design yards, one construction shipyard
- Existing design standards seldom used
- No standard criteria established
- 67,834 bill of material parts



Virginia Class

Virginia Solution -

Instituted parts stdz at BEGINNING of design phase

- Upfront standardization program prevented parts proliferation
- 27,014 bill of material parts
- \$789M cost avoidance over program life

Source: Virginia Class Submarine Case Study available in Library at www.dsp.dla.mil