Better Serving the Warfighter

Improving Parts Management to Achieve Interoperability, Reduced Logistics Footprint, and Lower Life-Cycle Cost

DoD Parts Management Reengineering Working Group

October 2005

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Foreword

On March 18, 2004, the Defense Standardization Program Office chartered the Parts Management Reengineering Working Group (PMRWG) to examine DoD's parts management processes, assess the effectiveness of those processes, and determine the changes needed to significantly improve them. This report presents the working group's findings, conclusions, and recommendations.

The PMRWG comprised parts management and standardization experts. Many members worked directly in the parts management program or were knowledgeable customers of that program. They all have an in-depth understanding of parts management throughout DoD.

The positions taken and the views expressed in this report are based on information provided to the PMRWG, independent research conducted by the team members, and informed opinions of the members, drawing extensively from their personal observations and experiences.

The team met on nine occasions between April 2004 and January 2005, with a kickoff meeting in March 2004 focusing solely on matters related to forming the working group. The PMRWG developed findings, conclusions, and recommendations for 23 separate parts management areas. In some areas, such as logistics footprint, the magnitude of the topic and the shortage of data did not permit the rigorous investigation that they warranted. For those areas, the PMRWG recommended additional study. Finally, the findings, conclusions, and recommendations presented in this report represent the consensus of the PMRWG.

This report is the product of Phase 1 of this effort. In Phase 2, the focus will be on implementing the recommendations and examining some of the areas that warrant additional attention.

Executive Summary

The Parts Management Reengineering Working Group (PMRWG) was chartered in March 2004 by the Defense Standardization Program Office (DSPO) to reengineer DoD's parts management program. Between March 2004 and January 2005, the group met monthly to explore and understand the processes, organizations, and issues involved.

Based on the results of those efforts, the group concluded that parts management lacks discipline, is decentralized, and is underfunded. It also found that responsibility for parts management is widely spread and poorly defined, which limits its value to DoD. Without fundamental changes that involve several organizations, DoD will not realize the full potential of parts management. Making these changes will improve interoperability, increase operational availability, and shorten system development time, life-cycle cost, and its logistics footprint.

In this report, the PMRWG offers eight major recommendations. These recommendations are presented below in order of their priority.

Major Recommendation 1: Make Parts Management a Policy and Contractual Requirement

The PMRWG found that parts management, including parts standardization, can help to significantly improve DoD's logistics footprint, operational availability, operational reliability, cost-per-unit usage, and logistics response time. It also found that parts management was not achieving its full potential in these areas for a variety of reasons. The first and foremost reason was that parts management lacks appropriate presence and leverage in policy and contractual documents.

The PMRWG believes that greater parts management discipline within the acquisition process is essential. At one time, parts management was a major requirement for most acquisition programs. But over time, the requirement and its enforcement became overly prescriptive and proved burdensome and costly for many programs. In addition, acquisition reform fundamentally changed how programs employ parts management discipline. The working group found that many programs lack even the most rudimentary form of an effective parts management discipline.

The working group agrees that DoD must not return to the days of overly prescriptive parts management requirements, but today's programs need better parts management discipline to promote higher interoperability, operational

availability, and operational reliability; lower life-cycle cost, cost-per-unit usage, and logistics response time; and a smaller logistics footprint. This can be accomplished by including performance-based requirements in DoD policy and contractual documents. Crafting appropriate language and determining its proper placement in policy and contract documents will be undertaken in Phase 2 of this study. As part of that effort, DSPO will work with representatives from the acquisition program management, contracting, legal, defense contractor, systems engineering, and other affected communities to develop a satisfactory solution. The PMRWG has already begun developing policy contract clause language.

MAJOR RECOMMENDATION 2: REVITALIZE PARTS MANAGEMENT WITHIN THE SYSTEMS ENGINEERING DISCIPLINE

Parts management is an essential focus of systems engineering. Selecting the right parts is fundamental to achieving many systems engineering objectives and influences cost, schedule, and performance. Over the past several years, the effectiveness of parts management within systems engineering has weakened. Current systems engineering policy, guidance, and training lack adequate parts management emphasis to ensure that acquisition programs appropriately address parts management issues.

In response to this situation, the working group initiated dialogue with key individuals within the systems engineering community to craft and reintroduce parts management language into systems engineering policy, guidance documents, and training.

The PMRWG further found that the systems engineering community needs better tools for developing the parts-related data critical for timely and accurate engineering decisions. It envisions that the development of these tools would be an integral responsibility of a Life-Cycle Part and Component Center of Excellence, or LCPC COE (see Major Recommendation 3).

Revitalizing parts management within systems engineering also requires an increased emphasis on parts management during program milestone reviews. Parts management and standardization are key considerations for any acquisition program with interoperability, availability, reliability, and cost management requirements. All DoD programs should be required to demonstrate that they adequately address these requirements through their parts management and standardization practices. Determining the specific content and language for systems engineering policy, guidance, and training; the design of needed tools; and the revitalization of parts management and standardization discipline in design reviews are Phase 2 tasks.

DSPO will work with the program management, systems engineering, and other communities to develop approaches for revitalizing parts management within systems engineering. The PMRWG has initiated preliminary discussions with key systems engineering individuals.

MAJOR RECOMMENDATION 3: CREATE A LIFE-CYCLE PART AND COMPONENT CENTER OF EXCELLENCE

Timely and accurate information is crucial for effective parts management. The PMRWG found that parts management data exist in numerous, diverse information systems and that many of those systems cannot communicate or exchange data with other systems. In addition, some of the systems are old and difficult to use, and they contain data that are duplicative, incomplete, or inaccurate.

The working group believes that reengineering DoD's parts management information infrastructure into a Web-based LCPC COE would greatly improve parts management throughout DoD. It also believes that the LCPC COE should be modeled after the Diminishing Manufacturing Sources and Material Shortages Center of Excellence (DMSMS COE). That center collects and uses a broad range of parts-related information to solve DMSMS issues. Although the DMSMS COE does an excellent job of using those data, much of the same data could be used to promote and support increased standardization, resulting in lower life-cycle costs, shorter customer wait times, and fewer DMSMS events, as well as increased quality, reliability, and efficiency. This one-stop-shopping approach to parts data management would eliminate duplication, improve data accuracy, reduce errors, enable more effective data system management, decrease costs, promote more data sharing and parts-related research, and permit greater integration of parts data resources between government and industry.

Establishing a LCPC COE would require extensive coordination and cooperation among several diverse organizations. The requirements of all users of parts data would need to be clearly understood and taken into account when reengineering the parts data management system. Several information technology initiatives are already underway, and the LCPC COE should build upon those efforts to the maximum degree possible. Moreover, the ongoing DMSMS COE initiative could yield even greater results if it were integrated and expanded in conjunction with a LCPC COE.

MAJOR RECOMMENDATION 4: DEVELOP IMPROVED PARTS MANAGEMENT TOOLS AND METRICS

Many of the existing parts management tools are customized local applications supporting a very small number of users. Most were developed over time through trial and error, serve a narrow purpose, use outdated technology, and are inefficient; some are also inaccurate. In addition, DoD has a need for other tools or

capabilities that currently do not exist, such as models for better understanding the logistics footprint and for showing how parts-related decisions affect the footprint and the warfighter.

The starting point for improving DoD's parts management tools is an accurate inventory of the existing tools, documenting their purpose, functionality, data elements, user base, parent organization, base applications, and enabling technologies, followed by a strategy for combining or coordinating the tools. A matrix-based comparison of the tools would illustrate their redundancies and identify opportunities for integration. Eventually, the tools should be fully integrated into the LCPC COE. The long-term objective of this recommendation is a single database containing the complete set of information needed to efficiently and intelligently manage every part and component on every weapon system in the DoD inventory, coupled with an intelligent search engine capable of accessing other data under the LCPC COE umbrella. This database would be used in multiple ways to support all parts-related decisions from inception to phaseout. The PMRWG also envisions that it would support parts and component management from the design phase throughout the life cycle, including sustainment, until the item is phased out of the DoD inventory, and would incorporate or link a multitude of data sources, including materials and engineering data relevant to design, cataloging, supply chain, maintenance, and engineering data from across DoD as well as from manufacturers and other engineering sources. The database would also be available for use by the manufacturing community.

Although the current parts management system uses various metrics, it lacks the comprehensive metrics required to understand and manage such a complex system. Some existing metrics are designed for an outdated parts management philosophy or no longer measure the key parameters needed to optimize parts management for the warfighter.

The PMRWG believes that DoD needs an accurate inventory of the various parts management-related metrics, including their purpose, data elements, responsible organizations, metric-generating applications, objective uses, and users. A matrix-based comparison of these metrics would illustrate their redundancies and the opportunities for integrating existing and new metrics into the LCPC COE.

MAJOR RECOMMENDATION 5: IMPROVE DOD'S PARTS MANAGEMENT ORGANIZATION

DoD parts management is a distributed function scattered across numerous organizations, many of which are unable to communicate and coordinate with other elements. DoD has no single parts management focal point with system-level responsibility for integration or optimization. Funding and other resources for parts management functions are drawn from many different sources with no ability to efficiently reallocate or coordinate them for purposes of improving system-level performance. It is not unusual for one segment of the system to expend

considerable resources to initiate a parts management process, such as item reduction, only to have the initiative grind to a halt in midstream due to a lack of funding or resources in another segment of the system.

The key elements of this recommendation include (1) integrating DMSMS and Government and Industry Data Exchange Program (GIDEP) and similar parts-related functions under the purview of the DSPO, (2) developing a long-term strategy for streamlining and consolidating parts management processes within an integrated framework, and (3) exploring new approaches to funding parts management and standardization.

Some parts management functions employ different processes or practices depending on where the work is done and who does the work. These differences result in data system incompatibilities, duplications, inefficiencies, and errors. The establishment of an LCPC COE would help bring uniformity to the system and provide a meaningful organizational core for addressing and mitigating parts management funding and resource issues. The LCPC COE would comprise not only new tools and metrics, but also knowledgeable parts and systems personnel to provide needed technical expertise. In addition, a joint government-industry group could be used to ensure the broadest applicability and utilization as well as provide input to LCPC COE design and management.

MAJOR RECOMMENDATION 6: EDUCATE, TRAIN, AND CREATE NEW COMMUNICATION (MARKETING) PRODUCTS

DoD's parts management discipline is poorly documented and often misunderstood. Even individuals working within the system possess limited understanding of the total parts management system beyond the narrow functions for which they have responsibility. As a result, many individuals and organizations, both inside the system and those being served by the system, have misconceptions about parts management's purpose, capabilities, players, and value. These misconceptions create barriers to effective parts management leading to system failures that degrade efficiency or effectiveness for the warfighter.

The parts management universe is large, broad, and deep. It involves every weapon system from cradle to grave, and every system player from program managers, original equipment manufacturers (OEMs), procurement officials, and logistics support providers to warfighters. Effective parts management requires accurate and timely information and an understanding of the consequences of parts-related decisions.

The quantity and quality of current DoD parts management education, training, and communication products are inadequate to meet the needs of the parts management community, both inside DoD and among its suppliers. The creation of an

LCPC COE should consider and support the education and information needs of each constituency in the parts management community.

MAJOR RECOMMENDATION 7: BUILD KEY PARTNERSHIPS AND RELATIONSHIPS

Reengineering the parts management system will require better communication, more understanding, and effective working relationships throughout the parts management community. It will also need an effective focal point to plan, lead, and orchestrate the improvement process. DSPO should be assigned a key role in this effort. Many changes will require extensive coordination and cooperation across organizational boundaries. DSPO should be given responsibility for identifying the organizations that must participate in reengineering the parts management system and then reach out to those organizations to build the partnerships and relationships needed for success.

One example of cooperative partnership is the Parts Standardization and Management Committee. Over the past several years, this joint government-industry organization has been a leader in many initiatives involving parts management and standardization. It, or a similar organization, could be used to effectively and knowledgably steer the efforts of the LCPC COE.

MAJOR RECOMMENDATION 8: BETTER UNDERSTAND PARTS MANAGEMENT CONTRIBUTION TO PERFORMANCE-BASED LOGISTICS OBJECTIVES

Reengineering the parts management system should be driven by hard data that connect system changes to specific issues and expected benefits. Unfortunately, DoD lacks sufficient data to adequately link parts management processes to the five key performance-based logistics (PBL) objectives: logistics footprint, operational availability, operational reliability, cost-per-unit usage, and logistics response time. For example, the PMRWG found great inconsistency across DoD regarding how to define or measure logistics footprint, let alone how to determine the contribution of parts management to controlling the size of the footprint.

Many recommendations in this report stand on their own merit and do not depend on demonstrated relationships to the five key objectives. However, the long-term viability of the parts management program may rest on clearly showing its benefits, particularly its contribution to achieving these objectives. Currently, DoD can articulate logical arguments for how and why parts management contributes to the objectives, but demonstrating those linkages with hard data is not now possible.

The best hope of establishing clear connections may rest with additional studies and analyses. These studies and analyses could be used to build a model capable of showing the effects on the objectives of manipulating parts management variables. Such a model could serve as a predictive tool for quantifying the benefits of specific parts management change actions.

Although it may be intuitively obvious that smart parts management has the potential to reduce DoD's logistics footprint, the PMRWG does not want to overstate the case. Parts management is a very minor variable in the logistics footprint calculus, but one that can be readily and measurably improved.

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I. Introduction

PURPOSE

Parts Management

Parts management is an essential discipline for achieving interoperability, reducing logistics footprint, and lowering system life-cycle cost. Effective parts management helps program managers achieve their objectives of improving logistics support, enhancing supportability, and managing obsolescence. It also reduces costs, enhances logistics readiness and interoperability, increases system reliability and safety, and shortens acquisition lead-time. Finally, parts management improves operational readiness and reduces life-cycle costs by promoting the use of common, widely available, reliable parts and processes.

Parts management, as part of the engineering process, is an integrated effort to streamline the selection of preferred or commonly used parts during the design of systems and equipment. This process determines the optimum parts while considering all the factors that may affect program outcomes. Those factors include application, standardization, cost, availability, technology (new and aging), logistics support, diminishing sources, and legacy issues.

Parts Management Reengineering Working Group

DSPO established the PMRWG to examine DoD's parts management processes, assess the usefulness and effectiveness of those processes, and determine the changes needed to significantly improve them. The working group, comprising representatives from each of the services, the Defense Logistics Agency (DLA), and parts management experts from industry, looked at DoD's parts management processes from parts selection during engineering through the management of parts in the logistics system inventory.

BACKGROUND

Acquisition Reform

Acquisition reform significantly altered the landscape for parts management. Before acquisition reform, parts management was mandatory for all major weapon system programs, but after acquisition reform was adopted, parts management became the weapon system developer's responsibility. The developer was free to use any approach to parts management, including no parts management discipline if parts management was not part of the contract.

DoD's role in parts management after acquisition reform is often confusing. The roles and responsibilities for parts selection, item reduction, obsolescence management, and diminishing manufacturing sources are no longer entirely clear, and funding to support such activities is scarce. In fact, some parts of DoD have the perception that parts management is no longer important. This situation clearly helped create the need to completely reevaluate DoD's parts management program.

The following chain of events led to the development of this report:

- In July 2003, DLA requested relief from the parts management program because of budget pressures resulting from the war on terrorism and the war in Iraq.
- In October 2003, the Assistant Deputy Under Secretary of Defense for Logistics Plans and Programs, or AUSD (LP&P), recognizing that parts management was an essential component of achieving interoperability and reduced logistics footprint objectives, directed DSPO to improve DoD's parts management program.
- On February 3, 2004, DSPO established the PMRWG.
- On February 20, 2004, when representatives from DSPO briefed the Defense Standardization Council on item reduction issues, the council expanded the PMRWG charter to address parts management throughout a system's life cycle.
- On March 18, 2004, the PMRWG held its initial meeting, accepted the charter, and began its review of DoD's parts management processes.

PMRWG Charter

The charter of the PMRWG is outlined below:

- *Name.* DoD Parts Management Reengineering Working Group.
- *Chair.* Defense Standardization Program Office.
- *Authority.* This working group will operate under the authority of an Executive Steering Committee, chaired by the Director of DSPO and composed of senior representatives from the Military Departments and DLA.

- *Goal.* The goal of the DoD Parts Management Reengineering Working Group is as follows:

  Develop a system, or system of systems, processes, and implementation plan to efficiently manage quality parts introduction, inventory, standardization, substitutability, and elimination to reduce DoD's logistics footprint to support the warfighter.

- *Problem Statement.* The DoD Parts Management Program Reengineering Working Group will address the following primary issues:

  - The growing logistics footprint
  - The growing DoD inventory
  - The lack of control of item entry
  - The duplication of items.

- *Duration.* The period for the existence of the DoD Parts Management Reengineering Working Group is not to exceed 1 year.

- *Activities/Tasks.* The DoD Parts Management Reengineering Working Group will perform the following activities or tasks:

  - Study issues affecting inventory growth
  - Examine, chart, and flow the processes that affect it
  - Benchmark best business practices
  - Make recommendations to the Director, Defense Standardization Program Office, to improve the overall parts process.

- *Membership.* The DoD Parts Management Reengineering Working Group will be composed of representatives of the Military Departments and DLA who routinely work parts management, item entry control, or item reduction.

PMRWG Challenge

The PMRWG set for itself the following challenges:

- Reengineer the parts management process with a clean sheet
- Reduce the logistics footprint

- Focus on desired results
  - Operational availability
  - Operational reliability
  - Cost-per-unit usage
  - Logistics response time
- Employ a comprehensive systems engineering approach
  - Parts selection process
  - Diminishing Manufacturing Sources and Materiel Shortage planning
  - Parts management plan
  - Milestone reviews
    - Ensure compliance
    - Measure effectiveness.

II. Findings, Conclusions, and Recommendations

This section focuses on the concepts, processes, organizations, and disciplines that are integral to parts management. The PMRWG looked at parts management from many different perspectives, and each perspective yielded different issues and opportunities for consideration. The solutions in one area often complemented, expanded, or duplicated those from other areas. The myriad detailed solutions offered in this section are aggregated and integrated in the eight major recommendations presented in the executive summary. For presentation purposes, the 23 study topics examined in this section are identified by letter designations: A through W. Within each section, the recommended solutions are assigned a section letter and a number. For example, the first recommendation in Section A is designated A1.

A. Comprehensive Parts Management System

The comprehensive parts management system is the total complex of organizations, processes, and other elements involved in the cradle-to-grave management of parts. It includes choosing, designing, acquiring, stocking, requisitioning, moving, managing, issuing, and using weapon system parts across DoD and industry and the life-cycle management of commodities, materiel, assemblies, and vehicles for assuring interoperability with our allies. To logically and wisely reengineer the parts management system, the system and the interrelationships among its elements must first be defined.

Findings

The DoD parts management system fails to achieve its full potential for improving logistics footprint, operational availability, operational reliability, cost-per-unit usage, logistics response time, interoperability, logistics readiness, and life-cycle cost. The current collection of diverse, disjointed, and disconnected processes lacks discipline, structure, and an effective parts management life-cycle perspective. There is a distinct lack of the end-to-end thinking, planning, visibility, and responsibility necessary to take advantage of the considerable benefits possible through judicious application of part and component management and standardization. Using, funding, and participating in DoD's existing parts management system is largely voluntary. There is no entity or function with oversight responsibility for the comprehensive system, nor is there total accountability.

Conclusions

The current parts management process fails to achieve the higher-level benefits that normally accrue from commonality and standardization across platforms and services, or in coalition operations. Significant opportunities for improved interoperability, higher logistics readiness, reduced logistics footprint, and lower life-cycle costs are lost because the current parts management process lacks coherent policy, oversight, guidance, integration, implementation, and focus.

Recommendations

A1 Develop stakeholder consensus on the official boundaries of DoD's parts management system.

A2 Develop a business case for reengineering, consolidating, and automating DoD's parts management system.

A3 Advocate, promote, and provide resources for reengineering DoD's parts management system.

B. DEFENSE STANDARDIZATION PROGRAM

The mission of the Defense Standardization Program (DSP) is to identify, influence, develop, manage, and provide access to standardization processes, products, services, and documentation for the warfighters, acquisition community, and logistics community. It is a diverse, decentralized, and broadly structured collection of systems, processes, products, documentation, and people. It focuses on materiel technical requirements for products and processes to promote interoperability, reduce total ownership costs, and sustain readiness.

Findings

In the post-acquisition reform environment, many key decision makers view parts management and standardization as obsolete strategies and treat them as program constraints rather than enablers. However, the importance of effective parts management and standardization for achieving national military objectives has never been greater. DSP is continually developing new tools and resources to help decision makers choose and use the best parts for satisfying program performance and cost requirements.

To achieve its mission and objectives, DSP educates, persuades, and supports program decision makers in their selection and management of parts and components. Several key elements of DoD's comprehensive parts management system fall outside the DSP, constraining its reach and influence on some critical elements of the acquisition community. In addition, the concepts of "evolutionary

acquisition" are changing how and at what levels parts management and standardization are applied to programs.

Conclusions

The ability and importance of parts management and standardization strategies to improve interoperability, increase logistics readiness, and reduce logistics support and total life-cycle costs are poorly understood and underutilized. Higher-level parts management concepts, including strategic standardization, need more advocacy and attention. DSPO, through the DSP, can strategically focus its resources to increase awareness, understanding, and utilization of advanced parts management and standardization concepts across the acquisition and logistics communities.

Recommendations

B1 Develop an integrated, comprehensive DSP strategy to increase awareness, understanding, and utilization of parts management and standardization concepts and resources.

B2 Establish strategic DSP relationships to build a broader advocacy base for parts management and standardization.

B3 Increase DSP outreach to effectively inform the broader acquisition community about parts management and standardization strategies, practices, tools, and benefits.

C. JOINT STANDARDIZATION BOARDS

Joint Standardization Boards (JSBs) are conceptual entities with responsibility for shaping and guiding the standardization objectives and strategies for a defined area or domain. They provide high-level oversight and advocacy in a forum for strategic standardization initiatives. They provide leadership within the system or domain, including advocacy at the Office of the Secretary of Defense level for standardization issues and needs, and they establish priorities to help a community allocate resources. The JSB concept, as articulated in the DSP Strategic Implementation Plan, has a key role within a comprehensive parts and standardization management system. Also under that concept, a JSB may align with an existing organization, such as the Joint Aeronautical Logistics Commanders.

Findings

DSPO is in the process of implementing a plan to establish JSBs. Although some organizations already peripherally address parts management and standardization within their domains, no official relationship exists between these organizations

and the DSP process that helps shape and guide tactical or strategic standardization decisions.

Conclusions

The development of an improved parts and standardization management system depends on the participation and cooperation of JSB organizations. A JSB, as the logical owner of standardization for its technical domain, should actively participate within the DSP to define its vision, determine its priorities, and guide standardization initiatives for its domain. Effective JSBs will help define, communicate, and capture key opportunities within its domain to improve interoperability and logistics readiness, and reduce logistics support costs.

Recommendations

C1 Accelerate the process to create a Joint Standardization Board infrastructure.

C2 Develop and implement a strategy to promote, identify, define, and charter Joint Standardization Boards.

C3 Build a DoD leadership constituency that advocates and supports Joint Standardization Board development and operation.

C4 Define architectures and organizational relationships to facilitate smooth functional operation, systematically integrate Joint Standardization Boards, and help optimize standardization and parts management effectiveness throughout DoD.

D. LOGISTICS FOOTPRINT

Logistics footprint is a conceptual framework for defining and measuring the size, composition, and cost of logistics support needed or identified for a defined theater, operation, or scenario. It is the sum of people, facilities, equipment, transportation, documentation, fuels, inventory, assets, and real estate required for warfighter support.

Findings

The operational concept of logistics footprint is not well defined, and there is a lack of consensus in the literature and among those interviewed during this study regarding the concept. DoD also lacks consistent data regarding the logistics footprint of a scenario or theater, and there is mixed opinion regarding footprint growth. Although it is very difficult to accurately measure a logistics footprint, it is significantly more difficult to measure the impact of a parts management program on that footprint or to tie improvements in parts management to any measurable footprint reduction.

Conclusions

Although there is a general agreement on what to count in a logistics footprint, DoD lacks a consensus on the definition of footprint boundaries and on the metrics for measuring a logistics footprint. Several factors related to the evolving nature of today's weapon systems and warfighting doctrines further complicate defining and measuring logistics footprints. These include the following:

- Non-contiguous, non-linear, net-centric battle space
- Support of new and existing systems simultaneously
- Logistics system complexity
- Emphasis on extreme performance, which subordinates concern for footprint size
- Mixed organic and contractor logistics support
- Rapid change in theater footprint size and composition, and the ongoing integration of leading edge technologies.

DoD needs to make logistics footprint a measurable, useful, and widely accepted metric and to define the relationships that meaningfully link parts management to the metrics.

Recommendations

D1 Authoritatively define logistics footprint.

D2 Conduct a logistics footprint study.

D3 Develop a logistics footprint model.

D4 Relate parts management to logistics footprint.

D5 Include logistics footprint and parts management language in contracts.

E. INTEROPERABILITY

Interoperability is an attribute of design that enables systems to work together. When systems must exchange information to operate optimally, interoperability is an essential attribute. It is also necessary where mechanical or electrical systems must interface. DSP policy, DoD 4120.24, identifies the need for cross-service interoperability in the area of logistics.

Findings

The National Military Strategy's emphasis on Joint and coalition warfare requires programs to give greater consideration to interoperability among systems. However, without explicit guidance, programs tend to focus heavily on performance, cost, and schedule with minimal attention afforded to commonality and interoperability. Joint programs tend to consider interoperability more thoroughly because it is explicit in the requirements or in the contract. In those and other programs, interoperability shortfalls can trigger costly corrective actions, disrupt operations, and occasionally threaten mission accomplishment. Effective parts management and standardization initiatives have the potential to assist program teams with meeting and exceeding their interoperability requirements.

Conclusions

To ensure thorough and disciplined consideration, interoperability must be an explicit requirement, called out in requirements documents and contracts. Interoperability, standardization, and parts management are inextricably linked concepts. Individual members of program teams often lack sufficient understanding that standardization and parts management are the primary tools for achieving interoperability. In addition, the standardization and parts management communities are not adequately integrated into program management, nor have they adequately educated program management teams in the standardization and parts management principles and tools.

Recommendations

E1 Build integrated support relationships with the interoperability community.

E2 Promote standardization and parts management strategies and tools for interoperability solutions to the program management community.

E3 Seek opportunities for greater DSP participation in interoperability bodies.

E4 Document and demonstrate the role and application of standardization and parts management in achieving interoperability.

E5 Consider designating an interoperability liaison within the DSP.

E6 Ensure that the LCPC COE is capable of supporting interoperability initiatives.

F. POLICIES, PROCEDURES, AND GUIDANCE

Acquisition policies, procedures, and guidance documents set the requirements and framework for system acquisition. Policy defines how acquisitions should be managed and what is either required or prohibited. Before acquisition reform, DoD policy, such as MIL-STD-965, mandated parts management in acquisition programs. But since acquisition reform, this mandate no longer exists.

Findings

Today, DoD's acquisition policy does not address or promote contract language that supports standardization, commonality, and parts management. Other than in Joint acquisition programs, DoD has little policy in place to motivate program managers to look across the military services for standardization opportunities. When policy documents and contracts do not include parts management and standardization language, many program managers and OEMs conclude they are not important.

Program managers must balance their decisions to standardize against specific mission requirements, technology growth, and cost effectiveness. Under DoD's performance-based acquisition policies, the contractor has primary responsibility for recommending the use of standard materials, parts, components, and other items needed to meet performance requirements and to satisfy other program elements, such as parts management and logistics support.

Conclusions

If DoD wants industry to employ standardization, commonality, and parts management concepts to increase interoperability, reduce logistics footprint, and lower life-cycle costs, then those concepts must be included in key policy, procedure, and guidance documents. More important, contract language must explicitly address interoperability, standardization, commonality, and parts management in performance terms linked to measurable, desired outcomes. Contractors must be given incentives to apply their resources to improve interoperability, standardization, and parts management.

Recommendations

F1 Revise acquisition policy, procedures, and guidance documents to address and promote contract language supporting standardization, commonality, and parts management.

F2 Promote using clauses in contracts that advocate or direct the use of parts management and standardization concepts.

G. Acquisition Environment and Systems Engineering

The acquisition environment is the framework of policies, practices, processes, attitudes, and perceptions within which weapon systems are acquired. Systems engineering is an essential discipline for ensuring that the acquired systems will satisfy their requirements.

Findings

Before acquisition reform, parts management and systems engineering were linked through a framework of mandatory contractual requirements. But acquisition reform eliminated the mandatory requirements and also reduced or eliminated systems engineering's attention to parts management. Moreover, as performance requirements increasingly replaced detailed design requirements, systems engineering and the program offices were less obligated to manage parts at lower levels. A recent emphasis on systems engineering has begun to surface the need for greater parts management discipline throughout DoD.

Conclusions

Systems engineering has recently shown a renewed interest in raising the visibility and importance of standardization and parts management as program requirements. DSPO, working jointly with the systems engineering community, should be able to accelerate this process.

Recommendations

G1 Create a parts management presentation or white paper that demonstrates the need for stronger parts management discipline within systems engineering.

G2 Update existing systems engineering publications to more thoroughly address parts management.

G3 Integrate parts management more effectively into the Defense Acquisition Guidebook (Chapter 4: Systems Engineering) and systems engineering training.

G4 Establish strong relationships and partner with potential parts management advocates in systems engineering.

G5 Develop metrics for measuring and documenting the outcomes and benefits of systems engineering parts management discipline and decisions.

G6 Develop parts management language for inclusion in systems engineering contract clauses and in requirements for technical reviews and audits.

G7 Raise parts management visibility above the single program level.

G8 Develop new and improved standardization and parts management tools for systems engineers and key decision makers.

H. REQUIREMENTS AND CONTRACTING

Requirements expressed through contracts define exactly what is expected and what a contractor must deliver. If program managers expect certain desired outcomes but do not explicitly state them as requirements in contractual language, they will likely be disappointed. They need to state explicitly what contractors are to deliver.

Findings

Interoperability, standardization, and commonality are system attributes that arise fundamentally from design decisions. Failure of using commands and program managers to consider these factors, and to incorporate the right decisions into the system design, often results in lost capabilities, higher life-cycle costs, and larger logistics footprints, attributes that are difficult, if not impossible, to correct after system fielding. Many new contracts fail to even mention standardization, commonality, or parts management, and they contain no incentives for program managers or contractors to even consider, much less achieve, standardization, commonality, or effective parts management.

Conclusions

The individuals who define requirements, develop contracts, manage programs, and assess compliance must understand how to address parts management requirements in both traditional contracts and PBL contracts. They must ask for what they want with respect to interoperability, standardization, commonality, and parts management in clear and concise contractual language and supported with quantitative metrics. In addition, program managers must systematically verify through milestone reviews and audits that the interoperability, standardization, commonality, and parts management requirements are met.

Recommendations

H1 Develop model language and clauses for a range of contract types.

H2 Develop awareness, understanding, and relationships between DSPO, contracting, program management, interoperability, and acquisition policy proponents to ensure that contracts include parts management language.

H3 Promote, through policies, directives, and educational materials, the inclusion of parts management clauses in all contracts.

H4 Educate military service and program management personnel on the importance and benefits of addressing standardization and parts management in PBL contracts.

I. PARTS SELECTION

The most crucial element of parts management is parts selection. It occurs during the design phase and has always been an engineering responsibility. Proper parts selection requires that myriad factors be considered when choosing the optimum part, including technical characteristics, reliability, life-cycle cost, commonality, performance history, vendor performance, qualification, potential obsolescence, standardization, manufacturing, and maintenance.

Findings

Contractors lack a clear mandate and effective incentives to perform disciplined part selection. Many contracts fail to address the topics of parts management, commonality, or standardization, while some contractors lack adequate tools to support part selection. With a dwindling number of parts management engineers and no contractual basis for performing parts management, contractors often provide minimal parts selection discipline, using the lowest cost parts that meet performance requirements, or simply choosing the parts they already procure or produce. Failure to perform disciplined parts selection in the design phase often results in the use of less-than-optimum parts in DoD weapon systems and equipment. Use of such parts can increase obsolescence, lower reliability, reduce economies of scale, and degrade maintainability and supportability. In turn, these factors may degrade system performance, reduce logistics readiness, increase weapon system and equipment total ownership cost, and increase logistics footprint.

Conclusions

DoD and the defense industry must reach consensus on approaches for reintroducing more discipline in the parts selection process without returning to the old prescriptive approaches.

Recommendations

I1 Charter a government–industry implementation group to define and institute a viable consensus parts selection process for the new acquisition environment.

I2 Define and develop consensus processes and tools to adequately capture and communicate parts selection decisions for DoD’s weapon system programs.

I3 Convert MIL-HDBK-512 to a MIL-STD and direct its use in DoD program contracts.

I4 Develop tools and strategies for improving parts selection and standardization decisions across multiple platforms and for higher-level assemblies.

I5 Leverage government–industry bodies, such as the Parts Standardization Management Committee, to address, develop, and improve parts selection practices, tools, training, information, and guidance.

J. Diminishing Manufacturing Sources and Material Shortages

Diminishing manufacturing sources and material shortages (DMSMS) is the loss or impending loss, due to raw material processes, rapidly advancing technology, and economic factors, of manufacturing or production sources, suppliers of components, end items, or raw materials. DMSMS is an integral and necessary element of parts management.

Findings

DoD's current DMSMS efforts tend to be reactive with few preventive components. Many DoD acquisition programs lack adequate contract language to mitigate future DMSMS issues. Although DoD funds DMSMS solution processes, it inadequately funds upstream efforts to eliminate the causes of those problems. Most current DMSMS issues occur in the area of electronics and are driven by rapidly changing commercial technology. Existing DMSMS management efforts tend to focus on specific programs; lack synergy, cross-program integration, and global scope; and are short on useful metrics. Available DMSMS data are insufficiently linked to platforms and programs to support detailed comprehensive analysis. In addition, inadequacies in DMSMS-related documentation and parts information make it difficult to consolidate demand for common parts under a single part number and hard to determine the true demand for a part.

Conclusions

The effects of DMSMS are widespread and growing across weapon systems. The life cycle of commercial off-the-shelf (COTS) components is shrinking, which is compounding DoD's problems. The data in existing DMSMS systems are essential for effective parts management. A DMSMS COE would have great potential for parts management. Opportunities exist for extensive synergy and integration of the DMSMS and LCPC COEs.

Recommendations

J1 Integrate DMSMS with other DSP parts management processes and merge DMSMS and other parts data through an LCPC COE.

J2 Standardize DMSMS processes across DoD.

J3 Designate a single DMSMS focal point for DoD-wide program integration.

J4 Create DMSMS partnerships with industry and provide incentives for contractor participation.

J5 Encourage utilization of design strategies that help mitigate DMSMS issues and provide successful models for strategy implementation such as that demonstrated by the Navy's Acoustic Rapid COTS Insertion program.

K. RELIABILITY

Reliability is a characteristic of design that determines the probability that a component or system will operate without failure and within specified performance requirements under defined conditions for a specific period of time. Selecting the right parts for a specific application is crucial to achieving reliable systems.

Findings

A key function of parts management is selecting the best part for an application from a quality and reliability standpoint. This process is typically guided by the use of contract clauses that describe the necessary levels for quality and reliability of parts used in system design. It is also traditionally supported by the quality and reliability requirements and definitions such as those provided in MIL-HDBK-454, "General Guidelines for Electronic Equipment." This document provides the technical guidelines and lessons learned regarding the quality and reliability of components used in electronic equipment. Other documents provide similar information for other classes of parts. These documents assist designers with selecting the optimum parts for a given application, and are also used by the Military Parts Control Advisory Groups (MPCAGs) when they evaluate components for compliance with contractual requirements.

Conclusions

A robust, technically astute, and fully functioning parts management program can dramatically improve the selection of parts and increase the overall design reliability of a weapon system. The conscientious application of parts management principles with technically sound part reliability information and explicit contract clauses should produce higher reliability weapon systems, longer useful system life, less logistics burden, and lower life-cycle cost.

Recommendations

K1 Ensure MIL-HDBK-454 and similar documents provide an effective reliability baseline for parts selection and reliability management.

K2 Create a reliability-oriented user interface in the LCPC COE that provides the resources and tools needed for reliability-focused parts selection processes.

K3 Establish relationships between DSP and the reliability-focused communities and promote using the LCPC COE for identification and selection of high-reliability parts and components.

L. PARTS SELECTION SUPPORT

MPCAGs perform technical evaluations of parts used in weapon systems to help limit their proliferation and to increase the use of preferred or common parts. These evaluations address parts information from various perspectives, including quality, reliability, cost, standardization, availability, and logistics. They also result in recommendations concerning parts usage. The Modernized Parts Control Automated Support System (MPCASS) is a tool that enables and supports MPCAG analyses. It also provides engineering information on weapon system parts and on spare parts for defense supply centers and the military services for standardization activities such as document generation. In addition, MPCASS supports electronic routing and storage of parts-related evaluations and recommendations made by MPCAGs.

Findings

New program contracts rarely require or address parts management, and program offices rarely invoke parts management through their decision authority. As a result of acquisition reform and without strong contractual language, OEMs seldom ask for or use MPCAGs for parts management services. Currently, only a few programs still use MPCAGs.

Conclusions

MPCAGs and MPCASS, in their current forms, are not effective in the new acquisition environment. However, the parts data in MPCASS and the information generated from MPCAG analyses are potentially as useful today as they ever were. If these resources were reengineered into more effective and customer friendly forms, they could substantially improve DoD's parts management program. MPCASS data would need to be fully integrated into the parts data structure of the LCPC COE, and the analytical capability of MPCAGs would need to be more automated and readily available to parts selection decision makers. These valuable functions should be incorporated into the LCPC COE.

Recommendations

L1 Identify, map, automate, and move the valuable elements of the MPCAG and MPCASS functions into the LCPC COE.

L2 Phase out MPCAGs as a separate entity when the demand from current users declines and phase out MPCASS as a system when its data are integrated into the LCPC COE database.

L3 Use MPCAG personnel, to the extent practical, to staff the LCPC COE's parts selection or other support positions.

M. DATA MANAGEMENT, DATABASES, AND TOOLS

Parts management databases and tools are the enabling core capabilities of an effective parts management system. The efficiency, effectiveness, and usefulness of parts management systems depend on the availability, currency, maintainability, and quality of the data and the ease of using the associated databases and tools.

Findings

DoD has many different parts-related databases and tools. Although the databases or tools may serve a unique parts management need, they often use the same data. Duplicate data in various databases often differ considerably because of errors or alternative approaches to capturing the data. Most of these databases and tools, which are locally created applications with small numbers of users, do not communicate, integrate, compare, or share data with others. In addition, although the number of potential users of the data is considerably larger, most users are not aware of the systems, their capabilities, or how to access or use them. Finally, a majority of these tools use old technology and are complex, costly, inefficient, or ineffective.

Conclusions

The timing is ideal for achieving a quantum improvement in parts data management. Initiatives are already underway that contain core elements of a comprehensive LCPC COE. For example, one initiative is integrating DMSMS-related databases and tools into a center of excellence. Several other efforts, such as DLA's Business System Modernization (BSM) program, are striving to identify and integrate related tools into networked systems that will make the essential part data more readily available and user friendly.

Recommendations

M1 Define a clear vision, set of comprehensive system requirements, and concept of operations for an LCPC COE that builds upon existing and new databases and tools, functionality, applications, capabilities, and data elements, and integrates users into a system.

M2 Develop a comprehensive LCPC COE implementation plan that includes goals, objectives, development strategies, involved and responsible organizations, required resources, and schedules.

M3 Develop a business case and an aggressive marketing campaign to demonstrate the need for and benefits of an LCPC COE and build a high-level constituency for championing LCPC COE development.

M4 Establish partnerships with government, industry, third-party, and international organizations to collaborate, participate, and support LCPC COE implementation and to use the completed system.

M5 Define, design, and create the optimal LCPC COE architecture and user interfaces, and determine the responsible organizations and host sites.

N. Performance-Based Logistics and Contractor Logistics Support

PBL and Contractor Logistics Support (CLS) are DoD's preferred strategies for supporting weapon systems today and in the future. These strategies shift responsibilities for logistics support, including parts management, from organic resources to the private sector. They also support transferring the traditional DoD inventory, supply chain, and technical support functions to the supplier for a guaranteed level of performance and cost. The basis of PBL is establishing logistics support requirements and contractual incentives to mitigate obsolescence and reduce the cost of ownership.

Findings

PBL and CLS are continuing to grow and evolve, and traditional DoD parts management and standardization programs must adapt to this new logistics environment. Existing parts management policies and processes pre-date PBL contracts, and they do not adequately address or accommodate parts management and standardization in a PBL environment.

In addition, existing PBL and CLS contracts vary considerably in such areas as coverage, responsibilities, terms, incentives, and duration of coverage. DoD has no roadmap for addressing parts management or standardization in the current environment.

Conclusions

Because PBL and CLS contracts lack consistent guidance, requirements, incentives, or consideration for parts management and standardization, there is considerable long-term risk that these contracts may create significant interoperability, logistics readiness, and life-cycle cost issues. Although DoD has examples of PBL and CLS contracts that exceed performance expectations, those types of contracts do not promote the long-term value of parts management and DoD-wide standardization. The risks and benefits related to parts management and standardization in PBL and CLS contracts need to be reviewed, and clear guidance for their improvement needs to be developed.

Recommendations

N1 Establish acquisition policy that promotes parts management and standardization for PBL and CLS contracts, including requirements for parts management plans.

N2 Develop contract clauses that address parts management and standardization considerations for CLS and PBL contracts.

N3 Create a PBL and CLS user interface in the LCPC COE for educating and supporting users in parts management and standardization matters.

N4 Track PBL and CLS programs, their parts, and parts-related issues in the LCPC COE to understand the associated long-term issues and consequences.

O. BEST PRACTICES

Best practices are government or industry techniques or processes that have proven to produce superior results in specific and defined situations. A best practice is specific to a particular task, activity, or endeavor. A task may be performed in myriad ways using different strategies, tools, or techniques. These differences, whether large or subtle, can influence the quality, cost, timeliness, or other important outcomes. The processes or approaches that produce the best or optimum outcomes are defined as best practices. However, best practice is a temporary title; today's best practice will become second best when a new process is developed that proves to be superior.

Findings

For every definable task or activity involving parts management, DoD has best practices in use at any given point in time. Any list of such best practices must constantly evolve to remain relevant. While conducting this study, PMRWG identified many useful parts management techniques and tools that quite likely deserve designation as best practices. However, a best practice is an asset to those

who own or use it. In some instances, the practitioners are willing or eager to share their approaches with others, but other practitioners protect the best practice as a trade secret and leverage it for competitive advantage. In addition, a best practice that works in one setting or culture may not be as effective in a different environment.

Conclusions

Adequate mechanisms do not exist for systemically identifying, supporting, tracking, and communicating parts management best practices. A rigorous approach would require a dedicated research effort to seek out and compare the various practices and to track them as they evolve. A more practical approach would operate more as an exchange of ideas. A combination of research findings and voluntary nominations would continually refresh the population of best practices. Parts management performance and outcomes would significantly improve if DoD more effectively identified, supported, communicated, and employed the best practices.

Recommendations

O1 Define a structural framework for categorizing, organizing, and documenting parts management best practices.

O2 Establish a best practice exchange within the LCPC COE and provide strategies and incentives for users to contribute to and draw from the exchange.

O3 Develop a DSP capability to review, evaluate, and identify best practices and to promote, communicate, and support the most useful best practices.

P. ITEM ENTRY CONTROL

Item entry control (IEC), as part of the Federal Catalog System, filters items submitted for stock number assignment. IEC identifies and compares items with existing National Stock Numbers (NSNs) to ensure that duplicate items are not entered into the system and the DoD inventory.

Findings

It is DoD policy to minimize the purchase of technical data. Contractors and vendors voluntarily request new NSNs and only provide the technical data necessary to obtain the numbers. The IEC review process is limited by the amount and quality of the technical data provided. Much of the provided data are insufficient to support complete and thorough screening against existing NSNs. Inadequate technical data constrains the review process and often results in multiple NSNs being assigned to the same item of supply. In addition, many items of supply never receive an IEC review or NSN, particularly items under long-term CLS support

contracts or when DLA is not used as a source for common items. Alternatively, the DoD cataloging process for describing items is being adopted by industry through the Electronic Commerce Code Management Association (ECCMA) electronic Open Technical Dictionary (eOTD).

Conclusions

Although the IEC process provides a necessary and valuable function, many programs do not use the process or submit their items to be cataloged. But even when programs submit the required technical data, inadequacies in the data often limit IEC effectiveness. The true identity of a part is frequently hidden behind a contractor specification or special drawing number. Some contractors use their own drawing numbers for common parts to support their internal configuration control and ordering processes. The current IEC system lacks the flexibility, incentives, and clear benefits for programs to fully participate and to provide complete and accurate technical data. In any voluntary system, users must perceive a clear value added for participating, and the process must be quick and easy to use. IEC falls short on both counts. In addition, the system must enable contractor flexibility in part numbering without compromising the IEC process. DoD support for the ECCMA eOTD as an International Standards Organization standard and its use by contractors and vendors could significantly improve capabilities to compare items for parts selection and IEC.

Recommendations

P1 Streamline, automate, and integrate the NSN request and IEC process in the LCPC COE, and provide a user friendly and flexible tool for contractor and vendor use with incentives for participation and clear value added for users.

P2 Work with ECCMA to develop and promote eOTD as a universal, open cataloging standard.

Q. ITEM REDUCTION PROGRAM

The purpose of the Item Reduction (IR) Program is to reduce the number of generally similar items and to eliminate redundant items in the DoD supply system as recorded in the Federal Logistics Information System (FLIS). IR is principally a "sorting out" of items of supply, separating items that are to be retained for stock from items not to be acquired for continued supply. IR studies help establish item interchangeability and substitutability (I&S) relationships and generate item standardization codes used to improve DLA's logistics response time.

Findings

The IR Program is marginally effective for several reasons. IR studies are labor intensive and long in duration, and the inventory control points have limited resources to initiate and conduct the studies. Complex resource and funding issues that constrain or disrupt effective IR studies and review processes have persisted for years and remain unresolved. These issues block the efficient processing of many IR reviews, including weapon systems items coded as critical. In response, DLA has approved the use of the DLA Form 339 process for critical items. Structural and policy disconnects divide IR from the I&S process, when logically they are part of a common process.

Conclusions

IR will remain marginally effective until DoD resolves the resource and funding issues. Until then, alternative processes are needed to ensure efficient processing for IR and I&S critical items, new strategies are needed to make IR more customer focused and success oriented, and a long-term strategy is needed to effectively integrate the IR and I&S processes within a single enterprise-wide solution.

Recommendations

Q1 Use the DLA Form 339 process for all non-procurable, critical-coded weapon system items.

Q2 Develop a logical IR and I&S cost-benefit tracking and accounting mechanism and then craft and adopt a strategy for funding IR studies that are linked to IR savings streams.

Q3 Develop and implement strategies for more effectively involving commodity councils and other customers in the IR process.

Q4 Define new success-oriented IR strategies and revise DoD 4120.24-M Appendix 8, as required, to enable their use.

R. DoD Interchangeability and Substitutability Program

The objectives of the I&S Program include eliminating unnecessary duplication in the wholesale inventory management of items and promoting uniform application of related information in the logistics decision-making process. It generates codes, based on form, fit and function, within FLIS and other data systems used by DLA and the military services for filling requisitions and procuring items.

Findings

The current I&S Program is not a unified system; it is fragmented among DLA, the military services, and other government agencies by different policies, procedures, coding systems, and structures. DoD's I&S Program (not part of DSP) is fed IR study results by the IR Program (part of DSP), while the services' I&S Programs basically perform IR-like studies within the I&S framework. The individual programs use separate coordination vehicles, and the FLIS accommodates both DLA and service coding schemes. A joint I&S and IR Working Group report of May 2004 looked at the feasibility of eliminating one set of codes, but concluded that the many uses of the different codes would not easily accommodate consolidating the programs.

Conclusions

The I&S Program provides a valuable and essential function. However, like the IR Program, it is inefficient and in some ways redundant. These two programs should be integrated into an enterprise-wide system that uses common resources to the maximum extent possible. The issue is not whether they should use a common code, but how to most effectively integrate their functions to improve their efficiency, effectiveness, and customer value.

Recommendations

R1 Develop a long-term strategy to structurally integrate the IR and I&S Programs.

R2 Develop a single enterprise-wide I&S solution and support it within a common operating environment using a single set of tools.

R3 Organize the IR and I&S Programs under a single advocate, facilitating efficient and effective integration and operation.

R4 Rationalize and streamline the IR and I&S coding requirements to satisfy the variety of uses of the existing code structures.

S. DEFENSE INACTIVE ITEM PROGRAM

The Defense Inactive Item Program (DIIP), established in 1965, provides for the systematic elimination of inactive NSNs from the DoD supply system. It also identifies potential items for review to determine if they are no longer needed in the DoD inventory using the following criteria:

- Items have been in the DoD supply system for 7 years or in the DLA system for 4 years

- No demand for the DoD item in the past 5 years or 1 year for DLA items
- Item assigned to the same DoD materiel manager for 2 years or longer
- Item under the same materiel manager for at least 1 year since the previous DIIP review.

Using these criteria, FLIS, combined with procurement history data in DLA's Standard Automated Material Management System (SAMMS) and the military services' procurement systems, generates the DIIP candidate NSNs for the military services to review for elimination.

Findings

An FY 2003 Government Accountability Office audit of DIIP reported that its return on investment is low. DLA put a moratorium on DIIP in FY 2004–05 during its conversion to BSM and while it reengineered its process. In FY 2003, the rate of deletion of DIIP candidates reviewed was only about 8 percent, primarily because the military services did not concur with most proposals for items that could affect future weapons systems support. In today's military operating environment, eliminating inactive inventory may not optimally serve the future requirements of customers. DIIP is the only automated process that looks at the entire DoD inventory to identify inactive items of supply. Under current practices, eliminating DIIP items and their inventory also eliminates information about the item from the system. In many instances, no inventory is involved, so only information is deleted. Today, memory is cheap, and information is an increasingly valuable resource for an enterprise moving away from storing and issuing material to managing relationships and supply chains.

Conclusions

Eliminating DIIP would be inappropriate. DoD should modify DIIP to improve its performance within the new environment and use its information to more effectively manage item inventories and information.

Recommendations

S1 Cease conducting DIIP reviews with the military services and conduct a feasibility study to determine how to more effectively use DIIP's functionality, capability, and information. Move the enhanced DIIP functionality to a modern platform.

S2 Develop long-term strategies to (1) retain, archive, and use information about DIIP items; (2) more efficiently and cost-effectively retain, manage, and ultimately dispose of DIIP inventories; and (3) better support customer's long-term needs for very low-demand items (these strategies may involve third-party solutions).

T. BUSINESS SYSTEMS MODERNIZATION AND ENTERPRISE RESOURCE PLANNING

Business System Modernization (BSM), Enterprise Resource Planning (ERP), Business Warehouse (BW), and Product Data Management Initiative (PDMI) are initiatives or approaches to rationalizing and integrating the many diverse business management information systems that have proliferated across DoD and industry during the past two decades.

Findings

All of the services and DLA are in various stages of planning or implementing ERP solutions to their supply chain management processes. Those solutions will interface with, integrate, or incorporate many parts-related data systems, including SAMMS, FLIS, and the Acquisition Streamlining and Standardization Information System (ASSIST). The future capabilities to perform parts management, item reduction, standardization, and other functions will likely exist in these systems or depend upon data in this new data environment. However, the parts management community is insufficiently involved in these efforts to ensure that its future needs are adequately considered and incorporated.

Conclusions

The parts management community should be represented in the planning for BSM and ERP to ensure that its needs are fully considered in the design of the new information environment. DoD also needs to more effectively communicate information about the BSM and ERP process and its relevance to the standardization and parts management initiatives. Standardization and parts management stakeholders need to be more proactive in defining their future requirements and their stakes in the evolving information environment. They further need to influence the evolving BSM and ERP systems to maximize resource sharing and minimize duplication of effort.

Recommendations

T1 Expedite the conceptual development of requirements for an LCPC COE and define how its requirements relate to the evolving BSM and ERP systems and resources.

T2 Take proactive actions to ensure that the standardization and parts management communities are adequately represented and engaged in the BSM and ERP processes.

T3 Educate and inform members of the standardization and parts management communities regarding BSM and ERP progress and how it relates to opportunities, needs, and initiatives; use the *DSP Journal*, DSP Web site, DSP Conference, and other means to the maximum extent possible.

U. METRICS

Metrics are essential for measuring performance and results and for managing an enterprise. Without metrics, managers cannot assess the efficiency and effectiveness of their operations or determine where and how to adjust or improve their processes and systems, and enterprises cannot determine their cost of operation, return on investment, or value to their customers. Every viable organization needs accurate metrics that measure the inputs, processes, outputs, and outcomes that are the most important indicators of its success in accomplishing its mission and satisfying its customers.

Findings

Parts management lacks many of the key metrics needed to efficiently and effectively manage the enterprise. In many situations, the appropriate metrics are defined or understood, but the required performance data are difficult to obtain, are not collected, or are not retained. In general, DoD has few systematic means for capturing the inputs, process variables, outputs, and outcomes from individual parts management functions and initiatives. This lack of supporting metrics makes it difficult to defend or to obtain the resources and funding needed to accomplish parts management functions. Efforts are currently underway within the Office of the Secretary of Defense to establish a balanced scorecard that employs performance-based outcomes of availability, reliability, cost-per-unit usage, logistics footprint, logistics response time, and other metrics.

Conclusions

The long-term viability of parts management depends on its ability to demonstrate value and to compete for scarce resources. The parts management community must agree on the best metrics for each parts management activity, put in place the means to capture the required data, and develop the management disciplines necessary to make the best use of the metrics to manage and improve the system.

Recommendations

U1 Develop and execute a parts management performance measurement plan that identifies the best metrics for each function, the means to capture the data required for each metric, and the strategies for managing and improving the operations using the data.

U2 Develop strategies to integrate performance metrics into evolving management systems such as LCPC COE and BSM, and tie these metrics to higher-level metrics such as availability, reliability, cost-per-unit usage, logistics footprint, and logistics response time.

U3 Coordinate metrics development with key stakeholders and use performance data to communicate with and educate users and customers.

V. EDUCATION AND TRAINING

Training and education are essential to communicating and imparting information and knowledge about DoD's parts management initiatives. DoD cannot expect specific behaviors or results unless it is prepared to educate and train those individuals who are expected to exhibit and deliver the desired behaviors and results.

Findings

Standardization and parts management education and training are critical if DoD wants to reap the potential benefits. The PMRWG found widespread misunderstanding of parts management, so most contracts do not contain requirements for or even mention parts management or standardization. Current systems engineering and acquisition management curriculums do not adequately address parts management and standardization. In addition, DLA and the military services have many significant differences in definitions for parts management, while DoD has no Web-based capability supporting independent study. Current Defense Acquisition University courses do not adequately address parts management and standardization. Furthermore, education and training programs for specific standardization disciplines, such as parts management, IR, and I&S, are not available.

Conclusions

Program managers, project officers, materiel managers, engineers, and other key individuals need new or updated standardization and parts management education and training. That education and training should include formal and informal means, such as classroom, Web-based, self-paced, and joint and collaborative approaches involving both government and industry.

Recommendations

V1 Develop and execute a comprehensive plan for parts management and standardization education and training; the plan should identify key training topics, training needs and objectives, target audiences, training methods, desired outcomes, and delivery schedules.

V2 Develop curricula and courseware to execute the training plan.

V3 Develop a parts management outreach program that includes marketing initiatives, government and industry collaboration, teaming arrangements, and outreach media.

V4 Ensure that parts management training and education requirements are integrated into the design of the LCPC COE and related systems.

W. FUNDING AND RESOURCES

Funding and resources include money, people, facilities, and data required to support and operate an effective parts management and standardization initiative.

Findings

The funding and resources required to operate an efficient and effective parts management program are inadequate. Before acquisition reform, DoD had dedicated technical personnel who collaborated with systems design engineers to achieve standardization and parts management objectives. But now, DoD lacks the sufficient number of qualified technical people with the skills and knowledge to perform complex standardization and parts management functions. Some functions are adequately funded while others are severely underfunded.

Conclusions

Before DoD can realize the benefits of standardization and parts management, it must find ways to more effectively leverage available resources and to appropriately fund the required work. These activities may require greater emphasis in contractual language, development of more effective tools and metrics, and shifting some parts management responsibilities to the systems engineering and contractor communities. In addition, DoD needs more effective and accurate means for linking costs to benefits, inputs to outcomes, and resources to results.

Recommendations

W1 Include parts management and standardization requirements in contracts and allow contractors to fund and bill for their parts management and standardization programs.

W2 Consider using some of the estimated savings from parts management activities, such as IR studies, to perform additional parts management activities in areas where funding is currently inadequate.

W3 Develop a long-term strategy to streamline and consolidate parts management processes within an integrated LCPC COE framework, with emphasis on process efficiency, outcome effectiveness, meaningful return on investment, and balance between resources and benefits; where feasible, consolidate parts management workload in areas with established adequate funding mechanisms.

W4 Consider centralizing funding for standardization and parts management to ensure strategic, focused, fair application of available resources; ensure effective integration of parts management functions within a common information environment; and provide funding for infrastructure improvements and development of tools, models, and metrics.

III. Implementation

This section provides a preliminary strategy for implementing the eight major recommendations. These recommendations were derived by grouping the detailed recommendations from the 23 topics according to their common characteristics. For example, all detailed recommendations involving tools and metrics are grouped into a single recommendation on tools and metrics.

RELATIONSHIP OF DETAILED RECOMMENDATIONS TO MAJOR RECOMMENDATIONS

The relationships among the major recommendations and their supporting detailed recommendations are illustrated below. For example, Major Recommendation 1 is supported by 11 detailed recommendations. These relationships enable the reader to explore the scope and detail of supporting recommendations. For each major recommendation, the PMRWG identified the top three or four detailed recommendations, in order of their importance. It also assigned high, medium, or low priorities to the major recommendations based on time and dependency considerations. High-priority recommendations should be acted upon as soon as possible; medium-priority recommendations can start only after the high-priority tasks have been started or completed. Many of the low-priority recommendations can wait until after the high- and medium-priority tasks are well underway or completed.

Major Recommendation 1: Make Parts Management a Policy and Contractual Requirement

Supporting Detailed Recommendations:

D5, F1, F2, G6, H1, H2, H3, I3, N1, N2, W1

Highest Priority Recommendations:

F1 Revise acquisition policy, procedures, and guidance documents to address and promote contract language supporting standardization, commonality, and parts management.

W1 Include parts management and standardization requirements in contracts and allow contractors to fund and bill for their parts management and standardization programs.

I3 Convert MIL-HDBK-512 to a MIL-STD and direct its use in DoD program contracts.

This recommendation is a high priority for parts management reengineering. Its implementation is already underway, and the tasks should be completed at the earliest possible date.

Major Recommendation 2: Revitalize Parts Management within the Systems Engineering Discipline

Supporting Detailed Recommendations:

G1, G2, G3

Highest Priority Recommendations:

G2 Update existing systems engineering publications to more thoroughly address parts management.

G3 Integrate parts management more effectively into the Defense Acquisition Guidebook (Chapter 4: Systems Engineering) and into systems engineering training.

G1 Create a parts management presentation or white paper that demonstrates the need for stronger parts management discipline within systems engineering.

This recommendation is the second highest priority for reengineering the parts management system, primarily because it depends on the implementation of the first recommendation to properly set the stage.

Major Recommendation 3: Create a Life-Cycle Part and Component Center of Excellence

Supporting Detailed Recommendations:

E6, K2, K3, L1, L3, M1, M2, M3, M5, N3, N4, O2, P1, T1, V4

Highest Priority Recommendations:

M1 Define a clear vision, set of comprehensive system requirements, and concept of operations for an LCPC COE that builds upon existing and new databases and tools, functionality, applications, capabilities, and data elements, and integrates users into a system.

M5 Define, design, and create the optimal LCPC COE architecture and user interfaces, and determine the responsible organizations and host sites.

M2 Develop a comprehensive LCPC COE implementation plan that includes goals, objectives, development strategies, involved and responsible organizations, required resources, and schedules.

This recommendation is the PMRWG's third highest priority for reengineering the parts management system because it depends on the implementation of the first and second recommendations. In addition, it requires collaboration with systems engineering and other organizations or disciplines, and an evolutionary implementation strategy starting with a focus on the easy-to-achieve actions.

The realization of an LCPC COE depends on the willingness of DoD personnel to use a common database. Incentives may be needed to ensure participation from both DoD and OEMs. The system must be designed to facilitate keeping the data current after the LCPC COE has been implemented.

Major Recommendation 4: Develop Improved Parts Management Tools and Metrics

Supporting Detailed Recommendations:

G5 G8, I2, I4, K1, O1, O3, Q2, U1, U2

Highest Priority Recommendations:

I4 Develop tools and strategies for improving parts selection and standardization decisions across multiple platforms and for higher-level assemblies.

U2 Develop strategies to integrate performance metrics into evolving management systems such as the LCPC COE and BSM, and tie these metrics to higher-level metrics such as availability, reliability, cost-per-unit usage, logistics footprint, and logistics response time.

U1 Develop and execute a parts management performance measurement plan that identifies the best metrics for each function, the means to capture the data required for each metric, and the strategies for managing and improving the operations using the data.

This recommendation is a medium priority because many of its detailed recommendations are developed within the LCPC COE or their implementation would be facilitated by earlier recommendations. In addition, it calls for an evolutionary approach dealing first with existing tools and metrics, improving or replacing them, and then developing new capabilities.

Major Recommendation 5: Improve DoD's Parts Management Organization

Supporting Detailed Recommendations:

A1, A2, A3, C1, C2, C4, E5, I1, J1, J2, J3, L2, Q1, Q4, R1, R2, R3, R4, S1, S2, W2, W3, W4

Highest Priority Recommendations:

W4 Consider centralizing funding for standardization and parts management to ensure strategic, focused, fair application of available resources; ensure effective integration of parts management functions within a common information environment; and provide funding for infrastructure improvements and development of tools, models, and metrics.

W3 Develop a long-term strategy to streamline and consolidate parts management processes within an integrated LCPC COE framework, with emphasis on process efficiency, outcome effectiveness, meaningful return on investment, and balance between resources and benefits; where feasible, consolidate parts management workload in areas with established adequate funding mechanisms.

J1 Integrate DMSMS with other DSP parts management processes and merge DMSMS and other parts data through an LCPC COE.

C2 Develop and implement a strategy to promote, identify, define, and charter Joint Standardization Boards.

This recommendation is a medium priority because it consists of a large number of detailed recommendations that address a wide range of issues. It is also the most diverse of all recommendations and is highly dependent on other activities.

Major Recommendation 6: Educate, Train, and Create New Communication (Marketing) Products

Supporting Detailed Recommendations:

B1, B3, E2, E4, G7, H4, J5, T3, V1, V2

Highest Priority Recommendations:

V1 Develop and execute a comprehensive plan for parts management and standardization education and training; the plan should identify key training topics, training needs and objectives, target audiences, training methods, desired outcomes, and delivery schedules.

B1 Develop an integrated comprehensive DSP strategy to increase awareness, understanding, and utilization of parts management and standardization concepts and resources.

B3 Increase DSP outreach to effectively inform the broader acquisition community about parts management and standardization strategies, practices, tools, and benefits.

This recommendation is a medium priority. Many of the training and education topics relate to new capabilities or changes resulting from the implementation of higher-priority recommendations.

Major Recommendation 7: Build Key Partnerships and Relationships

Supporting Detailed Recommendations:

B2, C3, E1, E3, G4, I5, J4, M4, P2, Q3, T2, U3, V3

Highest Priority Recommendations:

M4 Establish partnerships with government, industry, third-party, and international organizations to collaborate, participate, and support LCPC COE implementation and to use the completed system.

I5 Leverage government–industry bodies, such as the Parts Standardization Management Committee, to address, develop, and improve parts selection practices, tools, training, information, and guidance.

B2 Establish strategic DSP relationships to build a broader advocacy base for parts management and standardization.

V3 Develop a parts management outreach program that includes marketing initiatives, government and industry collaboration, teaming arrangements, and outreach media.

This recommendation has a mix of high- and medium-priority tasks. It is a cross-cutting recommendation that takes on significance when tied to achieving objectives that require key partnerships or relationships. In other instances, key relationships will result from implementing earlier recommendations.

Major Recommendation 8: Better Understand Parts Management Contribution to Performance-Based Logistics Objectives

Supporting Detailed Recommendations:

D1, D2, D3, D4, E4

Highest Priority Recommendations:

E4 Document and demonstrate the role and application of standardization and parts management in achieving interoperability.

D1 Authoritatively define logistics footprint.

D3 Develop a logistics footprint model.

D4 Relate parts management and standardization to the logistics footprint.

This recommendation has a low priority because its outcome is knowledge rather than a capability and because the cause-and-effect connections to objective outcomes, while intuitive, are not directly measurable. Too many variables exist between parts management or standardization actions and the end metrics, such as operational availability. Although its priority is low and degree of difficulty high, this recommendation remains important to make the desired connections. Making the connections will require a slow, deliberate, and disciplined effort to assemble and integrate logical arguments, lessons learned, and subjective chains of reasoning, with empirical evidence and model results.

IMPLEMENTING THE HIGH-PRIORITY MAJOR RECOMMENDATIONS

In this section, the PMRWG looks at implementation strategies for the three high-priority recommendations. These recommendations must be started and specific milestones met before most of the others can start. Because of uncertainty associated with executing the first three recommendations, planning now for the downstream recommendations should wait until an implementation team is in place. That team should then carry the planning process forward.

The PMRWG's implementation strategies for the top three recommendations employ a phased approach. Specific milestones mark the transitions from one phase to the next, while specific criteria define the work to be accomplished in each phase. The phases should start in numbered sequence; however, subsequent phases can and should start before the preceding phases are completed. The phases, therefore, should generally run in parallel much of the time. Overall, the strategies are defined by the tasks to be accomplished and by completion milestones, rather than by a specific time frame.

Implementing Major Recommendation 1: Make Parts Management a DoD Policy and Contractual Requirement

Practically every other recommendation requires the implementation of this recommendation. To some degree, DSPO has already started the first phase of the implementation process by initiating dialogue on the subject and building an advocacy network for the new policy. The phases for implementing this recommendation are defined below.

PHASE 1: PARTS MANAGEMENT BECOMES DOD POLICY

Exit Milestone

Phase 1 will be completed when a signed DoD policy memorandum is issued that requires participation, implementation, and compliance by all the key players in DoD's parts management system. At a minimum, the memorandum should contain the following policy statements:

- Parts management is a requirement for all major weapon system programs.
- Compliance is performance based.
- Compliance is assessed at program milestone reviews.

Tasks to Accomplish

Implementing Phase 1 will require execution of several tasks. The following list of tasks is not comprehensive. The implementation team, or responsible agents, should determine the content and timing for executing each task:

1. Determine the changes sought through the new DoD policy
2. Determine the scope of the policy (organizations affected)
3. Determine the essential policy message
4. Determine the DoD official who should sign and issue the policy
5. Draft specific policy language (or prepare a draft memorandum)
6. Determine the necessary advocacy network (chain of command and other key positions)
7. Conduct marketing to build sufficient advocacy for obtaining high-level support
8. Move the draft policy through the approval chain
9. Negotiate policy language and refine the final policy document to obtain approvals
10. Obtain signature and issue the policy.

PHASE 2: DSP DOCUMENTS REFLECT THE NEW DOD POLICY

Exit Milestone

Phase 2 will be completed when all DSP documents have been revised to reflect the new policy and officially replace the earlier versions.

Tasks to Accomplish

Implementing Phase 2 will require execution of the following tasks:

1. Determine the DSP documents that must be revised to reflect the new DoD policy
2. Determine the process and sequence for revising the documents
3. Determine the places within each document that require revision or new language
4. Craft new or revised language for each location within the documents
5. Determine the constituency, if any, that should concur with the changes
6. Obtain consensus or approval for each change
7. Make the physical changes required in each document
8. Officially notify the stakeholder community of the changes and issue the new documents.

PHASE 3: DOD AND OTHER STAKEHOLDER DOCUMENTS REFLECT THE NEW DOD POLICY

Exit Milestone

Phase 3 will be completed when all documents (other than DSP-controlled documents) are revised to reflect the new policy and officially replace the earlier versions. These documents may include acquisition, systems engineering, and military service publications.

Tasks to Accomplish

Implementing Phase 3 will require execution of the following tasks:

1. Determine the non-DSP documents that must be revised to reflect the new DoD policy
2. Identify and coordinate the changes with the responsible stakeholders

3. Offer or provide DSP assistance, as appropriate, to accomplish the changes
4. Determine the process and sequencing for revising the documents
5. Determine the places within each document that require revision or new language
6. Craft new and revised language for each location within the documents
7. Determine the constituency, if any, that should concur with the changes
8. Obtain consensus or approval for each change
9. Make the physical changes required in each document
10. Officially notify the stakeholder community of the changes and issue the new documents.

PHASE 4: STAKEHOLDERS ARE INFORMED, UNDERSTAND, AND IMPLEMENT THE NEW DOD POLICY

Exit Milestone

Phase 4 has multiple exit milestones and will be completed when all of the following have been accomplished:

- Education and training courses, and related media are revised to reflect the new policy.
- Affected stakeholders perform their work in accordance with the new policy.
- Essential criteria, capabilities, processes, guidance, tools, and metrics are in place to assess compliance with the policy.

Tasks to Accomplish

Implementing Phase 4 will require execution of the following tasks:

1. *Milestone 1: DoD Policy Education, Training, and Communication Media.* The tasks and activities related to this exit milestone are part of implementing Major Recommendation 6. The definition of related tasks should be accomplished as part of implementing that recommendation.
2. *Milestone 2: DoD Policy Execution in Stakeholder Disciplines.* The tasks and activities related to this exit milestone are part of implementing Major Recommendation 2 and will be addressed under that recommendation.

3. *Milestone 3: Processes, Tools, and Metrics that Support DoD Part Management Policy.* The tasks and activities related to this exit milestone are part of implementing Major Recommendations 3 and 4 and will be addressed under those recommendations.

In essence, this phase begins when one or more of several major recommendations begin and it ends when they have all progressed sufficiently to satisfy these exit milestone criteria.

PHASE 5: FULL IMPLEMENTATION OF DOD POLICY AND CONTINUAL PROCESS IMPROVEMENT

Exit Milestone

Phase 5 has multiple milestones but no defined endpoint. This phase, when mature, becomes the new way of doing business. Its important interim milestones include the following:

- Contract clauses that reflect the new policy are placed in all new major weapon system contracts.
- OEMs routinely comply with the contract clause requirements.
- Compliance assessment is a routine part of program milestone reviews.

Tasks to Accomplish

Implementing Phase 5 will require execution of the following tasks:

1. *Milestone 1: DoD Parts Management Policy is Reflected in New Contracts.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are known and their shaping influences defined. The important factors for this milestone include the following:
   - Creation of a suite of contract clauses suitable for a wide range of programs and situations
   - Understanding, acceptance, and integration of the policy requirements by contracting officers, program managers, and OEMs
   - Tools and metrics that enable easy measurement of achieving this milestone.
2. *Milestone 2: OEMs Execute Parts Management in Accordance With Contract Clause Requirements.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are

known and their shaping influences defined. The important shaping factors for this milestone include the following:

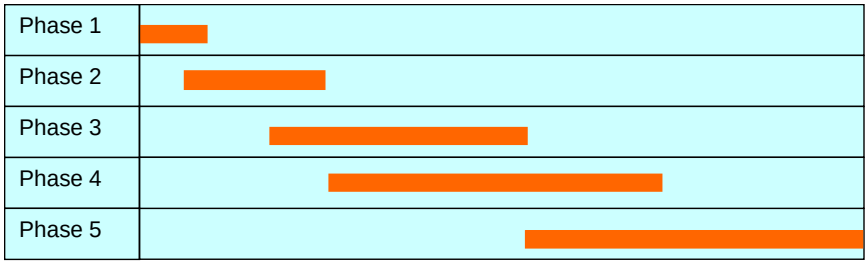
- Creation of performance-based compliance criteria
- Creation of OEM processes, practices, and procedures that support compliance
- Tools and metrics that enable OEM accomplishment of the performance requirements and demonstration of compliance.

3. *Milestone 3: Program Milestone Reviews Assess Parts Management Policy Compliance.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are known and their shaping influences defined. The important factors for this milestone include the following:

   - Creation of a suite of milestone review assessment criteria to verify compliance
   - Understanding, acceptance, and integration of parts management elements into the milestone review process
   - Tools and metrics that enable OEMs to confirm they are compliant prior to review and enable reviewers to easily validate compliance.

Figure 1 shows the notional implementation phase relationships for Major Recommendation 1.

Figure 1. Notional Implementation Phase Relationships: Major Recommendation 1



Implementing Major Recommendation 2: Revitalize Parts Management within the Systems Engineering Discipline

DSPO has already started Phase 1 for implementing this major recommendation by opening a dialogue with key systems engineering leaders and jointly crafting language for insertion into systems engineering documents.

PHASE 1: PARTS MANAGEMENT IS RECOGNIZED IN POLICY AS PART OF THE SYSTEMS ENGINEERING DISCIPLINE

Exit Milestone

Phase 1 has multiple exit criteria and will be completed when the following occur:

- DSPO and systems engineering formally define and agree on what parts management means and what is involved in revitalizing parts management within the systems engineering discipline.
- Language reflecting that agreement and implementing the new policy is officially incorporated into systems engineering policy documents. At a minimum, those documents should contain the following policy statements:
  - Parts management is a key component of the systems engineering discipline.
  - Systems engineering has a responsibility to ensure that parts management is properly implemented in major weapon system programs.
  - Systems engineering parts management responsibilities include ensuring that parts selection criteria include life-cycle logistics factors such as standardization, DMSMS, and obsolescence, and that the parts selection process gives due consideration to these factors.
  - Due consideration of life-cycle logistics factors in parts selection is included in program review milestone criteria.

Tasks to Accomplish

Implementing Phase 1 will require execution of the following tasks:

1. Determine the parts management roles and responsibilities within the system engineering discipline
2. Determine the scope role interface boundaries and relationships between system engineering and DSP
3. Determine the essential message to be codified in system engineering policy
4. Determine who should approve, endorse, or concur with the policy
5. Draft specific system engineering policy language
6. Determine the necessary advocacy network and coordinate policy changes

7. Reach consensus on policy language and revise the final policy document

8. Announce and issue the revised system engineering policy.

PHASE 2: SYSTEM ENGINEERING GUIDANCE DOCUMENTS REFLECT THE NEW PARTS MANAGEMENT POLICY AND PRACTICE

Exit Milestone

Phase 2 will be completed when all system engineering documents have been revised to reflect the new parts management policy.

Tasks to Accomplish

Implementing Phase 2 will require execution of the following tasks:

1. Determine the system engineering documents that must be revised to reflect the new parts management policy and practice

2. Determine the process and sequencing for revising the documents

3. Determine the places within each document requiring revision or new language

4. Craft new or revised language for each location within each document

5. Determine the constituency that should concur with the changes

6. Obtain consensus or approval for each change

7. Make the changes required in each document

8. Officially notify the stakeholder community of the changes and issue the new documents.

PHASE 3: DOD AND OTHER STAKEHOLDER DOCUMENTS REFLECT THE NEW SYSTEM ENGINEERING PARTS MANAGEMENT POLICY

Exit Milestone

Phase 3 will be completed when all documents (other than system engineering-controlled documents) are revised to reflect the new parts management policy. These may include acquisition, DSP, and military service publications.

Tasks to Accomplish

Implementing Phase 3 will require execution of the following tasks:

1. Determine the non-system engineering documents that must be revised to reflect the new parts management policy and practice
2. Identify and coordinate with the responsible stakeholders regarding the changes
3. Offer or provide system engineering and DSP assistance, as appropriate, to accomplish the changes
4. Determine the process and sequencing for revising the documents
5. Determine the places within each document requiring revision or new language
6. Craft new or revised language for each location within each document
7. Determine the constituency that should concur with the changes
8. Obtain consensus or approval for each change
9. Make the changes required in each document
10. Officially notify the stakeholder community of the changes and issue the new documents.

PHASE 4: STAKEHOLDERS ARE INFORMED, UNDERSTAND, AND IMPLEMENT THE NEW SYSTEM ENGINEERING PARTS MANAGEMENT POLICY AND PRACTICE

Exit Milestone

Phase 4 has multiple exit milestones and will be complete when all of the following tasks have been accomplished:

- Education and training courses and other appropriate media are revised to reflect the new parts management policy, and students are taught using the revised media.
- Affected stakeholders perform their parts management work in accordance with the new policy.
- Essential criteria, capabilities, processes, guidance, tools, and metrics are in place to assess compliance with the parts management policy.

Tasks to Accomplish

Implementing Phase 3 will require execution of the following tasks:

1. *Milestone 1: System, Engineering Parts Management Education, Training, and Communication Media.* The tasks and activities related to this exit milestone are part of implementing Major Recommendation 6. The definition of related tasks should be accomplished as part of implementing that recommendation.

2. *Milestone 2: System Engineering Parts Management Policy Execution in Stakeholder Disciplines.* The tasks and activities related to this exit milestone are part of implementing Major Recommendation 5 and will be addressed under that recommendation.

3. *Milestone 3: Processes, Tools, and Metrics Supporting Parts Management Practice in SE.* The tasks and activities related to this exit milestone are part of implementing Major Recommendations 3 and 4 and will be addressed under those recommendations.

This phase begins when one or more of several major recommendations begin, and it ends when they have all progressed sufficiently to satisfy these exit milestone criteria.

PHASE 5: FULL IMPLEMENTATION AND CONTINUAL IMPROVEMENT

Exit Milestone

Phase 5 has multiple milestones but no defined endpoint. This phase, when mature, will become the new way of doing business within system engineering and DoD. Its important interim milestones include the following:

- Contract clauses that address the system engineering parts management policy and practice are placed in all new major weapon system contracts.

- OEMs system engineering and related disciplines routinely comply with the parts management contract clause requirements.

- Compliance assessment is a routine part of program milestone reviews.

Tasks to Accomplish

Implementing Phase 5 will require execution of the following tasks:

1. *Milestone 1: Systems Engineering Parts Management Policy is Reflected in New Contracts.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are known and their

shaping influences defined. The important shaping factors for achieving this milestone include the following:

- Creation of a suite of contract clauses suitable for parts management on a wide range of different programs and situations
- Understanding, acceptance, and integration of the system engineering parts management policy requirements especially by contracting officers, program managers, and OEMs
- Tools and metrics that enable easy measurement and verification of achieving this milestone.

2. *Milestone 2: OEMs Execute Contract Clause Requirements.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are known and their shaping influences defined. The important shaping factors for this milestone include the following:

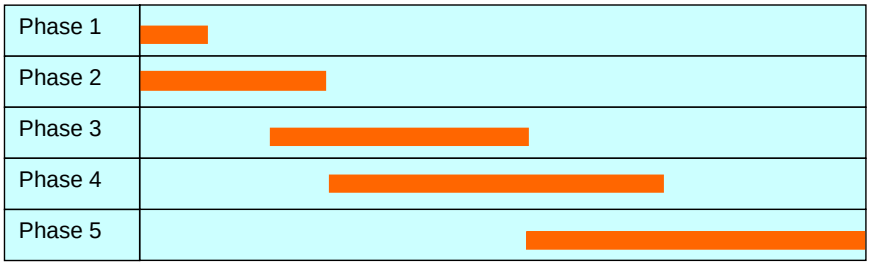
   - Creation of performance-based criteria for defining system engineering parts management compliance
   - Creation of OEM processes, practices, and procedures that support compliance
   - Tools and metrics that enable easy OEM accomplishment of the performance requirements and easy validation of compliance.

3. *Milestone 3: Program Milestone Reviews Assess Parts Management Compliance.* The tasks and activities related to this milestone should be defined after the decisions made in earlier phases are known and their shaping influences defined. The important shaping factors for this milestone include the following:

   - Creation of a suite of milestone review assessment criteria to easily verify compliance with parts management performance requirements
   - Understanding, acceptance, and integration of system engineering parts management elements into the milestone review process
   - Tools and metrics that enable OEMs to confirm they are parts management compliant prior to review and enable reviewers to easily validate compliance.

Figure 2 shows the notional implementation phase relationships for Major Recommendation 2.

Figure 2. Notional Implementation Phase Relationships: Major Recommendation 2



Implementing Major Recommendation 3: Create a Life-Cycle Part and Component Center of Excellence

This recommendation is broad in its reach, and practically every other recommendation uses or relies on capabilities proposed for the LCPC COE. To some degree, DSPO has already started Phase 1 of the implementation process by moving toward integration of DMSMS with the DSP.

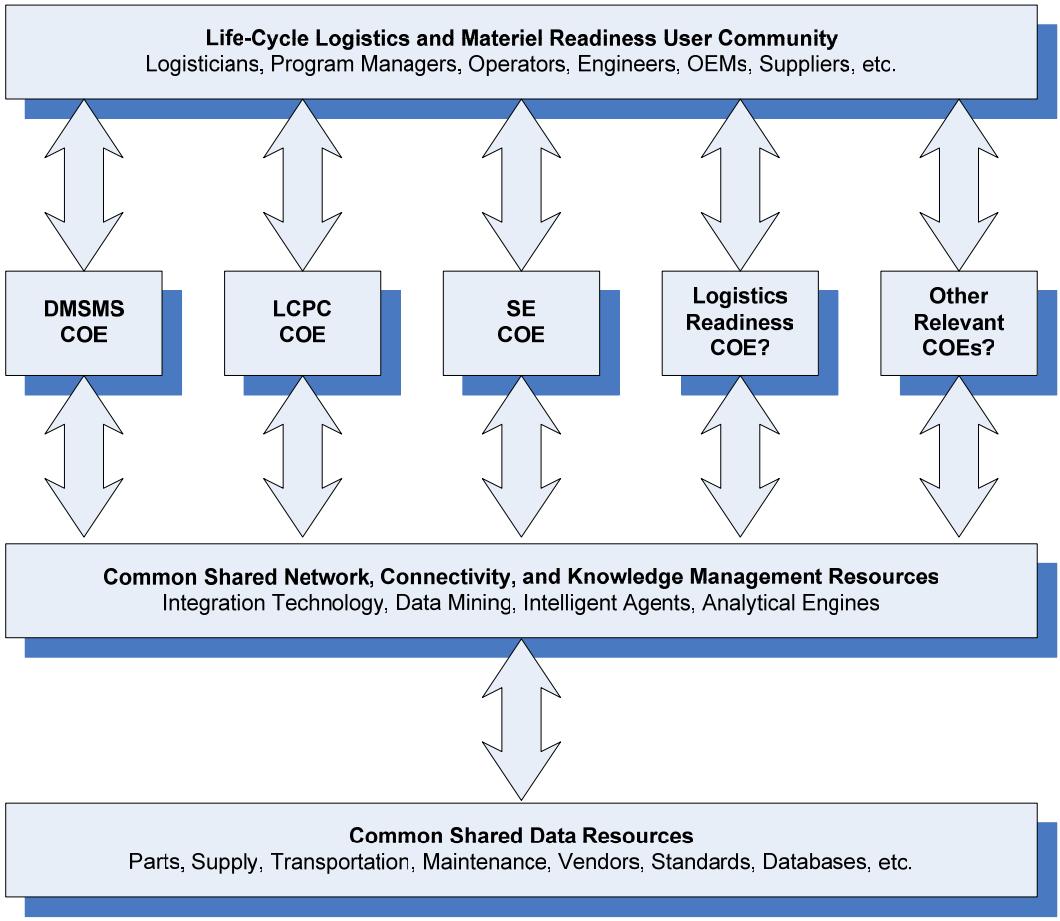
The PMRWG, during its final meeting, articulated a preliminary vision for the LCPC COE by defining its end-state requirements. These requirements are preliminary and partial, and will be presented under separate cover. The implementation team should use these requirements as a starting point for developing a more detailed and coherent set of requirements.

LCPC COE VISION

The LCPC COE incorporates all parts management processes. It can be viewed as a comprehensive set of parts management applications and tools, excluding but networked with those parts-related capabilities already addressed by the DMSMS COE. It can also be viewed as residing within a much larger "future" notional center of excellence framework: a Life Cycle Logistics and Materiel Readiness (LCLMR) COE. As illustrated in Figure 3, this larger framework theoretically encompasses and integrates various subordinate COEs.

The proposed LCPC COE would use network and data resources available to other COEs, but it would not duplicate their capabilities. It would integrate existing parts-related processes and functions—such as GIDEP, Parts Selection, Item Reduction, Program Managers Tool, Weapon System Impact Tool, ASSIST, parts standards and specifications, and strategic standardization tools—and would add new parts management applications and analysis capabilities to the LCLMR framework. The LCPC COE would leverage and expand on the foundation provided by the DMSMS COE Roadmap (attached to this report under separate cover). The DMSMS COE should be considered the first element of the notional LCLMR COE with the LCPC COE the next logical extension.

Figure 3. Notional Life-Cycle Logistics and Materiel Readiness Center of Excellence

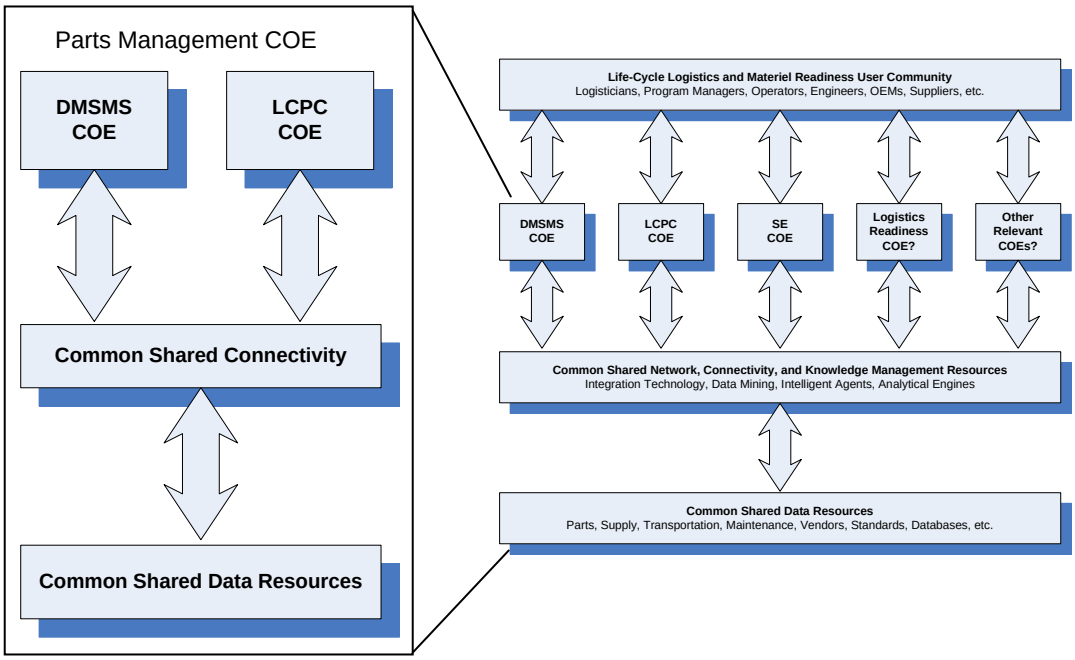


The implementation phases for the LCPC COE are defined below.

PHASE 1: LCPC COE INITIAL OPERATING CAPABILITY

Phase 1 entails obtaining official authorization to proceed with creating an LCPC COE and sufficient organizational integration of existing key parts management resources to minimize or eliminate the potential duplication of effort, optimize efficient use of resources, and enable shared utilization of single common network infrastructure and data resources. Part of this integration involves direction and official recognition of the need for close cooperation and common planning for the LCPC COE and the evolving DMSMS COE. Under the umbrella of an LCLMR COE framework, these two centers, while serving different functions and providing unique tools and parts management solution sets, would share at least 80 percent commonality in their underlying data resource and network connectivity requirements, as depicted in Figure 4. Collaboration, joint planning, and synergy will be essential to maximizing their efficiency and contribution to parts management.

Figure 4. Sharing of Underlying Resources by DMSMS and LCPC COEs within the Framework of the Notional LCLMR Center of Excellence



Exit Milestone

Phase 1 will be completed when DoD issues a signed memorandum that recognizes the need for both parts management capabilities and that requires joint planning, interoperability, and sufficient integration to ensure efficient use of resources and to minimize the risk of duplication and system incompatibility. At a minimum, the memorandum should contain the following policy statements:

- The development of new parts management capabilities and tools, and their integration with existing parts management resources, should occur in a joint, cooperative, and collaborative environment to ensure the efficient utilization of resources and reduce duplication risks.

- The development of new parts-related management systems and tools should occur within a common COE framework that will optimize system compatibility, simplify and standardize user interface and access points, minimize overall training requirements, maximize reuse of common solutions, and increase system interoperability.

- This memorandum authorizes, charters, and directs the DMSMS COE and the LCPC COE to establish a joint development steering committee and such subordinate working groups as necessary to achieve the above objectives.

Tasks to Accomplish

Implementing this phase will require execution of the following tasks:

1. Initiate DSP and DMSMS COE collaboration on expanding the COE framework
2. Identify common ground, stakeholder issues, and mutual solution space
3. Develop a preliminary implementation plan
4. Conduct integration risk assessment
5. Prepare a joint proposal that defines a shared vision, integration strategy, and approach
6. Staff the proposal up the chain of command to the required signature level
7. Develop a draft policy memorandum for signature
8. Negotiate policy language and refine the final policy document to obtain approvals
9. Obtain signature and issue the policy memorandum.

PHASE 2: INTEGRATION OF EXISTING DSP PROCESSES INTO COE FRAMEWORK

Exit Milestone

Phase 2 will be completed when all appropriate DSP systems, processes, and functions have been integrated into the LCPC COE framework. Before working toward the exit criteria, it is important to clarify that "integrating systems, processes, and functions into the LCPC COE" means different things for different systems. For some, it may mean full integration of the system or process to include resources and oversight; for others, it may simply mean the ability of the LCPC COE's search engine to access another organization's database. However, it does not mean full and complete integration of every item into the LCPC COE. The systems and processes that are part of this milestone are those for which DSP has sole responsibility for making changes. Those systems include the following:

- ASSIST
- PMT
- WSIT
- GIDEP
- IRWSC
- MPCASS
- MPCAG
- QPD.

Tasks to Accomplish

Implementing Phase 2 will require execution of the following tasks:

1. Determine the DSP systems, processes, and functions that should be integrated under the LCPC COE umbrella
2. Conduct a study to determine the technical requirements for accomplishing the integration
3. Identify the key players, including third parties and contractors, who must be involved in planning and executing the integration
4. Determine the process and sequencing for integrating DSP's elements into the LCPC COE
5. Develop a detailed, phased integration and implementation plan, identifying milestones, resources, roles, and responsibilities
6. Execute the phased integration in accordance with the plan.

PHASE 3: INTEGRATION OF PARTS MANAGEMENT PROCESSES OUTSIDE DSP INTO THE COE FRAMEWORK

Exit Milestone

Phase 3 will be completed when all systems, processes, functions, and data resources currently defined as outside DSP's sphere of control, but clearly appropriate for inclusion in the LCPC COE, are integrated into the COE framework. These systems, processes, functions, and data resources may include parts-related functions or data currently associated with acquisition, logistics, systems engineering, and service weapon system support.

This phase involves integrating all the existing parts management data and processes cited in the phased implementation plan. Work in this phase will require extensive coordination, cooperation, and relationship building across multiple organizational boundaries. The LCPC COE must offer increased value for all stakeholders.

The non-DSP systems and processes may include the following:

- Parts selection
- I&S
- IEC
- Cataloging
- JEDMICS
- SAMMS
- BSM
- PDMI
- ECCMA (as it relates to defense-related parts data)
- FLIS
- NGSB parts-related data
- Industry associations parts-related data
- FEDLOG
- DoD EMALL
- SUSTAIN (if not already in DMSMS COE).

This phase may also involve the creation and integration of new parts or standardization capabilities, such as tools for identifying standardization opportunities in the functional areas of coordination, document development, customer feedback, automatic notifications, checklists, plans, procedures, workflow, generating reports, participating in non-government standardization bodies, audit requests, debarment, virtual forum, or commonality councils.

In Phase 3, education and training courses, along with other media, will need to be revised to reflect the new user interfaces and functionality. Public relation media will need to be developed that informs potential users of the new capabilities, and feedback mechanisms and metrics will be needed to assess user satisfaction and identify improvement opportunities.

Tasks to Accomplish

Implementing Phase 3 will require execution of the following tasks:

1. Determine the non-DSP systems, processes, and functions to be integrated under the LCPC COE and DMSMS COE umbrellas
2. Conduct a study to determine the technical requirements for accomplishing the integration
3. Identify the key players who must be involved in planning and executing the integration
4. Coordinate with the responsible stakeholders regarding the integration
5. Offer or provide DSP assistance to accomplish integration

6. Develop strategies that facilitate the development of efficient systems and minimize duplication

7. Determine the process and sequencing for integrating the non-DSP elements into the COE framework

8. Develop a detailed, phased integration and implementation plan, identifying milestones, resources, roles, and responsibilities

9. Execute the phased integration of non-DSP parts-related resources in accordance with the plan.

PHASE 4: INTEGRATION OF PARTS-RELATED ACQUISITION, LIFE-CYCLE LOGISTICS, AND MATERIEL READINESS DATA RESOURCES INTO THE COE FRAMEWORK

Exit Milestone

Phase 4 opens up the LCPC COE framework to parts-related customer requirements beyond the traditional parts management functions, including those in acquisition, life-cycle logistics, materiel readiness, and other communities. This phase will be completed when all parts-related systems, processes, functions, and data resources in these other areas have been integrated into the LCPC COE framework.

As in Phase 3, this phase will require additional outreach, coordination, cooperation, and relationship building across multiple organizational boundaries. Because this phase reaches outside DoD boundaries to OEMs and other organizations, it is vital that the LCPC COE offer increased value to all stakeholders. The systems and processes that may be addressed in this phase include the following:

- UID/RFID
- NALDA
- Air Force SPARES
- Army's 2410
- CAMMS
- OEM design tools
- MPIF database
- CAD, CAM, CNC, and PDM
- Technical orders and manuals
- Standard engineering tools and references
- Parts marketing data
- Engineering data
- Manufacturer catalogs
- Materials databases
- Finite element analysis tools
- Casting and forging simulation
- Reliability analysis validation
- Testing and simulation tools
- Parts-related DoD documents.

This phase also requires revising education and training courses, along with other media, to reflect the new user interfaces and functionality. Public relations media will be used to inform the potential users of the new capabilities, while feedback mechanisms and metrics will be used to assess user satisfaction and identify improvement opportunities.

Tasks to Accomplish

Implementing Phase 4 will require execution of the following tasks:

1. Identify the parts-related acquisition, life-cycle logistics, materiel readiness, and other functions, systems, processes, and data resources that should be brought under the LCPC COE and DMSMS COE umbrellas

2. Conduct study to determine the technical requirements for accomplishing the integration

3. Identify the key players who must be involved in planning and executing the integration

4. Coordinate with the responsible stakeholders regarding the integration

5. Offer or provide DSP assistance to accomplish the integration

6. Develop strategies for facilitating the design of efficient systems that minimize duplication

7. Determine the process and sequencing for integrating the non-DSP elements into the COE framework

8. Develop a detailed, phased integration and implementation plan, identifying milestones, resources, roles, and responsibilities

9. Execute the phased integration of non-DSP parts-related resources in accordance with the plan.

Phase 5: Strategic Standardization, Higher Level Component Integration, and Continual Improvement

Exit Milestone

Phase 5 has multiple milestones but no defined endpoint. In this phase, the LCPC COE starts to move from a parts orientation to one that focuses on components or higher-level assemblies. This phase enables greater coordination and capability to achieve strategic standardization across systems, platforms, and military services. It also promotes interoperability as a core focus, with the LCPC COE addressing the parts, components, subsystems, and systems that are instrumental in interoperability, whether they come out of international standardization agreements,

cross-platform applications or potential applications, or interoperability needs and opportunities assessments. This phase will also stress development of tools and information resources to help system users achieve interoperability and cross-platform standardization. In addition, it will focus on continual improvement of the parts management features of the LCPC and DMSMS COEs and the continuing evolution of the LCLMR COE concept.

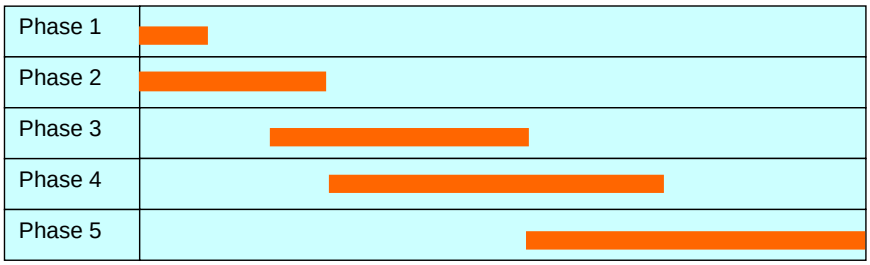
Tasks to Accomplish

Implementing Phase 5 will require execution of the following tasks:

1. Determine the interoperability and strategic standardization functionality appropriate for the LCPC COE
2. Conduct a study to determine the technical requirements for accomplishing integration or development of the new capabilities
3. Identify the key players, especially in the interoperability community, who must be involved in defining the requirements and in planning, designing, and implementing the new capabilities
4. Coordinate with the responsible stakeholders regarding the development and integration
5. Determine the process and sequence for developing or integrating the capabilities into the COE framework
6. Develop a detailed phased development and implementation plan, identifying milestones, resources, roles, and responsibilities
7. Execute the phased integration of non-DSP parts-related resources in accordance with the plan.

Figure 5 shows the notional implementation phase relationships for Major Recommendation 3.

Figure 5. Notional Implementation Phase Relationships: Major Recommendation 3

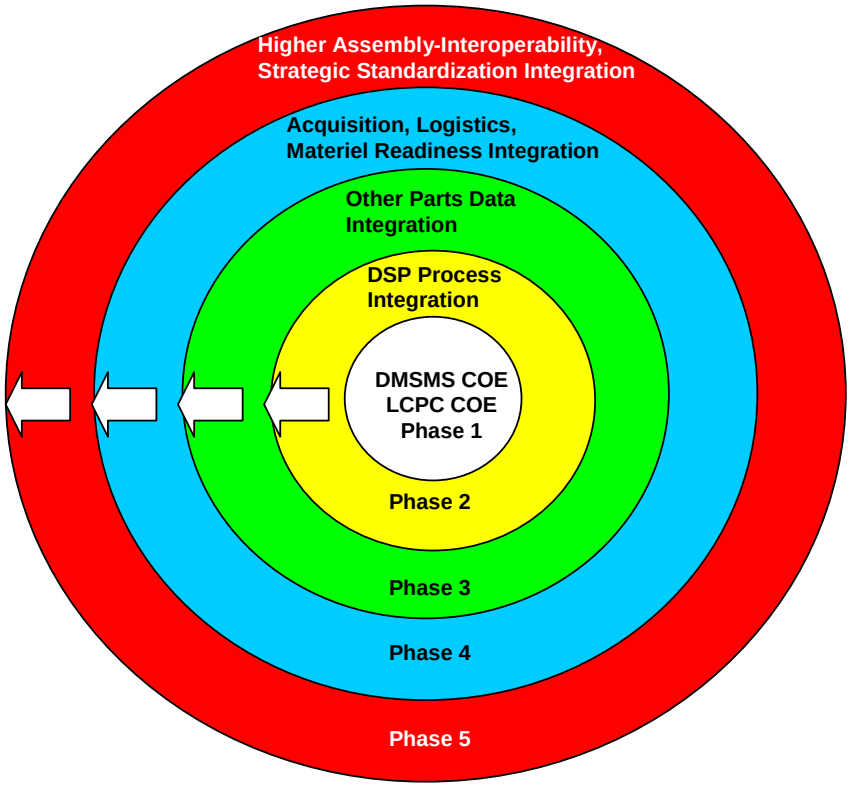


SUMMARY

The DMSMS COE is already operational. To build on the success of that concept, the PMRWG recommends creating a new LCPC COE to complement and expand the concept. It seeks to include many other parts-related functions that use and depend on the same fundamental data and information as DMSMS. By leveraging the progress of the DMSMS COE and by using a common information technology network, infrastructure, and data resources, the other parts-related processes and functions in need of substantial reengineering or improvement, such as part selection, can be brought online faster, better, and cheaper. Integrating these parts-related functions under a broader COE framework, such as the LCLMR COE, should improve the use of resources, maximize the use or reuse of common shared data sources, and minimize duplication of effort.

The LCPC COE, like DMSMS COE, is a large and complex undertaking that will evolve through a spiral development approach. Its start will be small, simply recognizing the DMSMS COE as the initial operating capability for a broader reengineered parts management system. This recognition can be accomplished quickly with few resources. From this core, the LCPC COE concept should expand outward to progressively embrace additional parts-related systems, processes, and functions. At each enlargement, careful planning will be required to identify the parts- or component-related areas that will be integrated into the expanding LCPC COE framework (see Figure 6).

Figure 6. Five-Phase LCPC COE Spiral Development Process



The Web-based LCPC COE development process, architecture, and security environment will, to the maximum extent feasible, use or leverage the infrastructure and connectivity already pioneered by the DMSMS COE. Many members of the LCPC community, both within and outside DoD, will already be DMSMS COE users. To the extent feasible, they should be able to access the LCPC COE applications and tools through a single Web interface and encounter similar user interface design features to minimize training requirements. The COE user experience should be as user friendly and familiar as possible, independent of the COE being used. Collaboration and coordination across the COE development teams are essential for maximum efficiency and commonality, while minimizing duplication across the board.

Whenever possible, joint planning for the DMSMS, LCPC, or LCLMR COE concepts will ensure that the various applications and capabilities evolve in an integrated, development framework.

When Phase 5 is underway, the PMRWG expects that LCPC COE would be in position to serve the entire parts management community of users from providing engineering and design support, configuration management, and supply chain support across platforms and throughout the sustainment portion of the life cycle of the parts and components that make up DoD’s vast array of weapons systems.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