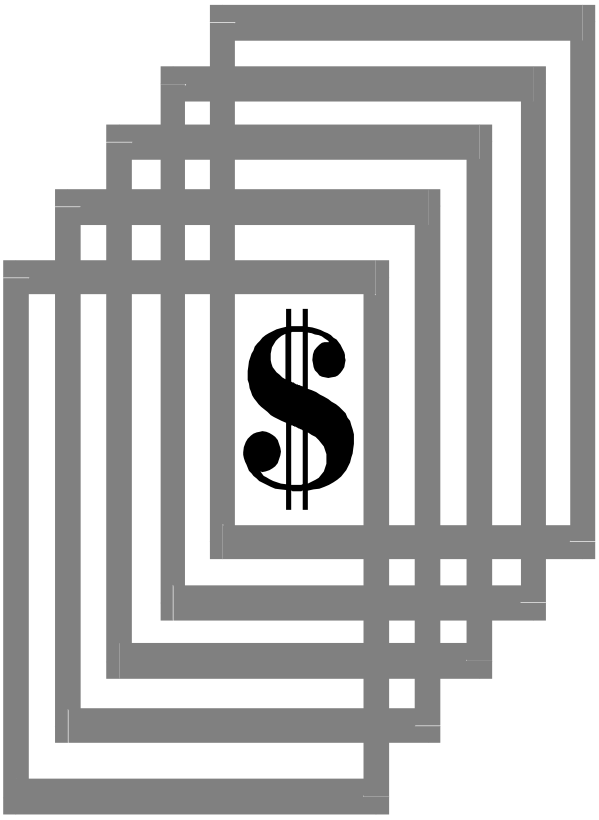
**SD-19**

# Life Cycle Cost Savings

## Through Parts Management



**Defense Standardization Program Office**

**June 2001**

**SDMP**

## FOREWORD

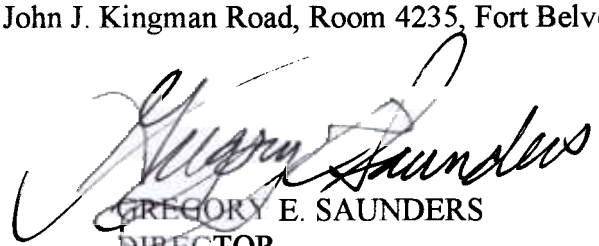
Today we are improving more legacy systems, extending their life expectancy and incorporating new technology rather than developing new ones as we did in the past. New technology brings with it thousands of new items for logistical support. This publication provides government and industry managers a pragmatic approach toward parts management to keep weapon system acquisition cost, total ownership cost, and supportability cost at a manageable level.

This document is intended to be used by contractors. However, the acquisition activity or customer may also use it as a tool for evaluating contractor parts management performance.

When used in conjunction with MIL-HDBK-512, *Parts Management*, the guidance herein will help achieve successful parts management support to acquisition strategy. This document offers guidance to individuals who are defining parts management needs in contracts; establishing a parts management process for prime contractors, suppliers and subcontractors; and looking for an efficient and a manageable part selection process. Additional guidance can be found in the Defense Acquisition Deskbook at http://web.deskbook.osd.mil, section 26G, Parts Control Program.

We are extremely grateful to the numerous government and industry individuals on the Parts Standardization & Management Committee (PSMC) who contributed the guidance information. The PSMC is a joint industry/government-working group that provides a forum for promoting effective parts management and standardization through commonality of parts and processes. Further information on this group can be found on the Parts Standardization and Management Committee WEB site at http://www.dscc.dla.mil/programs/psmc.

Recommended changes to this publication should be sent to the Defense Standardization Program Office, ATTN: J-330, 8725 John J. Kingman Road, Room 4235, Fort Belvoir, VA 22060-6221.



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# CHAPTER 1:

# PARTS MANAGEMENT OVERVIEW

The task of selecting, specifying, assuring proper design applications and, in general, managing parts used in complex systems is a major engineering task. Parts are the building blocks from which systems are created and, as such, greatly impact hardware dependability and readiness. Since the reliability and maintainability of the end item is dependent upon these building blocks, the importance of selecting and applying the most effective Parts Management Program (PMP) cannot be overemphasized.

Parts management is an integrated practice to optimize the usage of preferred parts during the design or modification of systems and equipment and to manage parts during production and support. Parts management also promotes the use of proven, standard (commercial or military) parts in the electrical, electronic and mechanical parts categories.

In addition, parts management provides a discipline for selecting the best part. The selection process considers application (especially safety critical), performance, standardization, cost, availability, technology, total ownership cost, supportability, and legacy issues.

## PARTS MANAGEMENT BENEFITS

Here are the primary benefits of parts management:

**Provide cost savings:** Parts management helps achieve design to cost and life cycle cost savings in equipment by promoting the application of commonly used or preferred parts. Its discipline will standardize the way in which we determine and select equipment components. Also, selecting preferred parts results in larger buys because the parts are used in many applications. Larger buys allow the government to benefit from the economies of scale.

**Enhance logistics readiness and interoperability:** When items or weapon systems share common components, less time is needed to repair them because parts are on hand and technicians spend less time figuring out how to solve individual problems. Operational effectiveness is improved, resources are conserved, and costs are avoided when equipment is kept out of the shop and in operation. Furthermore, selecting commonly used parts simplifies logistic support and enhances substitutability because fewer parts must be stocked and tracked. Fewer parts translate to savings in procuring,

testing, warehousing, and transporting parts. Savings can also be found in configuration and data management.

**Reduce maintenance cost:** Commonly used parts reduce the number of maintenance actions because they tend to be more reliable.

**Enhance interoperability:** When items and weapon systems share common components, repair time is reduced because parts are readily available for replacement.

**Reduce acquisition lead-time**: When preferred parts are used, the Department of Defense (DoD) and industry avoid expenses associated with design and development cost and time. To this end, their use will reduce the time between the purchase request and the receipt of the part.

**Promote the reliability and safety of weapon systems and items of supply:** When part failure could cause mission failure or loss of life, preferred parts reduce risk and improve the chances that items will perform reliably. Preferred parts perform at stated levels.

**Reduce the variety of parts:** Commonly used or preferred parts replace many parts with a single part that works in multiple systems. This approach reduces the burden of maintaining technical data, storing and tracking parts, and distributing multiple parts.

## PARTS MANAGEMENT PROGRAMS

To realize the above benefits the Department of Defense has a long established requirement for parts management programs. The purpose of a parts management program is to:

- Meet equipment performance requirements.
- Minimize the proliferation of parts and associated documentation.
- Reduce total cost of ownership.
- Increase safety and reduce risks.
- Minimize parts obsolescence and the impact of diminishing manufacturing sources.
- Enhance interoperability and supportability.
- Enhance operational effectiveness and logistics readiness.

## DESIGN PROCESS

Applying parts management during the design process is a critical step in a successful parts management plan. Prior studies have shown that initial design collaboration between the standardization engineer, the Parts Management Board (PMB), and the design community will provide a more reliable product. Furthermore, the standardization engineer can also identify mating parts and alternate parts and provide cost and lead-time information.

ThePMB, or a representative from it, should be involved during design reviews. Some form of parts management (standardization) design review is recommended during the Technology Development Phase of a design or during the selection of a part. The most efficient and cost effective way to accomplish this review is for internal policy and procedures or work instructions to require involvement of the Parts Management Board and standardization engineer from the beginning of the design process.

Figure 1 depicts the spending profile and the commitment of funds for a typical acquisition program. As the graph indicates, although expenditures are relatively small in the early phases of a program, decisions about the system requirements and the design approach to meeting those requirements have a major impact on the program costs in the out years. Therefore, designing an effective parts management plan early in the program can have a significant impact on the life cycle cost of the program.

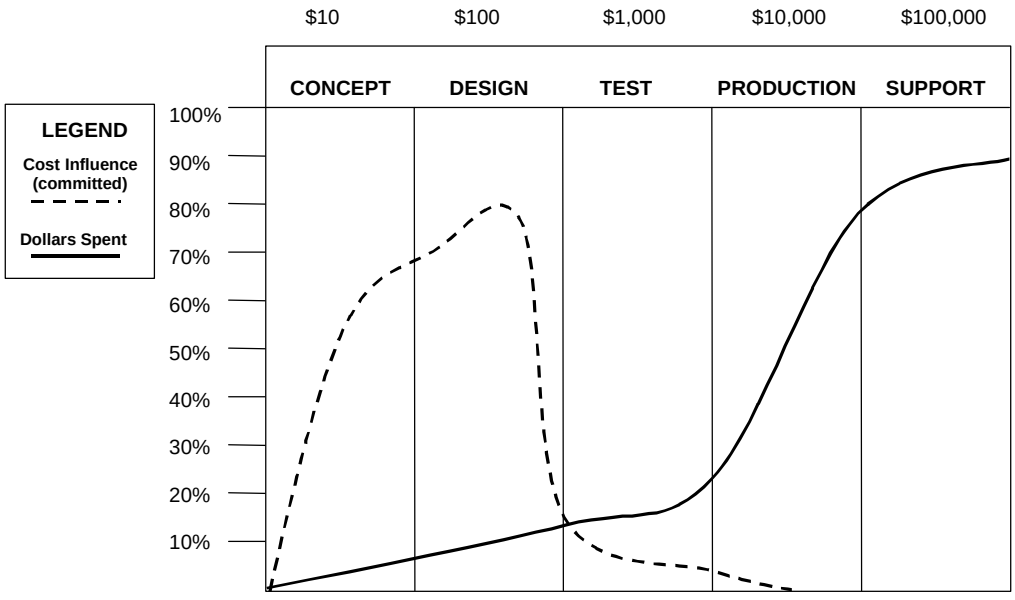


Figure 1. Commitment of funds versus program expenditures

# CHAPTER 2:

# OVERVIEW OF A CONTRACT AND CONTRACT REQUIREMENTS

## CUSTOMER-SPECIFIED CONTRACT REQUIREMENTS

Parts management or standardization requirements are normally found in the engineering section of the request for proposal (RFP). Since part standardization and management is not always a stand-alone discipline, the specific requirements or objectives might be contained within the configuration management, logistics, reliability, or design sections. It is a good idea to review the entire RFP in order to ensure that all of the elements are covered.

### Statement of Work

The Statement of Work (SOW) can be written in two different ways. First, the government can write the SOW and ask the contractor to respond to it in his proposal, or second, the government can include a Statement of Objectives (SOO) in the RFP and ask the contractor to write and submit a SOW in response to the SOO in his proposal. The SOO is usually a brief statement of the government's objectives for a program. It is not likely to contain enough detail to address parts management. If the RFP contains a SOO, the contractor will need to address parts management in the SOW that he submits.

To reduce procurement costs and facilitate advanced technology insertion, requiring performance-based parts management in a contract will remove prior reliance on detailed, how-to specifications. Performance-based contracting requires structuring all aspects of an acquisition toward end item performance, rather than specific requirements.

Parts management can still be achieved, and both the customer and supplier will benefit from parts management imposed by either implied or explicit wording. Examples of both types of wording follow:

**Sample of Explicit Parts Management Wording in SOW:**

*The contractor shall establish and maintain a Parts Management Program that will ensure the use of parts that meet contractual requirements, reduce proliferation of parts through standardization, enhance equipment reliability and supportability, and proactively manage obsolescence. Within XX days after contract award, an internal company*

*plan and/or procedure shall be made available to the Acquisition Activity (AA) for review and use. The AA may perform audits to ascertain program conformance and adequacy of the implementing procedures. The contractor may utilize MIL-HDBK-512, Parts Management, as a guide for developing and maintaining a parts management program.*

**Sample of Implied Parts Management Wording in SOW:**

*The contractor is encouraged to establish and maintain a Parts Management Program, and within XX days after contract award, internal company plan and/or procedure should be made available to the Acquisition Activity (AA) for review. The AA may comment on the plan and suggest ways to improve conformance and adequacy of the implementing procedures. The contractor is encouraged to use MIL-HDBK-512 and this document as guides for developing and maintaining the Parts Management Program.*

## Contract Review for Parts Management Implementation

A contract normally begins at the proposal stage, with a RFP, request for invitation to bid, or some similar type of invitation. The RFP and its supporting documents establish the technical and management requirements that must be addressed in the contractor's responding proposal.

The contract will normally consist of several individual specifications; including the SOW, the Prime Item Development Specification, and the Contract Data Requirements List (CDRL).

The most effective parts management programs are implemented during the initial contract and contract review process. Therefore, it is imperative that the standards engineer or individual responsible for parts management be involved up front so that all areas where parts management may be impacted can be addressed. Appendix A offers several different parts management approaches that may be tailored to meet contract requirements.

The contractor must understand the system’s or equipment's operational requirements thoroughly before he addresses parts management in writing contractual requirements. He must know:

**What is each threshold?** The best way to identify them is to be sure that appropriate functional disciplines—engineering, logistics, and configuration management—are fully involved in the review of the requirements. A PMB may be the appropriate vehicle for this review.

**What, if any, constraints will apply?** Performance, reliability, availability, cost of system, or inhibition of the application of the most advanced design techniques are possible constraints.

**Which requirements are minimum or threshold requirements?** To establish contractual requirements, the customer must identify essential system requirements and those areas in which improvements would be desirable. The requirements should capitalize on the technical expertise and ability of the industrial community. Remember, the part buyer's goal is to procure products at continually improving levels of performance and reliability.

## Tailoring

To satisfy the mission-essential needs of a specific acquisition, it may be desirable to tailor the selection of standard parts from the preferred parts list (PPL) or baseline. This can be accomplished by limiting the selection of standard parts to a specific type, grade, or class. Such limitations of parts should be specified in the scope of work.

The prime contractor should flow down the requirements of the prime contract to his subcontractors and suppliers. This flow-down may be accomplished by whatever contractual methods are used between the prime and his subcontractors or suppliers. The requirements may be very specific or they may be performance-based, telling the subcontractor "what" is to be performed not "how" to perform. The goal is to emphasize quantifiable, measurable performance requirements.

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# CHAPTER 3:

# ELEMENTS OF A PARTS MANAGEMENT PROGRAM

Parts management practices involve all acquisition phases—from technology development to logistical support of fielded systems and equipment. A PMP should address prime contract requirements as well as flow-down (to subcontractors, suppliers, distributors) and flow-up (to customers, the Defense Logistics Agency, the Federal Aviation Agency) procedures. Specific elements of a PMP are addressed in the following sections.

## ESTABLISHING A PARTS MANAGEMENT BOARD

The PMB is responsible for implementing effective standardization and parts management and for promoting commonality of parts and processes across product lines. The PMB can be an ad-hoc group responsible for screening and evaluating parts to be utilized in a specific system.

Because the PMB enhances the implementation of concurrent engineering, its membership may include representatives from:

- Design engineering
- Procurement
- Engineering standards
- Manufacturing
- Quality
- Sub-contractors and suppliers
- Customer

## GENERAL RESPONSIBILITIES OF THE PARTS MANAGEMENT BOARD MEMBERS

Parts Management Board (PMB) members have the following general responsibilities:

- Attend board meetings as representatives of their departments.
- Bring parts issues to the PMB for discussion and resolution. Identify procedural deficiencies whose resolution will improve part

standardization and reduce cost. Identify candidate parts for usage or replacement.

- Have the authority to act on behalf of their department in selection of standard parts, the approval and implementation of the PPL, and policies concerning those parts selected.
- Review requests to add parts to the PPL or Corporate Baseline (CB) based on the criteria identified in the section below on parts selection and authorization.
- Evaluate and recommend approval or disapproval of parts proposed for listing on the PPL. When requested, respond to balloted (potential) parts for possible inclusion in the PPL or CB.
- Ensure maximum use of standard parts. Minimize the number of different types and styles of parts used in the equipment or system. Assist in identifying and solving standard part issues.
- Ensure timely implementation of parts decisions.
- Specify requirements for part candidates.
- Assist in evaluating standard part suppliers.
- Establish requirements and screen parts for the alternate parts list (APL).
- Ensure efficient parts management operation.

## Chairperson

The supervisor of Engineering Standards (or designee) should be the chairperson of the Parts Management Board. The chairperson:

- Chairs PMB meetings.
- Schedules PMB meetings, coordinates tasks, distributes agendas and minutes, and maintains records of PMB activities.
- Ensures all PMB actions are completed.
- Supervises preparation and maintenance of the PPL or corporate baseline.
- Supervises creation and maintenance of a Computer Aided Design (CAD) modeled PPL parts library.
- Documents all PMB decisions.
- Serves as liaison to the Military Parts Control Advisory Groups (MPCAGs).
- Creates and maintains the APL.

- Performs all duties listed below for Engineering Standards members.

## Engineering Standards Members

- Participate on the PMB.
- Assist in selecting standard parts to be used in a program.
- Ensure that the standardized PMP is based on the company requirements and any program contractual requirements.
- Have authority to audit parts lists and assembly drawings to ensure that products incorporate preferred parts and that the maximum quantity of preferred parts (consistent with design requirements) are selected.
- Establish, monitor, and maintain metrics to ensure that the most efficient parts management practice is in place.
- Have authority to approve and disapprove the use of non-preferred parts.
- Have authority to require the use of preferred parts where it can be demonstrated that the preferred part is interchangeable with and equal to, or better than, the non-preferred part.
- Have the authority in design reviews to facilitate incorporation of preferred parts through integrated product teams (IPTs).
- Identify candidate parts for the APL or PPL and recommend their inclusion to the PMB.
- Direct the preparation of documentation for preferred parts not documented by a defense or non-government standards body (NGSB) specification or standard.
- Prepare and maintain a problem parts list that identifies parts and suppliers with a documented history of problems and non-compliance. Report to GIDEP nonconforming products, services, and processes from suppliers and subcontractors that adversely affect safety, health, and environment.
- Coordinate, prepare and maintain a PPL that lists those standard parts that have been designated as preferred for use in equipment.
- Coordinate part screening/review with the MPCAGs.
- Maintain files that include a listing of PPL parts that have been reviewed by the PMB, a listing of the acceptable alternate parts, and a listing of any parts in the process of being reviewed by the PMB.

- Use or application restrictions on non-preferred parts.
- Review part performance history and provide an impact assessment to the PMB.
- Review existing specifications and test data and report on its impact on preferred parts.
- Review known acceptance part failures and advise PMB when such failure may affect the status of a PPL part.
- Ensure that Government/Industry Data Exchange Program (GIDEP) information is factored into preferred parts actions, and relevant information captured in the appropriate databases.
- Interface with NGSBs (such as SAE or AIA) to ensure that interests are addressed.

## DEVELOPING A PREFERRED PARTS LIST OR CORPORATE PARTS BASELINE

The PPL should be maintained in an electronic database and be readily available in house. A preferred method is to tie the PPL to a CAD library. This technique will avoid duplication of effort and ensure that only the parts listed in the PPL are used. The PPL, if appropriate, should be discussed and provided as early as possible during the design stage.

**Tailoring a PPL baseline.** The intent of a PPL baseline is to obtain maximum standardization during design by tailoring, streamlining, and minimizing the variety of types, grades, or classification of parts used in an acquisition. Accordingly, other than for format, PPL baseline tailoring will be a maximum standardization effort. A PPL baseline should be used when both standard and nonstandard parts are to be managed in a parts selection practice. Tailoring the PPL baseline requirements for a specific contract should be based on the following factors:

- Required restrictions in the use of certain parts or part types.
- Limitations in design imposed by part usage restriction.
- Reliability requirements.
- Diminishing manufacturing sources (DMS).

## PARTS SELECTION AND AUTHORIZATION PROCESS

In-house part selection practice should be followed and documented by the PMB and standards engineers. Procedures for authorizing new parts should

be included. The procedures should identify the entity responsible for authorizing parts for use and the structure and membership of the parts selection board or IPT if applicable. Figure 2 offers an example of a part selection practice.

## Order of Preference for Parts Selection

To maximize standardization and reduce life cycle cost, a part selection order of preference should be used. The following order is suggested:

1. Parts contractually specified for use.
2. Nationally recognized industry standard parts (i.e., national aerospace standard (NAS), AS, etc).
3. Military or government standard parts [defense standard, qualified manufacturers list (QML), standard microcircuit drawing (SMD), qualified products list (QPL), Commercial Item Descriptions (CIDs), and Defense Logistics Supply Centers' engineering drawings].
4. Original equipment manufacturer (OEM) corporate standard type parts.
5. Source control drawings or vendor item drawings.
6. Parts not included in the above categories, including parts (identified by part manufacturer part number) which are controlled by their drawings, catalogs, or company standards (i.e., commercial off the shelf parts).

**Part selection criteria**. Depending on contractual requirements, the following part selection criteria should be taken into account:

- Availability (DMS), aging technology, sources, etc.)
- Application (derating, operation) - i.e., how/where will parts be used, environment, etc.
- Cost benefit analysis.
- Part screening.
- Qualification test data or past performance data.
- Supplier selection.
- Part technology/obsolescence (i.e., use of DMS databases, GIDEP).
- Comply with the contract performance requirements.
- Ensure technical suitability.
- Optimize government life cycle costs.

Consider alternatives in descending order of preference.

A PPL can also be developed with the assistance of the MPCAGs. (See Appendix A).

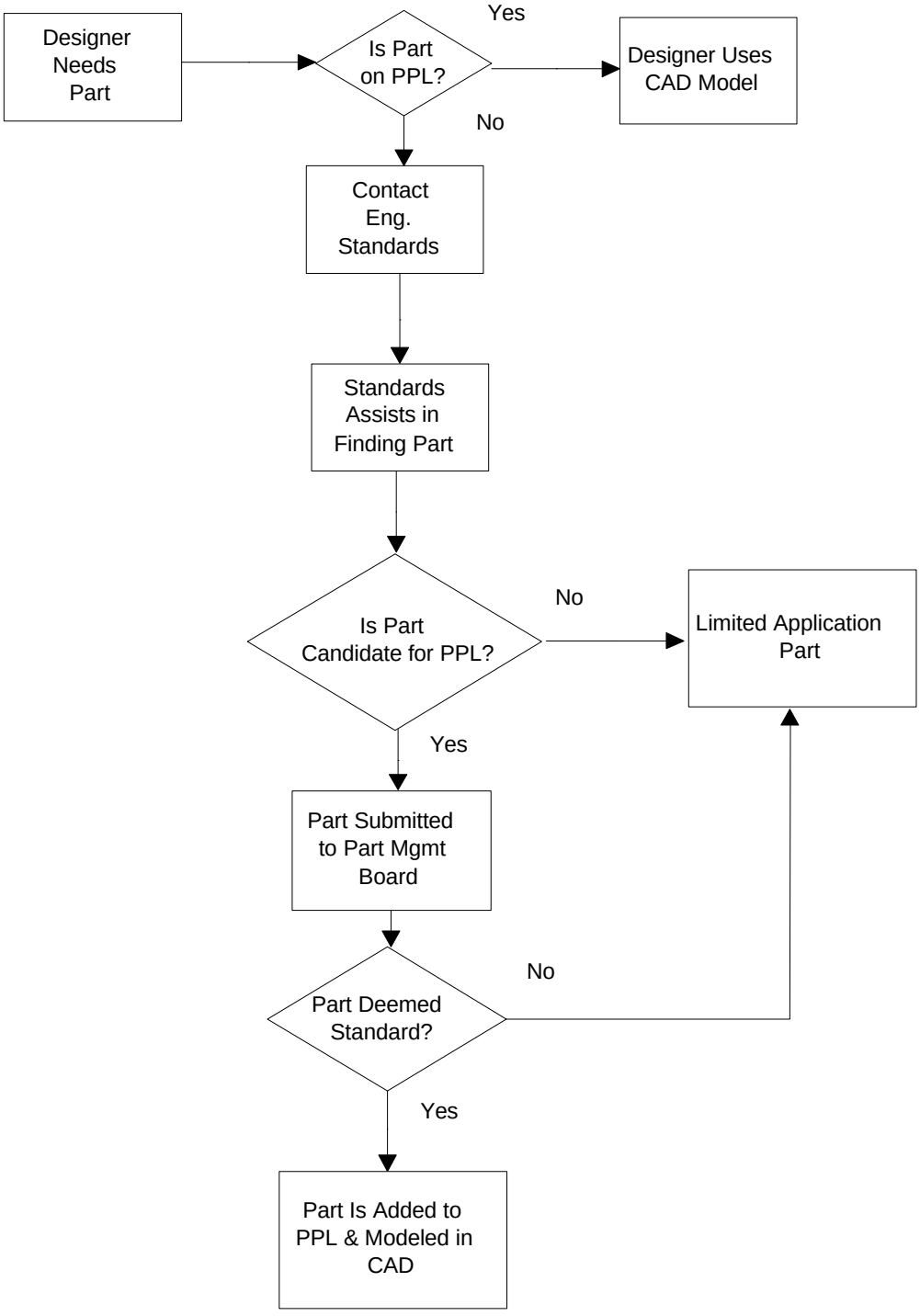


Figure 2. Part selection practice

## PART AND SUPPLIER QUALIFICATION REQUIREMENTS

All processes used to qualify parts, part manufacturers, and part distributors should be documented following established quality assurance policies and procedures. Parts should be qualified for the application in which they are used, and assessed for supportability and life cycle cost issues. Part manufacturer and distributor qualification may include an assessment of the manufacturer's documented process including—but not limited to—his statistical process control data and his process controls on manufacturing, material, shipment, storage, notification concerning process changes, customer satisfaction, and quality measurement systems.

Standards engineers and/or parts management personnel should participate in the technical evaluation of suppliers and in the review and approval of suppliers' manufacturing processes and parts changes. Appendix C contains additional qualification guidelines that may be helpful.

## EQUIPMENT AND EQUIPMENT SUPPLIER MANAGEMENT

Standards engineers and/or parts management personnel should participate in the technical evaluation of an equipment supplier's response to a solicitation to ensure that the supplier has complied with parts management requirements. The supplier should be required to meet the objectives and requirements of the prime contractor's parts management plan or program. The standards engineer should be responsible for review, verification, and approval of the supplier's parts management process.

Additionally, a monitoring and feedback process should evaluate and review any changes to established procedures. A good way to assess parts management is to form an IPT that includes the contractor and supplier or subcontractor. The standards engineer should assist by analyzing the suppliers' parts data. The IPT should review and resolve any adverse findings. The contractor may request that the customer participate on this IPT.

## OBSOLESCENCE MANAGEMENT AND DIMINISHING MANUFACTURING SOURCES

As the service life of products extends beyond the technology life cycle incorporated in the design, problems associated with obsolescence and diminishing manufacturing sources and material shortages (DMSMS) arise. Both the defense and commercial markets must find ways to plan for and manage obsolescence and DMSMS as every product is subject to their

effects. Therefore, successful parts management must address DMSMS in the proposal, design, and maintenance phases of a product—that is, throughout the product's life cycle.

DMSMS problem identification and resolution has both proactive and reactive elements. On the proactive side, prospective DMSMS situations need to be addressed during the initial phases of product development or modification. Current and potential DMSMS items need to be identified early in the product design phase and associated design tradeoffs to minimize life cycle vulnerability need to be made. Reactive efforts, on the other hand, find cost effective solutions to DMSMS problems identified during the production phase or in fielded units. A coordinated program approach, one that includes both proactive and reactive efforts, will support product availability and readiness objectives.

Several commercial companies identify obsolete parts and DMS and give predicted life expectancy of parts. Other sources of information include GIDEP which is the source of DMS information for each of the Military Service's DMSMS programs, and the MPCAGs. Both groups perform parts DMSMS obsolescence screening, data gathering and dissemination for DoD and its contractors. One or more of these services should be an active part of the DMSMS and obsolescence program of every organization involved in the design and production of electrical and mechanical products.

## ALTERNATE OR REPLACEMENT PART PRACTICE

Alternate or replacement part practice should be used as a standardization tool, i.e., to eliminate a nonstandard item by replacing it with a standard item. DMS issues can also be addressed through the use of alternate and replacement parts. The alternate or replacement part must meet one of the following criteria:

- The part has identical technical characteristics (form, fit, and function), to the one it replaces or,
- The part is better than the part it replaces (if approved by the internal Parts Management Board).

Alternate or replacement part practice should never be used as a method to address failed parts, safety critical issues, or elements where Class 1 changes (changes that must be approved by the government) or redesign may be involved. Here are some important things to consider when selecting alternate or replacement parts:

**Alternate Parts List reference.** The APL must be referenced directly on the drawing or bill of material, or incorporated by reference in a separate specification called out in the drawing or bill of material.

**Contract requirements and flow-down and flow-up of information.** The customer needs to be notified that an APL exists. This notification can be accomplished by response to the solicitation or by submission of the company's PMP that describes its APL practice.

**Depleting existing parts stock.** When an existing part is added or replaced, the determination must be made whether to deplete or purge existing inventory (deplete old and use new—versus purge old and use new). Remember that when a part is replaced using the APL, if the superceded (old) part is being eliminated to meet a standardization requirement or for standardization purposes, existing stock is depleted before going to the superceding (new) part.

**Manufacturing suppliers and subcontractors.** Access to the APL should be provided; electronic format is the best way to ensure the most current version is being used.

Using part substitutions (in lieu of alternate parts) should be addressed on a contract-by-contract basis. Generally, substituting parts is discouraged, but substitution may be allowed if the customer approves. The same oversight, evaluation, and methods used for part review and alternate part selection should be used for substitutions.

## PARTS MANAGEMENT THROUGH INTEGRATED PRODUCT TEAMS

IPTs are cross-functional teams formed for the specific purpose of delivering a product for an external or internal customer. IPT members should have complementary skills and be committed to a set of performance objectives, a common purpose, and an approach for which they hold themselves mutually accountable. IPTs are essential to the implementation of parts management.

Members of an IPT represent the technical, manufacturing, business, and support functions critical to developing, procuring, and supporting the product. When these functions are represented during parts management activities, teams can consider alternatives more quickly, and in a broader context, and reach faster and better decisions.

Once on a team, the IPT member no longer functions as a member of a particular functional organization who focuses on a given discipline. Instead he or she functions as a team member who focuses on a product

and its associated processes. Each individual should offer his or her expertise to the team and acknowledge the expertise of other team members. Team members work together to achieve the team's objectives. The following factors are critical to formation of a successful IPT:

- All functional disciplines influencing the product throughout its lifetime should be represented on the team.
- A clear understanding of the team's goals, responsibilities, and authority should be established between the business unit manager, the program and functional managers, and the IPT members.
- Resource requirements such as staffing, funding, facilities and identification must be identified.

These factors can be defined in a team charter that provides guidance.

## STANDARDIZATION EFFECTIVENESS (METRICS)

To measure the effectiveness of a parts standardization program the IPT should collect data to quantify its progress and identify trends. Here are some basic metrics.

**Percentage of Standardization:**

$$\frac{\text{Number of -Standard Parts in the Bill of Materials}}{\text{Number of Parts in the Bill of Materials}} \text{ X } 100 = \% \text{ Standardization}$$

**Positive metrics:**

| Metric | Result |
|---|---|
| Percent preferred parts used | Increase = Improvement |
| Percent parts substituted to preferred parts | Increase = Improvement |
| Number of parts eliminated from system (equate to $ saved)<br>• Stores<br>• Labor<br>• Procurement | Increase = Improvement |

**Negative Metrics**

| Metric | Result |
|---|---|
| Cycle Time for new parts introduced to system | Decrease = improvement |
| Number of parts in Bill of Material (BOM) | Decrease = improvement |
| Part manufacturer reduction | Decrease = improvement |
| Percent reduction in supply base for next 5 years | Decrease = improvement |
| Number of new parts introduced in system ("as is" to be improvement use of standard parts) | Decrease = improvement |

## PARTS MANAGEMENT PROGRAM PLAN

When responding to a SOW, the contractor will need to provide objective evidence of how he will meet performance-based requirements. One of the best methods is to create a Parts Management Program Plan (PMPP) that communicates how the in-house parts management process is conducted.

The plan should delineate management structure, responsibilities, procedures, and controls (including subcontractor requirements), for the contractor's PMP.

Generally the contractor's plan should address the following parts management elements:

1. **Parts selection baseline.** Maintain a corporate baseline, parts selection list, or other database. Make parts preferred for use to achieve part standardization goals highly visible to designers and subcontractors.

2. **Parts selection and authorization process**. Include procedures for authorizing the addition of new parts to the parts selection list. The procedures should identify the entity responsible for authorizing parts for use and the structure and membership of the parts selection IPT, if applicable. Include criteria used to ensure suitability of parts' intended use to the required application, order of preference used in considering

new parts (see Chapter 3), and procedures for notifying associated disciplines (inventory, purchasing, quality assurance) in case of authorization of a new part.

3. **Obsolescence management.** Address procedures for obsolescence management. Include proactive obsolescence forecasting for applicable part types (e.g., microcircuits) and plans for reacting and achieving solutions to obsolescence impacts as they occur.

4. **Subcontractor management.** Address contractor procedures for establishing and maintaining sufficient subcontractor participation to ensure that parts management objectives are satisfied.

5. **Part and supplier quality.** Address provisions for assessing part suppliers and part quality such as Statistical Process Control data, audits, and past performance.

6. **Part level documentation requirements.** Make part level documentation procedures consistent with the program's logistic strategies and need for performance and reprocurement documentation at the intended level of logistic support.

7. **Substitute and alternate part procedures**. Describe the process for the management and documentation of parts, other than those on an "as-built" or "as-designed" parts list. In specifying the part replacement process, take care to ensure that the program is consistent with the intent and application of other disciplines (e.g., reliability, configuration management, quality, and logistics).

8. **Customer-contractor teaming.** Address how customer teaming will be provided to allow for continued process insight and program verification (i.e., through IPT participation, technical interchange meetings, "as-built" and other parts lists).

Other parts management areas or subjects delineated in data item description number DI-MISC-80526, Parts Management Plan, can be considered in the preparation of the plan.

Input from the PMB or IPT can provide opportunities for tailoring the PMP. Part management and standardization actions are tracked and evaluated periodically by the PMB or IPT so feedback can be added to the PMP.

# CHAPTER 4:

# FEEDBACK

An important element of effective parts management is feedback. The standards person needs feedback from all the functional areas to ensure standardization requirements are meeting the objectives of the parts management plan. Feedback can also proactively identify possible problem areas in your parts control practice. Sources of feedback information include the following:

**Subcontractors:** Difficulties a subcontractor may be experiencing in manufacturing an item can often be alleviated by part substitutions. If the prime contractor maintains the design of a sub-component, communication between the prime and the subcontractor is important to ensure that these changes are properly reflected in the parts management documentation.

**Quality Deficiency Reports (QDR):** Reports of quality problems in parts come from many sources; use this information to ensure that these parts are not included in future designs.

**Customers:** Problems identified by the customer on fielded systems often indicate a need for parts selection changes.

**Suppliers:** Part or component suppliers are a very valuable source of information about the availability of items. Information from these sources can also help identify high cost items and potential duplicate part numbers.

There are many sources of—and uses for—feedback information. The important thing to remember is that parts management is a dynamic practice. It needs periodic adjustments based on data and experience acquired from design all the way to production and customer support.

**Sources of feedback:**

| | |
|---|---|
| Suppliers | Manufacturing |
| Logistics Support | Customer Support |
| Purchasing | MPCAGs |
| Design Engineering | Contract required documents |
| Subcontractors | Quality Assurance/ QDR |

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# CHAPTER 5:

# SUPPORT IN PARTS EVALUATION

## TEAMING WITH THE MPCAGS

Today, contractors often need to select parts without the infrastructure that will enable them to fully research those decisions. Three MPCAGs (located at Columbus, OH, Philadelphia, PA, and Richmond, VA) are available to assist contractors in making their selections. They provide technical advice on electronic, electrical, and mechanical parts on an individual basis, or on parts lists at no cost. Points of contact at these Defense Logistics Supply Centers can be found at: http://www.dscc.dla.mil/programs/mpcag.

Their review of these parts provides alternatives that reduce cost, time, risks, and parts proliferation, while improving quality and supportability through the use of existing, proven, standard parts. Contractual requirements, parts data, and unique evaluation criteria supplied by the submitter comprise the basis of these reviews.

From several years of experience in part evaluations, the MPCAGs have categorized parts most likely to reduce total ownership cost. Federal Supply Class (FSC) in Appendix B lists these parts.

Other useful services provided by the MPCAGs are:

**Parts and Stock Availability.** The MPCAGs provide information to identify parts obsolescence trends in the commercial marketplace. Defense Logistics Agency stock availability, spare parts procurement plans, and approved alternate national stock number information can also be provided.

**Commercial Part Recommendations.** The MPCAGs' recommendations cover the spectrum of reliability levels from commercial standard parts, to unique military parts, to space level parts. Their recommendations are tailored to contract or customer requirements, including commonly used commercial parts such as-CIDs and non-government standards (NGSs); and engineering drawings like SMDs, and Defense Logistics Supply Centers' engineering drawings. The MPCAGs will also take into account the effects of the parts on the life cycle costs (including logistical support) and standardization before making their recommendation.

**Design Selection Lists.** The MPCAGs maintain and make available lists of parts preferred by government and industry for use in new designs and

modifications. These design selection lists include the Common Parts Lists (CPL), the CB and the Government Furnished Baseline (GFB).

The CPL and the CB (see Appendix D: Definitions) include standard and nonstandard parts commonly used throughout industry. The GFB is a list of government standard parts (comprised of defense specification parts, CIDs, SMDs, and NGSs) revised periodically. The CPL and the CB are derived from Modernized Parts Control Automated Support System (MPCASS) and industry-preferred parts lists, respectively. The compilation of more than two CBs will create a Common Corporate Baseline (CCB). The success of the CCB depends greatly upon industry partnering with the MPCAGs in providing the CBs. Confidentiality of data is ensured in both the CBs and CCBs.

**Diminishing Manufacturing Sources (DMS).** The MPCAGs review individual parts and part listings for DMS impact on producibility, supportability, and maintainability. Contractors and acquisition activities use these "Health of System" reviews to decide the need to solve DMS problems through redesign, bridge buys, or part and printed circuit board emulation.

**Minimize Duplicate Part Numbers.** Duplicate part numbers can exist across divisions and programs within a company, especially when companies merge or reorganize. The MPCAGs will review CPLs for duplicate part numbers and identify existing standards and new standardization opportunities in the corporate environment and possibly at a broader level.

**Responsiveness.** Individual requests identified as urgent can be responded to within 24 hours. Routine reviews are handled in about ten days. Larger part list reviews will take longer depending upon urgency, size, and the complexity of the submitter's evaluation criteria.

**Partnering.** The MPCAGs partner with OEMs, acquisition activities, and other industry and government organizations for the following purposes:

- Develop standardized CBs, and assist in establishing a consolidated national baseline of preferred parts.
- Identify common parts used throughout industry through a variety of tools like common corporate parts lists (CCPLs) and GFBs.
- Assist companies, as parts management experts, with their standardization and parts management efforts.
- Assist in developing viable PMPs and provide advice relating to parts management in RFPs.

- Provide and update DMS information by screening corporate baselines for obsolete and near obsolete parts when requested to do so.
- Provide source of supply information for obsolete parts, QPLs, and source of supply quality problems.
- Provide part history, application, quality, and trend information useful in determining life cycle cost.
- Assist in establishing NGSs, CIDs, or defense specifications, as applicable, for commonly used vendor items and corporate documented vendor parts to eliminate duplication and provide standardization.
- Support the Single Process Initiative by providing advice on concept papers and "block change" proposals.
- Participate on IPTs and in technical interchange meetings with contractors, subcontractors, and military service acquisition activities.

## GUIDELINES FOR PROVIDING SUPPORTING DOCUMENTATION TO MPCAGS FOR PART SELECTION ADVICE

Supporting documentation is not required for parts that are defined by DoD standardization documents. These documents include defense specifications, CIDs, NGSs, SMDs, and defense standards.

Documentation may be necessary for all other parts.

## COMMERCIAL TOOLS

In evaluating a tool, consider the following elements:

- Part obsolescence
- Availability
- Qualification
- Safety
- Interchangeability
- Cost
- Screening

Data should be current and kept up to date either automatically or by regular updates via Internet or CD-ROM.

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# CHAPTER 6:

# COST BENEFIT ANALYSIS: PROCEDURES AND EXAMPLES

Many factors need to be considered when performing cost benefit analysis of a PMP. The formula in NAS 1524, *Standardization Savings, Identification & Calculation*, gives ideas of how costs can be quantified to estimate how much money can be saved through parts management. The actual analysis will have to be tailored for each program to which parts management is applied.

Cost and other impacts related to parts management are described in seven categories: design, testing, manufacturing, purchasing, inventory, support, and obsolescence management. Each category is further subdivided into quantifiable recurring costs, quantifiable nonrecurring costs, and various immeasurable impacts on areas such as expediting costs, schedule impacts, and unproven part performance.

The first step in performing this type of analysis is to identify all the costs and all of the benefits associated with parts management. Some costs and benefits are intangible, and it will not be possible to assign a dollar value to them, but they should be identified.

| COST | BENEFIT |
|---|---|
| Parts management personnel salaries | Reduce part unit costs through larger buys |
| Training costs | Reduce inventory storage requirements |
| Parts management database costs | Reduce part testing/qualification costs – part identification & selection |
| Limitations on engineer's design freedom | Allows designer to spend time on "core" design |
| Use of standard parts | Reduces failure, rework and delays by utilizing existing technology |

Once all the costs and benefits have been listed, the next step is to identify those factors that are tangible and can be measured.

An effective PMP avoids the cost of introducing unnecessary new parts. As documented in the Part Standardization and Management Committee Business Case, the average total cost for adding a new part into a system is $20,000. (The full text of this case can be found at: http://www.dscc.dla.mil/programs/psmc).

The costs are summarized below:

| ACTIVITY | SUBTOTAL |
|---|---|
| Engineering & Design | $ 9,300.00 |
| Testing* | $700.00 |
| Manufacturing | $ 1,750.00 |
| Purchasing | $ 3,800.00 |
| Inventory | $ 875.00 |
| Logistics Support | $ 3,750.00 |
| **TOTAL =$20,175.00** | |

*NOTE: The testing cost was reduced significantly since not every part added to inventory requires testing. However, every part needs to be evaluated, either by similarity, bench test, or analysis.

Parts management is also effective in mitigating and managing part obsolescence problems. The cost of resolving part obsolescence problems can range from a low of $1,800 for part reclamation to a high of $400,000 a major redesign effort. (See Appendix F: References.)

# APPENDIX A:

# PARTS MANAGEMENT APPROACHES

## PARTS MANAGEMENT OPTIONS—FLEXIBILITY AND TAILORING

The four approaches defined below are all keyed to the objectives of reducing life cycle costs through parts standardization and minimizing future parts proliferation. These options include parts selection in the order of preference defined in Chapter 3.

### No Formal Government Guidance

The contractor's PMP is a totally internal practice in which the government has no direct involvement. However, the government does have an interest in ensuring that the contractor's parts selection practice minimizes life-cycle costs and results in the product meeting its performance criteria. See Figure 3.

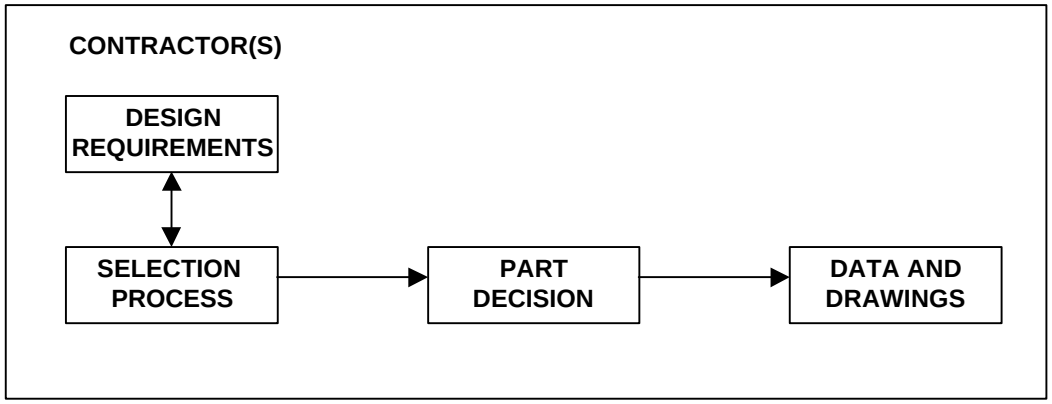


Figure 3. No formal Government guidance

These practices should be followed:

- The contractor should respond to ~~(~~RFPs~~)~~ by describing methods to reduce life cycle costs, achieve GIDEP participation, achieve parts standardization to minimize parts proliferation, and prevent DMS cases.

- Any monitoring of part selection and application by the acquisition activity and MPCAG should be limited to integrated product team interfaces or as offered by the contractor.

- There should be no CDRL Data Item Description (DID) for data delivery for parts management.

- The contractor may request advice from the acquisition activity and MPCAG on parts selections. If MPCAG parts advice is requested, MPCASS is the preferred method of submitting part evaluation requests.

## Acquisition Activity Guidance Through Program Reviews and Integrated Product Teams

The contractor's PMP is an internal procedure that complies with government guidance, but the government requires a level of participation in ensuring supportability over the life of the product. Also, the government has no interest in logistically maintaining the system or equipment. See Figure 4.

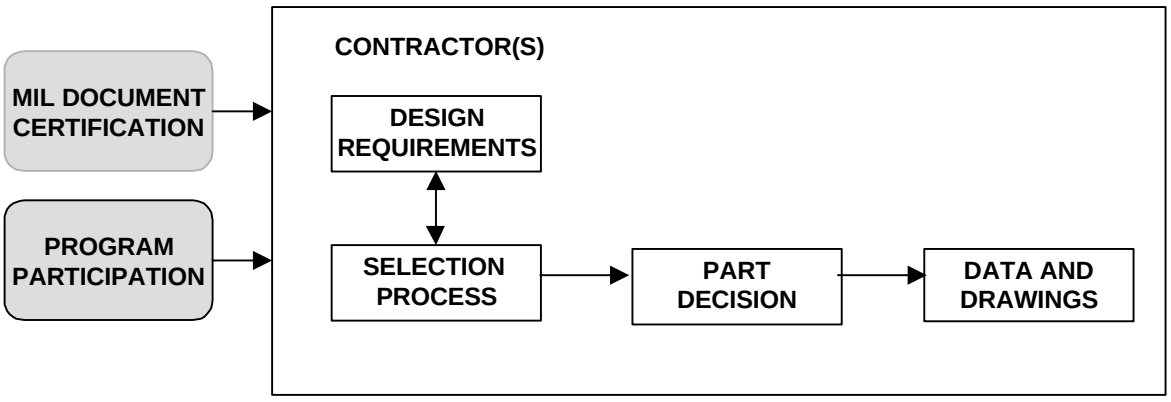


Figure 4. Government guidance through program reviews and IPTs

These practices should be followed:

- The contractor should respond to RFPs, by describing methods to reduce life cycle costs, achieve GIDEP participation, achieve parts standardization to minimize parts proliferation, and prevent DMS cases.

- The acquisition activity monitors success of the program through contract language and scheduled periodic program reviews and interfaces with IPTs to assess the accomplishment of parts management goals and objectives and to discuss and resolve part problem areas/issues.

- There should be no CDRL DID for parts submissions. However, the contract may require acquisition activity and MPCAG access to an as-built parts list.

- The contractor may request advice from the acquisition activity and MPCAG on parts selections; however, the contractor has no obligation to request or to accept such advice. If MPCAG parts advice is requested, MPCASS is the preferred method of submitting the parts evaluation requests to the MPCAG.

- The contractor may elect to establish a PMB even though it is not a contractual requirement.

### Government Guidance with As-Built Parts List

The government provides guidance and acts as an advisor, while requiring the contractor to provide an as-built parts list to the acquisition activity and MPCAG. See Figure 5.

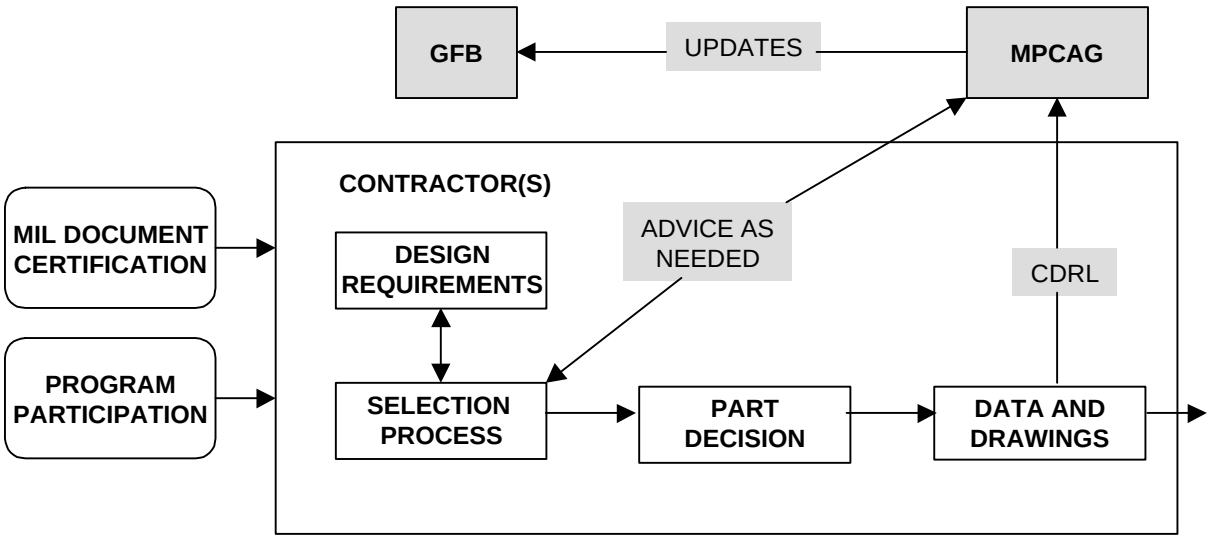


Figure 5. Government guidance with As-Built Parts List

These practices should be followed:

- The contractor should respond to RFPs by describing methods to reduce life cycle costs, achieve GIDEP participation, achieve parts standardization to minimize parts proliferation, and prevent DMS cases.

- The acquisition activity monitors success of the program through scheduled periodic program reviews and interfaces with IPTs to assess the accomplishment of parts management goals and objectives and to resolve part problem issues.

- MPCAG will provide the contractor access to GFBs for part selection assistance.

- The contractor may request advice from the acquisition activity and MPCAG on parts selections; however, the contractor has no obligation to request or to accept such advice. If MPCAG parts advice is requested, MPCASS is the preferred method of submitting the parts evaluation requests to the MPCAG.

- The contract may require the contractor to establish a PMB, or the contractor may elect to do so.

- The SOW should contain, as a task and as a data item to deliver to the acquisition activity and the MPCAG, an as-built parts list.

## Government Advisor in Parts Selection

The government acts as an advisor in the PMP. The contractor is required to seek government advice on parts selected for the design and manufacture of the product. See Figure 6.

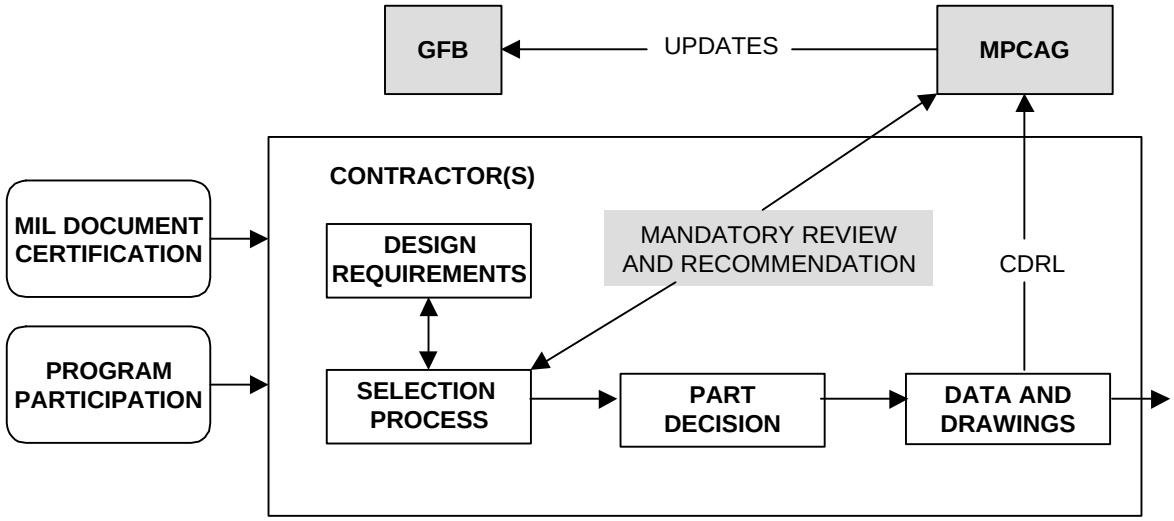


Figure 6. Government advisor in parts selection

These practices should be followed:

- The contractor should respond to RFPs by describing methods to reduce life cycles costs, achieve GIDEP participation, achieve parts standardization, and prevent DMS cases.

- The acquisition activity monitors success of the program through interfaces with IPTs to assess the accomplishment of parts management goals and objectives and to resolve part problem issues.

- The RFP and/or SOW should specify the baseline parts selection list for the program or contract. Parts on this list are standard and approved. This list may be the GFB (electrical and/or mechanical), approved CB, and/or a list of pre-approved parts provided by the acquisition activity.

The MPCAG will provide the contractor access to the GFBs for part selection assistance.

- All selected parts and parts data should be submitted to the acquisition activity, its agent, and/or MPCAG for review and recommendation in accordance with the CDRL. Use of other than the government recommended part should be resolved by the contractor prior to design application. The resolution should be documented, retained, and made available to the acquisition activity upon request. MPCASS is the preferred method of submitting the part evaluation requests to the MPCAG.

- The contract may require the contractor to establish a PCB, or the contractor may elect to do so.

- The SOW should contain, as a task and as a data item to deliver to the acquisition activity and the MPCAG, an as-built parts list.

# APPENDIX B:

# COMMONLY USED PARTS BY CATEGORIES

When used in contract requirements, these lists should be tailored to include only those items of interest for the system or equipment being acquired.

| FSC* | DESCRIPTION |
|---|---|
| 1620 | Aircraft Landing Gear Components |
| 2920 | Engine Electrical System Components, Non-aircraft |
| 2930 | Engine Cooling System Components, Non-aircraft |
| 2940 | Engine Air & Oil Filters, Strainers & Cleaners, Non-aircraft |
| 2990 | Miscellaneous Engine Accessories, Non-aircraft |
| 3020 | Gears, Pulleys, Sprockets & Transmission Chain |
| 3040 | Miscellaneous Power Transmission Equip |
| 3110 | Bearings, Antifriction Unmounted |
| 3120 | Bearings, Plain |
| 3130 | Bearings, Mounted |
| 4010 | Chain and Wire Rope |
| 4030 | Fittings for Rope, Cable & Chain |
| 4710 | Pipe and Tube |
| 4720 | Hose and Tubing |
| 4730 | Tube Fittings, Hose Clamps |
| 4810 | Valves, Powered |
| 4820 | Valves, Nonpowered |
| 5305 | Screws |
| 5306 | Bolts |
| 5307 | Studs |
| 5310 | Nuts and Washers |
| 5315 | Nails, Keys, Pins |
| 5320 | Rivets |
| 5325 | Fastening Devices - Threaded Inserts and Retaining Rings |
| 5330 | Gaskets, Packing and O-Rings |
| 5340 | Miscellaneous Hardware |
| 5341 | Brackets |
| 5355 | Knobs and Pointers |

| | |
|---|---|
| 5360 | Springs |
| 5365 | Shims and Spacers |
| 5905 | Resistors |
| 5910 | Capacitors |
| 5915 | Filters and Networks |
| 5920 | Fuses and Lightning Arrestors |
| 5925 | Circuit Breakers |
| 5930 | Switches |
| 5935 | Connectors |
| 5940 | Lugs, Terminals and Terminal Strips |
| 5945 | Relays, Contactors, and Solenoids |
| 5950 | Coils and Transformers |
| 5955 | Oscillators |
| 5961 | Semiconductor Devices and Associated Hardware |
| 5962 | Microelectronic Circuit Devices |
| 5970 | Electrical Insulators and Insulating Materials |
| 5975 | Electrical Hardware and Suppliers |
| 5980 | Optoelectronic Devices and Associated Hardware |
| 5985 | Antennas, Waveguides, and Related Equipment |
| 5996 | Ampliers |
| 5999 | Miscellaneous Electrical and Electronic Components |
| 60GP | Fiber Optic Materials, Components, Assemblies & Accessories |
| 6135 | Batteries, Primary |
| 6140 | Batteries, Secondary |
| 6145 | Wire and Cable, Electrical |
| 6220 | Electric Vehicular Lights and Fixtures |
| 6230 | Electrical Portable and Hand Lighting Equipment |
| 6240 | Electric Lamps |
| 7510 | Tape, Pressure Sensitive Adhesive, Identification |
| 9545 | Plate, Sheet, Strip, Foil & Wire Precious Metal |
| 9999 | Miscellaneous Items |

* Federal Supply Class

**Points of Contact:** http://www.dscc.dla.mil/programs/mpcag

This site lists key MPCAG personnel at all three MPCAG centers. It lists a point of contact by FSC plus points of contact for other related MPCAG activities/programs.

# APPENDIX C:

# GENERAL INFORMATION FOR PART AND SUPPLIER QUALIFICATION

## INFORMATION TO OBTAIN FROM SUPPLIERS

The following information should be collected when evaluating a supplier or new product.

### General Performance Specifications and Product Information

Product data sheets.

Availability of product samples.

Purchase descriptions used by other government activities or used in commercial transactions, including commercial specifications, standards and SOW.

Average time between model changes and practice of providing continued parts inventories, upgrades, or production for phased-out models.

Plans for handling upgrades and obsolescence.

Length of time the product has been produced or service provided.

Product quality, reliability, and maintainability experience of similar user customers.

Environmental and disposal considerations.

Safety considerations related to the product's use

List of products and company services satisfying identical or similar service requirements.

Cost drivers in the manufacture and use of the product.

Applicable regulatory and de facto standards.

### Supportability Issues

Product quality, reliability, and maintainability experience of similar users.

Repair parts availability and lead times, documentation, pricing, and distribution systems.

Customer service, installation, checkout, and user customer operation and maintenance instructions.

Requirements and provisions for manpower and personnel.

Competitive or sole source repair and support base.

Training and training support requirements.

Requirements for and availability of tools, test equipment, computer support resources, calibration procedures, operations, and maintenance manuals.

Commercial repair capabilities.

Supplier calibration, repair, and overhaul practices and capabilities documentation.

Supplier commitment to out-year support.

Degree of technical data package availability.

Stability of current configuration and technology.

### Test Data

Hardware, software, and manpower interface issues such as human factors and product safety as experienced by similar users or customers.

Manufacturer test results.

Certification or test results from independent test organizations.

## INFORMATION FOR SUPPLIERS

The following information may be required by a supplier in order to supply a part that will meet design requirements.

- Operating characteristics for hardware and software.
- Environmental conditions for use.
- Usage (e.g., fixed, airborne, tactically deployable).

### System Interface or Integration Requirements

Computer language, speed, throughput, ports, memory and expansion potential.

Radio transmission frequency requirements and allocation status.

Rules for government use of frequency spectrum.

Human factors considerations.

## Maintainability Information

Self-test requirements.

Limitations, if any, on organizational-level support equipment.

## Communications-Computer System Interface Information

Software portability to other communications-computer systems.

Operating duty cycle (e.g., 24 hours, intermittent).

Input power quality (drops, surges, spikes, noise).

Essential safety characteristics.

Reliability, maintainability, and survivability data.

Nuclear hardening requirements.

Chemical, biological, and radiological survivability data.

Electromagnetic compatibility.

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# APPENDIX D:

# DEFINITIONS

**Alternate Parts List (APL)**. (Formerly Substitution List). A list of parts, presently in inventory but no longer procurable or deemed to be replaceable due to standardization issues. These parts can be replaced by an equivalent part listed in the preferred parts list (PPL) on an equal to or better than basis.

**Common Corporate Baseline (CCB).** A list of parts (standard and nonstandard) identified from amongst the submitted corporate baselines based upon their frequency of use within a given timeframe (e.g., all parts common to two or more corporate baselines, which have been submitted or updated within the last three years).

**Common Part Lists (CPL).** An interim list of parts (standard and nonstandard) identified from the MPCASS history file (including corporate baseline) based upon their frequency of use within a given time frame (e.g., all parts appearing at least three times in the last five years).

**Corporate Baseline (CB).** A list of a corporation's, or a corporate business unit's preferred, or otherwise distinguished parts. These lists are provided to the MPCAGs for review against submitter specified criteria (e.g., standard/alternate part, availability) and for inclusion in the MPCASS history file.

**Data Item Description (DID)**. A completed form that defines the data required of a contractor. DIDs specifically define the data content, preparation instructions, format, and intended use.

**Diminishing Manufacturing Sources and Material Shortages (DMSMS).** The eminent loss or potential loss of the last known manufacturer or supplier of raw materials, production parts, or repair parts.

**Military Parts Control Advisory Groups (MPCAG).** The Defense Logistics Agency has three MPCAGs, located at Columbus, Ohio; Philadelphia, Pennsylvania; and Richmond, Virginia. They provide technical advice on electronic, electrical and mechanical parts on an individual basis, or on parts lists.

**Modernized Parts Control Automated Support System (MPCASS).** An on-line automated data processing system for interface with MPCAGs. This system allows for the input and inquiry of information for parts

management and is available for use by military acquisition activities, equipment contractors, and parts suppliers.

**Part.** One piece, or two or more pieces joined together, which are normally subject to disassembly without destruction or impairment of its design purpose.

**Parts Management Board (PMB).** An ad hoc group composed of persons who represent parts management responsibilities for their individual companies. The PMB is responsible for identifying part status for inclusion in the PPL or CB.

**Parts Management.** The practice of determining the optimum part while considering all factors which may affect the part—application, standardization, cost, availability, technology (new and aging), logistics support, DMS, and legacy issues.

**Parts Standardization and Management Committee (PSMC)**. A National Joint Industry/Government Working Group formed to reduce life cycle costs and promote the use of standardization and parts management.

**Potential Part.** A part reviewed by the PMB and deemed not justified for use at that time although the part may have potential future usage.

**Preferred (Standard) Part.** A standard part that by the nature of its historical usage and/or its future potential has been designated by the PMB as "Standard" or preferred for use in equipment. The part shall be adequately controlled and documented by a defense, NGSB, or a company specification, standard, or drawing.

**Preferred Parts List (PPL).** A part listing preferred for use in equipment design, which often contains descriptions, attributes, or application information. The term is used in this document to represent the names of several different contractor and government parts lists. The list includes, but is not limited to: Approved Parts Lists, Approved Parts Baselines, Corporate Baselines, Common Parts Lists, Common Corporate Parts Lists, Government Furnished Baselines, Parts Selection Lists, Preferred Parts Lists and Program Parts Selection Lists. These parts lists have similar purposes but their degree of application varies from company to company and within different government acquisitions.

**Prohibited Parts List.** A listing of parts deemed unacceptable by the PMB for use in a company's products because of cost, quality, safety, etc.

# APPENDIX E:

# ACRONYMS

| | |
|---|---|
| AA | Acquisition Activity |
| AIA | Aerospace Industries Association |
| APL | Alternate Parts List |
| AS | SAE designation prefix for a part standard |
| CAD | Computer Aided Design |
| CB | Corporate Baseline |
| CCB | Common Corporate Baseline |
| CCPL | Common Corporate Parts List |
| CDRL | Contract Data Requirements List |
| CID | Commercial Item Description |
| CPL | Common Parts List |
| DLA | Defense Logistics Agency |
| DMS | Diminishing Manufacturing Sources |
| DMSMS | Diminishing Manufacturing Sources & Material Shortages |
| FSC | Federal Supply Class |
| GFB | Government Furnished Baseline |
| GIDEP | Government & Industry Data Exchange Program |
| IPT | Integrated Product Team |
| MPCAG | Military Parts Control Advisory Group |
| MPCASS | Modernized Parts Control Automated Support System |
| MS | Military Standard |

| | |
|---|---|
| NAS | National Aerospace Standard |
| NGS | Non-government Standard |
| NGSB | Non-government Standards Body |
| OEM | Original Equipment Manufacturer |
| PMB | Parts Management Board |
| PMP | Parts Management Program |
| PMPP | Parts Management Program Plan |
| PPL | Preferred Parts List |
| PSMC | Parts Standardization and Management Committee |
| QML | Qualified Manufacturers List |
| QPL | Qualified Products List |
| RFP | Request for Proposal |
| SAE | Society Of Automotive Engineers |
| SMD | Standard Microcircuit Drawing |
| SOO | Statement of Objectives |
| SOW | Statement of Work |

# APPENDIX F:

# REFERENCES

MIL-HDBK-512, *Parts Management*

NAS 1524, *Standardization Savings, Identification & Calculation*

*Resolution Cost Factors for Diminishing Manufacturing Sources and Material Shortages*, Final Report, February 1999. Prepared by Defense MicroElectronics Activity (DMEA).

Defense MicroElectronics Activity DMSMS & Obsolescence WEB site:

http://dmea.osd.mil/index.html

Defense Acquisition Deskbook Section 26G, Parts Control Program:

http://web.deskbook.osd.mil