DMEA

Defense MicroElectronics Activity

DMSMS ACQUISITION GUIDELINES

Implementing Parts Obsolescence Management Contractual Requirements

Rev 3.0

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ARINC

DMSMS
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Implementing Parts Obsolescence Management
Contractual Requirements

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Prepared for

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ABSTRACT

These Diminishing Manufacturing Sources and Material Shortages (DMSMS) acquisition guidelines compile the ideas and comments expressed by experienced program managers over the past few years at a variety of forums, meetings, and conferences. This Acquisition Guidelines document for DMSMS provides the program manager and the integrated product team (IPT) with suggested contractual language that could be used to prepare a request for proposal (RFP) or to modify an existing contract to include cost effective DMSMS practices. This document is an adjunct to and its use is complementary with the *Resolution Cost Metrics for DMSMS, Program Managers Handbook - Common Practices to Mitigate the Risk of Obsolescence* – and the resolution guides referenced therein.

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ABBREVIATIONS AND ACRONYMS

AA	Acquisition Activity
AFMC	Air Force Materiel Command
AMC	Army Materiel Command
ASIC	Application Specific Integrated Circuit
BCA	Business Case Analysis
CAIV	Cost As an Independent Variable
C&TD	Concept and Technology Development
CPAF	Cost Plus Award Fee
CPFF	Cost Plus Fixed Fee
CPIF	Cost Plus Incentive Fee
COTS	Commercial Off The Shelf
CR	Cost Reimbursable
DAU	Defense Acquisition University
DFARS	Defense Federal Acquisition Regulation Supplement
DLA	Defense Logistics Agency
DMEA	Defense MicroElectronics Activity
DMS	Diminishing Manufacturing Sources
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
DSCC	Defense Supply Center Columbus
ECP	Engineering Change Proposal
EDI	Electronic Data Interchange
EEIC	Expense Element Investment Code
EIA	Electronics Industries Alliance
EOL	End of Life
FFP	Firm Fixed Price
FMS	Foreign Military Sales
FPIF	Fixed Price Incentive Firm
FYDP	Five-Year Defense Plan

ABBREVIATIONS AND ACRONYMS (continued)

GAO	General Accounting Office
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GIDEP	Government Industry Data Exchange Program
HW/SW	Hardware/Software
ICP	Inventory Control Point
ILS	Integrated Logistics Support
IOC	Initial Operating Capability
IPB	Illustrated Parts Breakdown
IPPD	Integrated Product and Process Development
IPT	Integrated Product Team
ISEA	In-Service Engineering Agent
ISSC	In-Service Support Contractor
JTIDS	Joint Tactical Information Distribution System
LOE	Level of Effort
LOT	Life of Type
LRU	Line Replaceable Unit
MPCAG	Military Parts Control Advisory Group
MSD	Material Support Division
MYB	Multi-Year Buy
NAVSEASYSCOM	Naval Sea Systems Command
NDI	Non Developmental Item
NSN	National Stock Number
O&S	Operations and Support
OEMs	Original Equipment Manufacturers
OSA	Open Systems Architecture
PBL	Performance Based Logistics
PBSA	Performance Based Services Acquisition
PCP	Parts Control Plan
PDD	Program Design Document
P&D	Production and Deployment
PEM	Program Element Monitor
PM	Program Manager

ABBREVIATIONS AND ACRONYMS (continued)

PMO	Program Management Office
PMP	Parts Management Plan
PO	System Program Office
POM	Program Objectives Memorandum (POM)
PSMP	Product Support Management Plan
RFP	Request For Proposal
RIW	Reliability Improvement Warranty
SCD	Source Control Drawing
SD&D	System Development and Demonstration
SDP	Software Development Plan
SLEP	Service Life Extension Program
SOO	Statement of Objectives
SOW	Statement of Work
SRA	Shop Replaceable Assembly
SRU	Shop Replaceable Unit
TDP	Technical Data Package
TO	Technical Order
TOC	Total Ownership Cost
TSPR	Total System Performance Responsibility
VHDL	VHSIC Hardware Description Language
VHSIC	Very High Speed Integrated Circuit
WRA	Weapons Replaceable Assembly

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SECTION 1

INTRODUCTION

1.1 OVERVIEW

To minimize the impact of Diminishing Manufacturing Sources and Material Shortages (DMSMS), Department of Defense (DoD) agencies, organizations, and program offices must be able to incorporate timely and cost-effective engineering practices during development, production, and sustainment. To ensure the goal of least total ownership cost (TOC), the concept of DMSMS management must be accepted at the highest programmatic levels and ***contractually invoked*** during the system life cycle.

In May of 1999 DMEA developed cost metrics (ARINC 1999) for various DMSMS resolutions so that DoD programs could uniformly report cost avoidance and determine the cost benefit of implementing a DMSMS program. In May of 2000 the *Program Managers Handbook—Common Practices to Mitigate the Risk of Obsolescence* (ARINC 2000) for implementing a DMSMS program was introduced by DMEA. The *Program Managers Handbook* provides practical recommendations for program managers to consider when determining the level of DMSMS management requirements needed to minimize the impact of DMSMS. This Acquisition Guidelines document for DMSMS integrates the previous efforts by providing the program manager and the integrated product team (IPT) with suggested contractual language that could be used to prepare a request for proposal (RFP) or to modify an existing contract to include cost effective DMSMS practices.

This *DMSMS Acquisition Guidelines* document contains information for all experience levels of program managers. Section 2, DMSMS Familiarization, is particularly helpful to new program managers recently introduced to the problem of DMSMS. It should be read first before reviewing Section 3, Contractual Considerations for DMSMS. All program managers will find Section 3 of great benefit in reviewing elements that affect DMSMS acquisition strategies. Section 4 provides a summary of sample contractual language that could be used to implement risk mitigation techniques. Section 5 contains a list of references cited throughout the text. Appendix A contains the sample contractual language collected as a result of this effort.

1.2 SCOPE

The information provided in these Acquisition Guidelines pertains only to acquisition and sustainment of electronic components. Inclusion of nonelectronic and mechanical component acquisition guidance will be considered in future revisions of these guidelines. Figure 1-1 provides a roadmap on how to use this Acquisition Guidelines document.

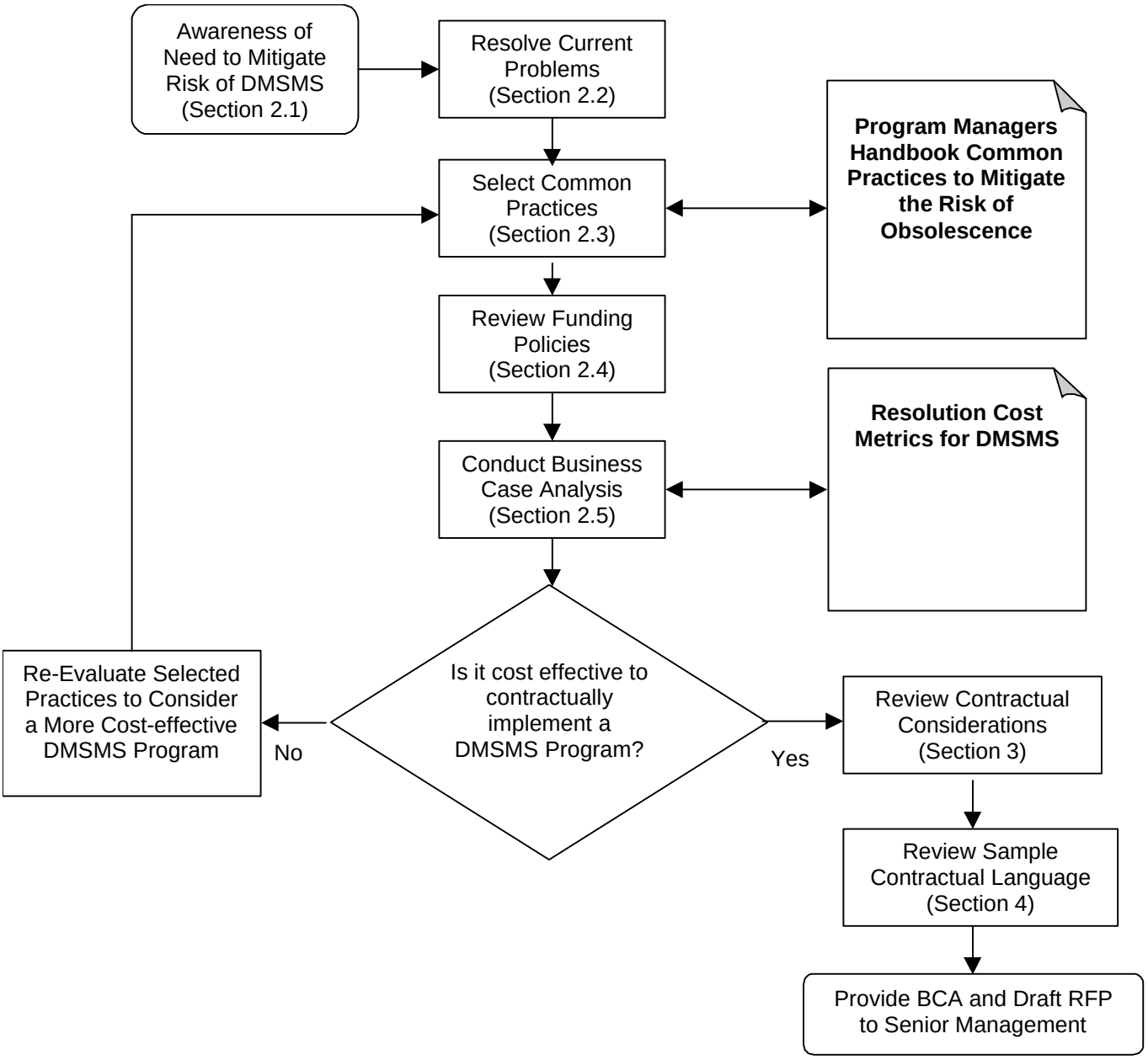


Figure 1-1. DMSMS Acquisition Guidelines Roadmap

Specifically, this Acquisition Guidelines document provides the following information:

- Summary of common DMSMS practices that mitigate the risk of DMSMS
- Sample cost benefit analyses from implementing risk mitigation strategies
- Effects on contract content (e.g., language, appropriateness) of the following:
  - Life-cycle phase
  - Contract type
  - Sole source or competitive contracts
  - Repair depot location
- Sample DMSMS contractual language

1.3 BACKGROUND

The need for contractually based obsolescence management has been indicated by attendees at various conferences during the past several years, including the October 1999 workshop sponsored by the Defense MicroElectronics Activity (DMEA) and the August 2000 workshop sponsored by DMEA, Naval Supply Systems Command, and Naval Sea Systems Command. The August 2000 DMSMS Conference of approximately 400 attendees overwhelmingly indicated that contractual language for acquisition documents is an important priority (DMEA 2000). A survey (DMEA 2001a) conducted by DMEA in spring 2001 also confirmed the need for contractual language.

Experienced program managers are indicating that it is necessary to provide guidance on how and when to incorporate obsolescence risk mitigation strategies into contracts. Many experienced program managers from both the Department of Defense (DoD) and industry shared their thoughts about contract language at the May 2001 Acquisition Guideline Workshop hosted by DMEA (DMEA 2001b). The minutes summarizing the thoughts from the workshop are provided on the DMEA web site at http://www.dmea.osd.mil/dod_workshop_2001_minutes.pdf.

As a result of these workshops and the data collection effort to prepare these Guidelines, useful contractual language has been obtained. However, the task is not over. Feedback on the use of these Guidelines is essential to ensure that the DoD is implementing guidance that can reduce the impact of obsolescence. To meet that goal, the DMEA website contains a comment form (http://www.dmea.osd.mil/AcquisitionGuidlines/comments), which is also provided at the end of this document. This form is to solicit information about improving these Guidelines.

SECTION 2

DMSMS FAMILIARIZATION

DoD Regulation 4140-R defines DMSMS as the loss or impending loss of manufacturers or suppliers of critical items and raw materials due to discontinuance of production (DoD 2001). This problem is particularly acute for electronic systems, but as shown in Figure 2-1, DMSMS affects nonelectronic systems as well.

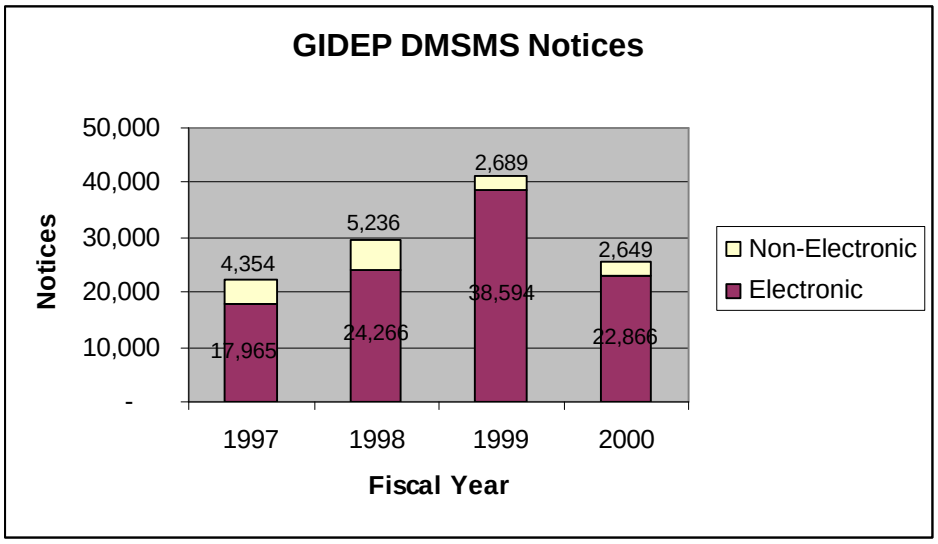


Figure 2-1. GIDEP DMSMS Notices

A U.S. General Accounting Office report (GAO 1995) summarizes the DMSMS concerns as follows:

> DoD has indicated that diminishing manufacturing sources is a major potential problem, particularly in the electronics and microcircuit areas. According to industry sources and DoD officials, because of rapidly changing technology in the electronics and microcircuit industry, decreasing demands due to the downsizing of DoD, and the emphasis on DoD using commercial-off-the-shelf

items, the private sector is increasingly more sensitive to its commercial customers rather than DoD. As a result, DoD expects the availability of DoD specification items to decrease and the number of DMSMS situations to increase. DoD officials have also asserted that DMSMS situations may affect the availability of parts to DoD in areas other than electronics and microcircuits.

DMSMS is a serious issue for the DoD, the airline community, and many commercial industries. Due to rapid advances in semiconductor technology, microelectronic component life cycles have been shortened from between 3 and 5 years to 18* months. The DoD acquisition life cycle is shown in Figure 2-2. The average system acquisition life cycle time (measured from program start to initial operating capability) is 132 months† (Spruill 2000). Semiconductor technology could change over seven times during this acquisition cycle which could cause significant risk that components selected during system development and demonstration might be obsolete before initial operating capability (IOC) or sooner.

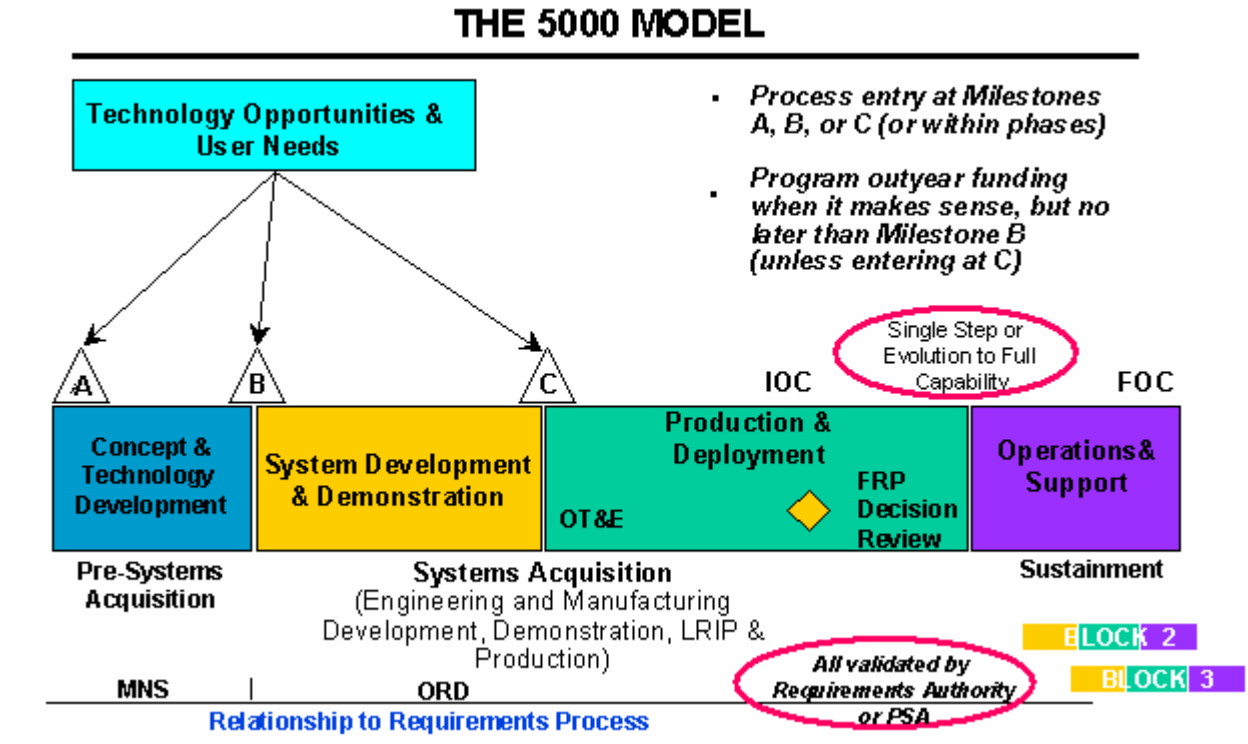


Figure 2-2. Defense Acquisition Management Framework (Source: DoD 2001b, Figure F1)

To minimize the risk of DMSMS during the acquisition cycle and through sustainment, programs must:

1. Obtain notification of their potential and current DMSMS problems.

* The 18 months is based on Moore's Law which states that the density of components (e.g., fabrication process minimum feature size measured in micrometers) doubles about every 18 months.
† The historical baseline is 132 months. The current DoD goal is to reduce this by 25% to 99 months.

2. Resolve their current DMSMS problems.

3. Implement risk mitigation techniques.

4. Understand funding sources needed for the implementation of the techniques.

The following subsections provide guidance for these four basic steps—the basis of a DMSMS program. Once this DMSMS familiarization is complete, program managers are prepared to review the contractual considerations in Section 3 and select the appropriate contract language contained in Section 4 that will implement the risk mitigation techniques.

2.1 PROBLEM NOTIFICATION

DMSMS discontinuance notices alert program managers that production is concluding for a specific part (i.e., the part is about to become unavailable). The notices usually contain part numbers, last order and shipment dates, minimum order quantities, and sometimes national stock numbers. To receive a problem notification, the program office must first know their parts and be working with the various organizations that can provide discontinuance notifications. Notifications of a DMSMS problem typically come from any or all of the following sources, depending on program phase:

- All program phases

  — Government Industry Data Exchange Program (GIDEP)
  — Part manufacturers
  — Original equipment manufacturers (OEMs)

- Sustainment only

  — Defense Supply Center Columbus (DSCC)
  — Government repair activities

Because of the numerous sources for notices, the potential exists for inaccurate, duplicate, or late arrival of notices to the cognizant program office. A notice may arrive at a program office as early as when a manufacturer begins to plan the discontinuance of a device or as late as years after a device has been discontinued.

2.1.1 Government Information Data Exchange Program

GIDEP has been designated as the central repository within the DoD for all discontinuance notices. GIDEP receives documented notices from parts manufacturers or GIDEP participants about parts or production lines that will be discontinued. After receipt of a notice, GIDEP prepares and distributes alerts through subscriber activities within the DoD and to member organizations in private industry. GIDEP alerts usually contain part numbers, last order and shipment dates, minimum order quantities, and national stock numbers. To become a GIDEP

subscriber, program offices contact the GIDEP Operations Center in Corona, California. Their Internet home page is http://www.gidep.org.

2.1.2 Defense Supply Center Columbus

DSCC is a procurement and supply activity for the Federal Government and is an inventory control point for material managed by the Defense Logistics Agency (DLA) in Ft. Belvoir, Virginia. DSCC provides discontinuance notices to program offices for electronic components and assists in identifying resolutions for DMSMS electronic devices. For life of type (LOT) buy purposes, DSCC assists calculating demand and reviewing alternatives. Program offices work with DSCC when programs are in the sustainment phase.

2.1.3 Government Repair Activities

Government repair activities may issue internal government alerts following "no bid" or "not available" responses to equipment or part procurement efforts during repair of systems during sustainment. In these cases, a technical referral is usually generated on a DLA Form 339, *Request for Engineering Support* and forwarded to an inventory control point (ICP), which may pass the information to an in-service engineering agent (ISEA) for further review and analysis. Contact with ICP and ISEA technical referral personnel may be necessary to obtain specific alert information from these organizations.

2.1.4 Part Manufacturers

Part manufacturers ***may*** notify the OEMs and the program offices via letter or phone if they are a ***known*** customer. They also notify GIDEP, DSCC, and commercial database subscription services that their parts are, or will soon be, discontinued. Many part manufacturers have web pages that provide details and suggestions for possible replacements on parts that they discontinue. Program offices access these sites periodically to obtain information about parts availability.

2.1.5 Original Equipment Manufacturers

OEMs send discontinuance notices when part manufacturers or government agencies are not direct purchasers of a part. For example, alerts may be originated by OEMs when a component manufacturing contract cannot be filled because a supplier has provided them a discontinuance notice on a part needed for a contracted component. Some OEMs also provide discontinuance notices on their web pages, which can be accessed periodically. To ensure receipt of OEM notifications, program offices usually insert appropriate requirements and clauses in system sustainment support and production contracts.

2.2 RESOLUTION OF PROBLEMS

Each of the services has published a resolution guide identifying not only suggested resolutions but also policy and procedures:

- Naval Sea Systems Command (NAVSEASYSCOM)—*Case Resolution Procedures Guide* (NAVSEASYSCOM undated)

- Air Force Materiel Command (AFMC)—*DMSMS Program Case Resolution Guide* (AFMC 1998)

- Army Materiel Command (AMC)—*DMSMS Case Resolution Guide* (AMC undated)

The DMSMS resolutions contained in these documents are well known and usually are applied to existing or newly arising problems. The guides also provide information about coordinating actions with key activities such as DLA, DSCC, and DMEA. The DoD DMSMS Working Group is reviewing the possibility of developing a common DoD guide with appendixes for each unique service.

To supplement the resolution guides, DMEA has published *DMSMS Resolution Cost Factors* (ARINC 1999) and the *Program Managers Handbook* (ARINC 2000) The resolution guides and these DMEA documents be can downloaded from the GIDEP web site (www.gidep.org) or DMEA web site (www.dmea.osd.mil)

2.3 RISK MITIGATION

Minimizing the impact of component (parts) obsolescence and technical obsolescence risk is the heart of the DMSMS concern. Risk management techniques have been addressed by AFMC (AFMC 2001), the DMEA (ARINC 2000), and the Electronics Industries Alliance (EIA) (EIA 2000). One way to plan for risk is noted in *DMSMS Program Case Resolution Guide* (AFMC 2001) as follows:

> An excellent approach to resolving DMSMS issues is to include a requirement in the Statement of Work. This way bidders can propose their approach to minimize the impact of obsolescence occurrences during the life of the system. The importance attached to this requirement must be reflected in the proposal evaluation criteria.

Section 4 of this Acquisition Guidelines document provides statement of work (SOW) language and evaluation criteria. Some approaches from the AFMC case resolution guide are the following: (AFMC 1998):

- Create an integrated product team including suppliers and end users (System Program Office DMSMS Management Activity)

- Incorporate availability guarantees in contracts

- Create early-warning databases that contain complete indentured configuration data
- Implement open systems architecture (OSA) interface standards
- Design for obsolescence using very high speed integrated circuit (VHSIC) hardware description language (VHDL) to describe components or systems in VHDL
- Plan for periodic replacement (i.e., technology insertion or technology refresh)
- Select parts relatively new into their life-cycles

The Program Managers Handbook (ARINC 2000) provides three intensity levels of common practices that include activities that could be implemented to mitigate the risk of DMSMS:

- Level 1—Practices are implemented to resolve current obsolete items. Some of these activities may be considered reactive.
- Level 2—Minimal required practices are needed to mitigate the risk of future obsolete items. The majority of these activitives are perceived as proactive.
- Level 3—Advanced practices are required to mitigate the risk of obsolescence when there is a high opportunity to enhance supportability or reduce total cost of ownership. These activities are proactive and may require additional program funding.

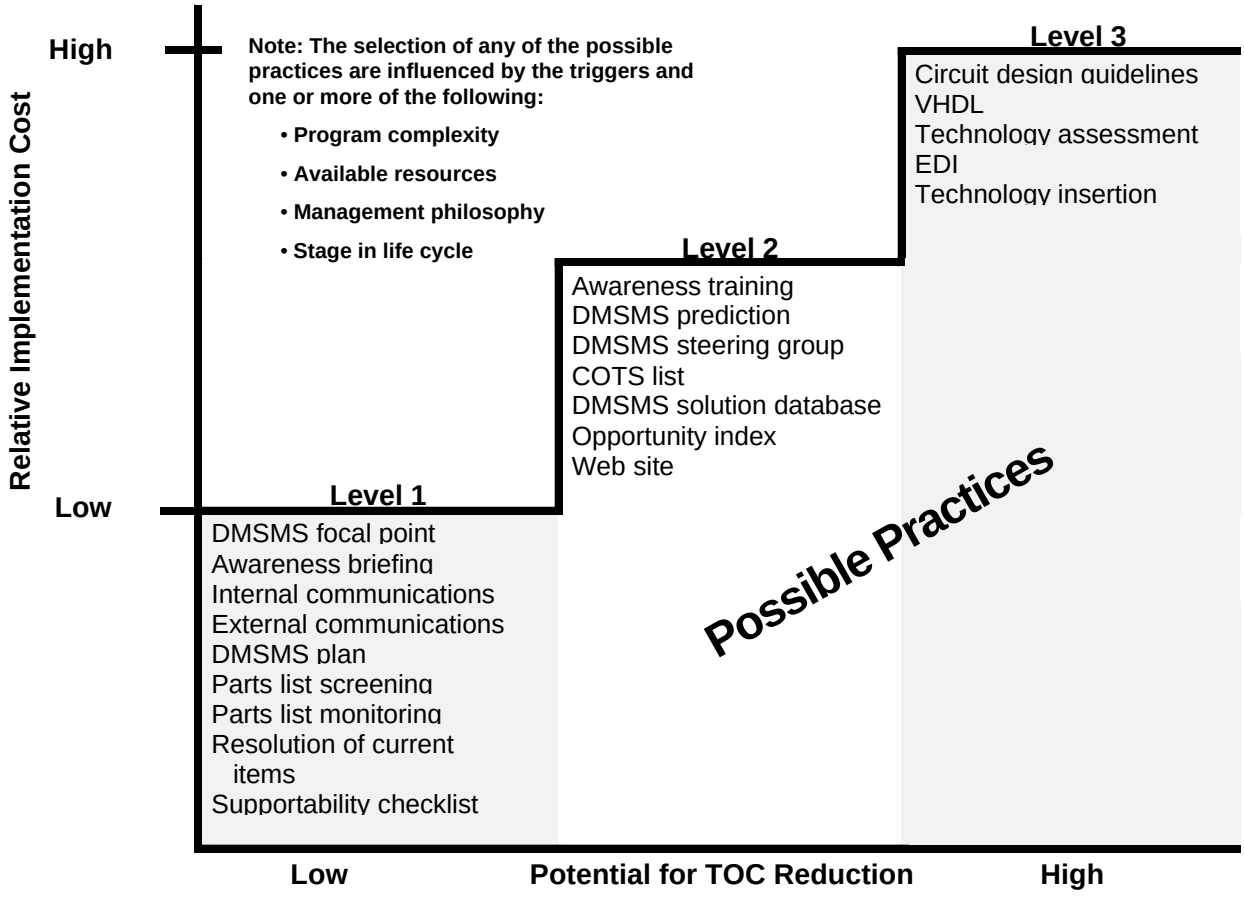
Selecting a practice is influenced by the resources available to manage DMSMS. The practices associated with these levels form the basis of a DMSMS program that can be implemented to mitigate the impact of DMSMS. Although an expense is associated with the implementation of a DMSMS program, cost avoidance can be realized from such a program. A list of the practices for each level is presented in Table 2-1. An event usually occurs that convinces the program manager that one or more practices need to be implemented. These events are called *triggers*.

Table 2-1. Common Practices

Level 1	Level 2	Level 3
DMSMS Focal Point Awareness Briefing Internal Communications External Communications DMSMS Plan Parts List Screening Parts List Monitoring Resolution of Current Items Supportability Checklist	Awareness Training DMSMS Prediction DMSMS Steering Group COTS List DMSMS Solution Database Opportunity Index Web Site	Circuit Design VHDL Technology Assessment Electronic Data Interchange (EDI) Technology Insertion

Business case analyses from the B-2, AEGIS, and Joint Stars programs have shown that the implementation of these practices can result in lowering the cost of resolving obsolescence

problems and reducing TOC. It is important to note that as more practices are selected, the potential for reduction of TOC increases. The relative implementation cost versus potential for TOC reduction, along with a summary of the possible triggers, is shown in Figure 2-3.



Possible Triggers		
Level 1	**Level 2**	**Level 3**
Initial DMSMS awareness by program manager (PM) <10% of parts unsupportable <10 years remaining in system life cycle	Increased awareness from PM 10–20% of parts unsupportable 10–20 years remaining in system life cycle	Higher management (above PM) awareness of supportability problems >20% of parts unsupportable >20 years remaining in system life cycle Opportunity to enhance supportability or reduce total cost of ownership

Figure 2-3. Stepping Up to Minimize the Risk of Parts Obsolescence (ARINC 2000)

The EIA bulletin GEB1 (EIA 2000) describes methods that can be applied during system design to minimize the impact of future component obsolescence issues. These methods include:

- Technology Independence—use modular systems and VHDL modeling

- Software Portability—compile software independent of the target
- Technology Road Mapping—conduct market surveys to stay abreast of technology advances
- Technology Insertion—introduce new technology into a design
- Planned System Upgrade—bring the design up to date at defined intervals
- Life Cycle Analysis/DMSMS Monitoring—review current parts lists for discontinuance.
- Part Selection Guidelines—select components early in their life cycle
- Part Description—implement a database to collect, store, and retrieve data

DoD program managers and industry have been implementing programs and developing techniques and tools to actively manage DMSMS for more than 10 years. Although implementing a DMSMS program requires some cost, far greater cost avoidance can be realized when program managers select the risk mitigation techniques needed to minimize the impact of obsolescence. Program complexity, available resources, management philosophy, and the stage in the system's life cycle together influence the decision in choosing any of the techniques.

2.4 FUNDING POLICY - TYPES AND CONTRAINTS

Funding will be required to resolve obsolescence problems and implement risk mitigation techniques. Rigid "color of money" rules established by congress limit the options available to program managers. Specifically, Title 31 United States Code (U.S.C.), Section 628, states that funds appropriated by Congress must be applied only to the purposes authorized for the appropriation. The types of funding generally available for use in each life cycle phase are:

- Development phase—Research, Development, Test and Evaluation (RDT&E) appropriations fund the efforts performed by contractors and government activities required for the research and development of equipment, material, computer application software, and its test and evaluation to include initial operational test and evaluation and live fire test and evaluation. RDT&E also funds the operation of dedicated research and development (R&D) installations activities for the conduct of R&D programs
- Production phase—Procurement appropriations fund those acquisition programs that have been approved for production (to include low rate initial production (LRIP) of acquisition objective quantities), and all costs integral and necessary to deliver a useful end item intended for operational use or inventory upon delivery.
- Sustainment phase—Operations and Maintenance (O&M) appropriations fund expenses such as civilian salaries, travel, minor construction projects, operating military forces, training and education, depot maintenance, stock funds, and base operations support.

Although the areas between these phases sometimes overlap or are blurred, funds appropriated for one budget category cannot be used to solve a problem with another. For example procurement funds cannot be used to research a solution for obsolescence. The report *Aging Avionics in Military Aircraft* (NAS 2001) summarized the legal constraints established by Congress that impact the funds available to address the aging avionics [obsolescence] problem:

- Project requirements of a specific fiscal year must be funded only with appropriations enacted for obligation in that fiscal year.

- The purpose of the expenditure must be authorized in the appropriation.

- Amounts appropriated for general or specific purposes may not be exceeded even if changing priorities dictate otherwise.

Constraints within budget categories also impact DMSMS risk mitigation techniques. For example the B-2 program reported that rules associated with O&M material support division (MSD) stock funds create roadblocks in resolving DMSMS problems, specifically (Shaw 1999):

> MSD Buy/Repair dollars are required (per OC-ALC/JA) for multi-year buys (MYBs). MSD dollars can only be used for parts whose national stock numbers (NSNs) are known. In the Program Objectives Memorandum (POM) cycle, when we are trying to estimate funds required for expected MYBs, we only know the current obsolete NSNs and the currently available replacements. Some of the current replacements will themselves be obsolete when the earmarked funds are available several years in the future. This becomes a repetitive cycle in which the program is exposed (at high risk) to serious supportability impacts.
>
> A similar problem exists for MSD engineering dollars needed to validate recommended solutions. These scarce funds also require the identification of specific NSNs (which are not known during the POM cycle as explained above). These "known unknown"needs also expose the program to high risk.

If funding is not available resolve current DMSMS problems or implement risk mitigation strategies, program managers must be willing to petition their program element monitor (PEM) or other higher acquisition authorities for the necessary funding. The program manager and PEM must work together to input DMSMS requirements into the Five-Year Defense Plan (FYDP), taking into consideration the program phase, as well as the color and type of money required. Program managers should be aware of these funding policy constraints and that various color of money categories may be required to completely resolve a DMSMS problem.

2.5 BUSINESS CASE ANALYSIS

Business case analysis (BCA) determines if a return on investment can be made if DMSMS risk mitigation practices are contractually implemented. Three methods to evaluate the BCA can be considered:

1. Identification of the most cost effective practices—practices that have the highest ratio of TOC reduction potential versus implementation cost.

2. Calculation of cost avoidance using a simplified approach—DMEA cost avoidance methodology.

3. Comparison of proactive versus reactive approaches to DMSMS—B-2 Business Case Analysis.

The completion of any of the three methods could be used to justify the costs of contractually implementing a DMSMS program.

2.5.1 TOC Reduction Analysis

The most cost-effective practices are those practices that have a low cost to implement and a high TOC reduction potential. The program manager and IPT should obtain an implementation cost estimate for each mitigation practice. If the potential TOC reduction for the specific practice can be estimated, the ratio between TOC reduction and implementation cost should be calculated. In addition to the guidance provided in the Program Managers Handbook (ARINC 2000), there are generally three discriminators to evaluate which practices to select:

1. Rank the practices by the TOC reduction to implementation cost ratio
2. Rank the practices by the implementation cost if a ratio cannot be determined
3. Identify the implementation time and ease of completion

The practices that are selected form the basis of the DMSMS program. Program managers should then monitor their DMSMS program costs because conceptually, the cumulative costs typically follow one of the two scenarios shown in Figure 2-4. Level 1, 2, and 3 practices* should be

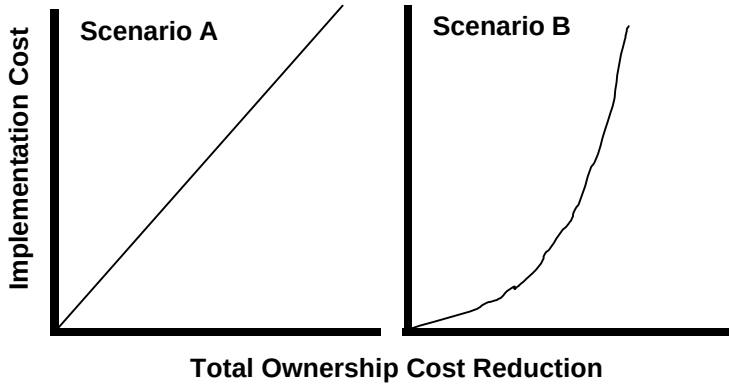


Figure 2-4. Conceptual DMSMS Program Cost versus TOC Reduction

* The program manager and IPT should also consider risk mitigation techniques described in the AFMC Case Resolution Guide and EIA Bulletin GEB1.

implemented for programs that follow Scenario A. If programs follow Scenario B, careful consideration should be given before practices are implemented, specifically:

- Evaluate practices based on best TOC to implementation cost ratio
- Evaluate time to implement and ease of completion
- Implement easy to complete practices

Although it is difficult to ascertain the TOC reduction specific to each practice, experienced program managers have found that if their programs implement many or all of the level 1 and level 2 practices, a return on investment can be obtained.

2.5.2 DMEA Cost Avoidance Methodology

The DMEA cost avoidance methodology ranks each resolution from lowest cost to highest cost (ARINC 2001). Cost avoidance is determined by subtracting the cost of a resolution (Table 2-2) from that of the next-higher-cost resolution. Table 2-3 lists the resulting average values.

Table 2-2. Average NRE Resolution Cost Metrics (BY1999)

Resolution	Average
Existing Stock	$ 0
Reclamation	1,884
Alternate	6,384
Substitute	18,111
LOT Buy*	43,684
Aftermarket	47,360
Emulation	68,012
Redesign—Minor	111,034
Redesign—Major	410,152

Table 2-3. DMEA Cost Avoidance Values

Resolution	Average
Existing Stock	$ 1,884
Reclamation	4,500
Alternate	11,727
Substitute	29,249
LOT Buy	3,676
Aftermarket	20,652
Emulation	43,022
Redesign—Minor	299,118
Redesign—Major	0

* LOT Buy data was based on a MIL-SPEC integrated circuit with an estimated unit cost of $40.00

ARINC analyzed resolution data from the Joint Tactical Information Distribution System (JTIDS) program from 1997 - 1999. The data provide the number of times a resolution was used for a total of 181 obsolete parts. Using the average cost avoidance values from Table 2-3 and the JTIDS data, we determined the data summarized in Table 2-4. To determine estimated cost avoidance resulting from a DMSMS program for JTIDS, we subtracted the cost of the DMSMS program from the total value of $2,553,725. If the DMSMS program cost were $100,000 per year for three years, the resultant cost avoidance for this example would be $2,253,725. There are two situations in which adjustments to the cost avoidance calculation would be required:

- In some instances, the next-higher-cost resolution may not be technically feasible; for example, emulation may not be a viable alternative for a complex ASIC.

- A redesign may resolve DMSMS problems for more than one (often five) components at once.

Table 2-4. Cost Avoidance Estimate for JTIDS Using DMEA Methodology – BY1999

Resolution	Probability of Occurrence (%)	Number of Occurrences	Average Delta	Cost Avoidance
Existing Stock	4.5	8	1,884	15,345
Reclamation	0.0	0	4,500	0
Alternate	68.0	123	11,727	1,443,324
Substitute	7.0	13	25,573	324,009
LOT Buy	12.0	22	3,676	79,837
Aftermarket	5.0	9	20,652	186,898
Emulation	3.0	5	43,022	233,610
Redesign—Minor	0.5	1	299,118	270,702
Redesign—Major	0.0	0	0	0
Total	100.0	181		$2,553,725

2.5.3 B-2 Business Case Analysis

The Air Force B-2 Program released this BCA as a Command wide best practice on the DoD Acquisition Deskbook (www.deskbook.osd.mil). The B-2 BCA determined the costs associated with the reactive versus proactive approach to resolving DMSMS problems. The overall objective evaluates the economic effectiveness of the B-2 (Proactive) Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Program.

The key assumptions and data sources are:

- Without a Proactive program, the B-2 would react to problems identified in the repair process

- Time frame is from 1997 (point of decision) through 2008 (ten years forward from 1999)

- Sunk cost for DMSMS projects in 1997 through 1999 are the same for both approaches

- Obsolescence predictions are derived (extrapolated) from TACTRAC data
- Resolution cost data from a DMEA Cost Metrics Report (DMEA 1999)
- B-2 flying hours per year; B-2 D041 Demand Rates; OMB discount rate = 2.7%

With the assumptions noted above, the following methodology is used:

- Compute the expected cost streams from Reactive and Proactive Approaches
- Categorize costs as investment or sustaining, determine benefit (cost avoidance)
- Apply standard economic metrics such as return on investment
- Apply sensitivity analysis to the input variables (Flying Hours and Resolution Cost)

The economic and value analysis results of the proactive compared to the reactive approach to DMSMS is shown in Table 2-5

Table 2-5. Economic and Value Analysis (Dillahunty 2000)

Item	Reactive	Proactive
Investment Cost (CY 00 $M)	N/A	$47.3
Sustainment Costs (CY 00 $M)	$426.0	$93.0
Total Cost (CY 00 $M)	$426.0	$140.4
Total Cost (PV 00 $M)	$369.3	$130.2
Break Even Point (from FY 97)	N/A	6 Years
Benefit-to-Cost Ratio	N/A	7.0
Return on Investment	N/A	6.0
Net Value (CY 00 $M)	N/A	$285.5
Net Present Value (PV 00 $M)	N/A	$239.1
Estimated Annual Savings/Avoidance (CY 00 $M)	N/A	$23.8
Estimated Annual Savings/Avoidance (PV 00 $M)	N/A	$19.9

Based on the data presented in Table 2-5, it can be concluded that with a 6 to 1 return on investment it is cost effective to contractually implement the B-2 DMSMS Management Program.

SECTION 3

CONTRACTUAL CONSIDERATIONS

Before implementing the contractual language provided in Section 4 of this document, program managers need to understand the overall acquisition process defined by the 5000 series documents, and how their elements may affect DMSMS. Five areas have been identified by DMEA to consider before implementing DMSMS contractual language:

- Acquisition Process
- Life-cycle phase
- Contract type
- Competition or sole source
- Depot repair location

Program managers who contributed contractual language, panel members from the acquisition guidelines workshop, and the DoD 5000 series documents provided guidance for these five areas. These considerations are synopsized beginning in Section 3.2 of this document.

3.1 ACQUISITION PROCESS

The first step for the program manager is to understand how the 5000 series documents address DMSMS. The program manager should be familiar with the following 5000 series documents:

- *The Defense Acquisition System* DoD Directive, (DoDD) 5000.1 (DoD 2001a)
- *Operation of the Defense Acquisition System,* DoD Instruction (DoDI) 5000.2 (DoD 2001b)

- *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs.* DoD Regulation 5000.2-R (DoD 2001c)

These documents, updated in 2001, describe the acquisition process as a series of activities, logical phases, and work efforts separated by major decision points called milestones. The functional areas within the acquisition process that should be understood for DMSMS risk mitigation include:

- Acquisition Policy
- Program Management and Leadership
- Contract Management
- Funds Management
- Systems Engineering
- Manufacturing and Production
- Logistics Management

A pictorial roadmap and summary of the functional activities stated within the updated DoD 5000 series documents is provided in Defense Acquisition Management Framework Chart available from the Defense Acquisition University (DAU) Press Web Site at http://www.dau.mil/pubs/pdf/pmpdf01/hel%2Dmj.pdf (DAU 2001). The chart is not a substitute for the 5000 series documents, but it provides basic information needed to help the program manager and IPT understand the Defense Systems Acquisition Life Cycle process.

3.2 LIFE-CYCLE PHASE

The Defense Systems Acquisition Life Cycle is defined in DoD 5000 series documents (DoD 2001a, b, c). The activities, phases, and work efforts of the Defense Systems Acquisition Life Cycle are shown in Table 3-1. These Acquisition Guidelines identify sample language

Table 3-1. Defense Systems Acquisition Life Cycle

Activities	Phases	Work Efforts
Pre-Systems Acquisition	**Conceptual** Concept and Technology Development (C&TD)	Concept Exploration
		Component Advanced Development
Systems Acquisition	**Development** System Development and Demonstration (SD&D)	System Integration
		System Demonstration
	Production Production and Deployment (P&D)	Low-Rate Initial Production
		Full-Rate Production and Deployment
Sustainment	**Sustainment** Operations and Support (O&S)	Sustainment
		Disposal

appropriate for the four phases shown (shaded).

3.2.1 Conceptual Phase

Conceptual phase language should focus on providing the incentive to use DMSMS risk mitigation techniques such as VHDL modeling and OSA.

During the conceptual phase, as an integral part of the acquisition strategy, the provisional program management office (PMO) determines the supportability strategy. Items to consider are readiness and total ownership cost objectives along with performance based logistics. Performance based logistics consists of defining output performance parameters to ensure system ready capability, assignment of responsibilities with incentives for attainment of the goals associated with the performance parameters, and overall life cycle management of system reliability, sustainment, and total ownership cost. It is during the conceptual phase where many of the Level 3 practices (e.g., VHDL, OSA, EDI) would be most cost effective to implement and should be considered to reduce the future risk of DMSMS.

The conceptual phase also provides the opportunity to release draft RFPs to obtain feedback on proposed DMSMS contractual language that would be used for subsequent phases. For example, during production, and sustainment, the AN/ARC-210(V) radio program, which provides the contractor with complete configuration control, implemented a reliability improvement warranty (RIW) to reduce parts obsolescence and infuse technology changes without ECPs.

Prior to exiting the conceptual phase, the Program Manager (PM) and PMO should develop a product support management plan (PSMP). The PSMP provides integrated acquisition and logistics support strategy that will be used throughout the systems life cycle. As shown on the Defense Acquisition Management Framework Chart (DAU 2001), the plan is updated during development as the systems engineering and supportability analysis process evolves with two primary goals:

- Influence the product design for supportability
- Design and develop a support system

3.2.2 Development Phase

To facilitate the successful implementation of these two goals, development phase language should address the risk mitigation techniques described in Section 2.3.

The majority consensus as indicated in the Acquisition Guidelines Survey (DMEA 2001a) recommends that during development, DMS requirements should be included in the RFP[*]. Whether the requirement is a preliminary obsolescence management plan, or a more detailed process, the RFP must include a DMS requirement for contractors to bid against. If there is no DMS requirement, the contractors may focus on keeping their costs down so they can win. The

[*] The others believe that specific practices that reduce the risk of obsolescence should not be specified in a contract—they prefer to suggest practices as a discriminator during source selections.

proposal's management section should show the contractor's DMS experience. For example, "Here is our experience working with DMEA, IPTs, DoD DMSMS Teaming Group (ARINC 1998), for the past x years …". As a minimum, development phase RFPs should include the requirement for a contractor parts management plan (PMP). In conjunction with the award of the development contract, the PM establishes an integrated product team. The PMP should have the mechanism to provide a list of DMSMS problem parts to the IPT. For development contracts, especially cost plus type contracts, the IPT should participate in the DoD DMSMS Teaming Group to resolve the problem parts list and reduce the associated resolution costs. If not specified by the contract, contractor participation in the DoD Teaming Group is left to the discretion of the contractor.

As required by Title 10USC2440, an Industrial Capability Assessment must be completed by the PMO at each milestone to determine industrial capability to design, develop, ***produce***, and ***support*** the system. Stronger adherence to this legal requirement focussing on ***supporting the system,*** especially during the transition from development to production, may help reduce the risk of DMSMS. An industrial capability analysis includes the following elements:

- New and unique capabilities that must be developed or used to meet program needs. Identify DoD investments needed to create new industrial capabilities. This includes any new capability (e.g. skills, facilities, equipment, etc.).

  Identify new manufacturing processes or tooling required for new technology. Funding profiles must provide for up-front development of manufacturing process/tooling and verification that new components can be produced at production rates and target unit costs.

  Identify exceptions to FAR Part 45, which requires contractors to provide all property (equipment, etc.) necessary to perform the contract.

- Program context in overall prime system and major subsystem-level industry sector and market.

- ***Strategies to address any suppliers considered to be vulnerable***.

- Risks of industry being unable to provide new program performance capabilities at planned cost and schedule.

- Alterations in program requirements or acquisition procedures that would allow increased use of non-developmental or commercial capabilities.

- ***Strategies to deal with product or component obsolescence***, given DoD planned acquisition schedule and product life.

- The overall manufacturing plan and management program should be reviewed for shortfalls in accordance with the guidelines discussed in the Manufacturing and Production Section.

Industrial capabilities encompass technical capabilities: technologies, processes, skills, facilities, equipment and tooling needed to design, develop, manufacture, repair or support DoD products. If the analysis indicates that certain microelectronic components may be at risk for long term supportability the IPT should coordinate the information with DLA/DSCC or DMEA through its Flexible Foundry™ program.

DMEA's Flexible Foundry™ supports obsolete 5-volt semiconductors that the commercial industry has abandoned in the pursuit of newer lower-voltage technologies. The program was implemented after the commercial semiconductor industry made the understandable and justifiable business decision to no longer produce parts for the low-volume, long-product-cycle military market. The Flexible Foundry™ solves this problem by licensing and fabricating proven industry microelectronics processes. The flexible foundry provides a diverse mix of functions ranging from personalization of device and gate arrays to full custom fabrication of application specific integrated circuits (ASICs).

3.2.3 Production Phase

With requirements specified in the development phase contract, the supportability of the system demonstrated, and the product support management plan validated, production contracts can be developed. The focus of contractual language during the production phase is similar to the development phase with increased emphasis on component monitoring.

An example of what can occur during the production phase follows. In 1998 an assembly in the F-16 aircraft had DMS problems (DMEA 2001b). Foreign Military Sales (FMS) customers were very concerned, because FMS customers are often placed low on the requisition priority list. The FMS customers pushed for redesign with intent to design out DMS. The contractor did not screen parts used in the redesign. Before production, the contractor notified the government that there were DMS problems and that the assemblies could not be manufactured.

In addition to monitoring, implementation of the most cost-effective resolutions is also important during the production phase. During the production phase, there may be additional costs for redesign and engineering change proposals (ECPs) due to obsolescence. If it is a fixed priced contract, the contractor knows this is their responsibility, and will seek the most cost-effective solution. If it is a cost plus type contract then incentives should be provided to encourage contractors to implement resolutions that will reduce total ownership cost.

When starting production, if commercial off the shelf (COTS) hardware was used in development, the COTS supplier often has moved on to the next generation of that product family. The prime contractor is in the position where his product meets the requirements, but product design is not producible or supportable. Where does the responsibility lie? How is the production stage completed? Panel members at the May 2001 Workshop offered the following solutions:

- Increase strategic alliances and encourage licensed aftermarket

- Use common software and interfaces and aftermarket
- Plan for technology insertion and refresh during development
- Implement performance-based acquisitions.

Each of the solutions could be specified in contractual language. As stated by one participant:

> If you have gone through development the contract is basically over. You have defined your configuration, and you are going into production; then you must allow for configuration changes. The production contract must allow for changes to configuration for resolution of DMS impacts. Plan ahead and predict during the conceptual and development phases. Define the technology and plan for periodic change-out. To minimize lack of foresight, you need to define technology insertion refresh points and plan during design. There is also a need to sustain equipment even after production. COTS users should try to standardize interfaces and look at backward capability. The best approach is a flexible design to be able to handle change-outs throughout the life cycle, and this flexible design should be defined during development.

3.2.4 Sustainment Phase

During production, the contractor often does not address the sustainment phase. The contractual language is similar to production but with increased emphasis on ensuring that TOC can be reduced. One participant's comment (DMEA 2001b) is as follows:

> The F-22 seven-year development program had many DMS issues. I would not like to have certain DMS requirements mandated; however, the SOO should include DMS requirements. If it is not in the contract, it is likely that it won't get done. From the business side, we are responsible to the shareholders to make a profit. They may ask why are you spending $750K a year on DMS management when it is not part of the contract?

Others made the following comments:

- DMS has to be in the beginning of every contract. All designers have to take into account DMS, and show what they are doing to make the design DMS-resistant. We are putting that in contract language to all of our suppliers.
- Industry needs something to keep the playing field equal. There have to be words in the RFP such as, "Here is how DMS will be evaluated." For competitive contracts, DMS words are needed in the RFP. Existing contracts should require DMS collaboration as part of an IPT.

Language for sustainment, especially legacy systems, is the most difficult area to address due to current FAR Part 16, as stated at the workshop:

> The FAR says we can have a contract for five years and in some cases ten years. What happens when your five-year support contract runs out and you have to re-compete it, or renegotiate it? We have a tendency to focus on short-term issues, and try to get well next time we compete the contract. We may get a good deal for the first few years of a contract, but we need to look at the whole life cycle.

The best sustainment contracts for new acquisitions should address sustainment issues during design and development. Contractors should challenge their designers to plan for sustainment and the Government PM should provide incentives for contractors that can demonstrate that sustainment was addressed.

Service life extension programs would use the same guidance and language recommended for the sustainment phase, with additional emphasis on depot repair considerations.

3.3 CONTRACT TYPE

For DoD system acquisitions[*] there are basically two types of contracts, fixed price and cost reimbursable. Fixed price contracts are where the government pays a price that is subject to specified provisions, and the contractor delivers a product or service. Fixed price contracts may provide for payment of incentives or other sharing arrangements. Cost reimbursable contracts are where the government pays the cost (subject to limitations) and the contractor provides their best efforts to complete the tasks. Cost reimbursable contracts may provide for payment of a fee that may consist of an award fee, incentive fee, or fixed fee. Contract types by phase are provided in Table 3-2 summarized from the Acquisition Framework Chart (DAU 2001). Detailed information can be found in FAR Part 16.

The 5000-series documents provide guidance related to contract types and incentives (DoD 2001a, b, c). This same guidance is applicable for these DMSMS guidelines and are reproduced here as follows:

> Acquisitions shall be structured in such a way that undue risk (such as through the use of firm fixed price options that cover more than five years) is not imposed on contractors, and so that excessive contractor investment (beyond normal investments for plant, equipment, etc.) is not required. Contractors are entitled to earn reasonable rewards on DoD contracts, including competitively awarded contracts. If competition is not available, PMs shall devise incentives to motivate contractors in a way that will yield the benefits of competition. These benefits include innovation, improved product quality and performance, increased efficiency, and lower costs.
>
> Management incentives shall apply to both Government and industry, to both individuals and teams, to achieve cost as an independent variable (CAIV) and schedule objectives. Incentives shall stress up-front investments to minimize production cost, operating and support cost, and/or cycle time, where applicable. Awards programs (both monetary and non-monetary) and "shared savings" programs shall creatively encourage the generation of cost-and-schedule-saving ideas throughout all phases of the life cycle.

[*] These guidelines do not address time and material type service contracts.

Table 3-2. Contract Type versus Phase (Source: Acquisition Framework Chart)

	Acquisition Phase				
Contract Type	**Conceptual**	**Development (System Integration)**	**Development (Demonstration)**	**Production**	**Sustainment**
Cost Reimbursable (CR)	●				
Firm Fixed Price (FFP)	●			●	●
Firm Fixed Price - LOE*	●				
Cost Plus Fixed Fee (CPFF)		●			
Cost Plus Incentive Fee (CPIF)		●	●		
Cost Plus Award Fee (CPAF)		●	●		
Fixed Price Incentive Firm (FPIF)			●	●	●
*LOE = Level of Effort					

The PM, via the Contracting Officer, shall structure Requests for Proposal (RFPs) and resulting contracts to incentivize the contractor to meet or beat program objectives. Whenever applicable, risk reduction through use of mature processes shall be a significant factor in source selection. RFPs and resulting contracts shall include a strict minimum number of critical performance criteria (i.e., threshold and objective requirements) to allow industry maximum flexibility in meeting overall program objectives. The source selection criteria communicated to industry shall reflect the importance of developing a system that can achieve stated production and TOC objectives within schedule and performance objectives.

3.4 COMPETITIVE OR SOLE SOURCE CONTRACT

DoD Instruction 5000.2 paragraph 4.7.1.5 states that:

> Throughout the life of a technology project, service contract, or acquisition program, cost-effective competition (at both the prime and sub-contractor levels) shall be maintained to the maximum extent practical by means of either head-to-head competition, competition of alternative ways to meet the mission need, reliance on market surveys for commercial alternatives, or changing requirements (through the process of cost and performance trades) to allow increased competition. This competition for best value to the DoD shall be identified in the acquisition strategy. Wherever possible and appropriate, performance-and price-based acquisition methods should be used. The benefits of long-term contracting shall be explored. Contractors shall be encouraged to submit realistic cost proposals, including fair and reasonable profit or fee

amounts.

Paragraph C1.3.4.3. in DoD 5000.2-R summarized a common theme voiced by industry at the DMSMS May Workshop (DoD 2001a):

> For industry, competition to win business, along with attendant business profit, is by far the most powerful incentive. Therefore, the PM shall maintain competition as long as practicable in all acquisition programs.

As noted at the workshop, if time is expended to convince management that DMS is important and resources have been acquired to work the issues, then contractors want to be measured on their internal DMS performance. Contractors generally want past obsolescence management performance to be part of the contract competition or source selection. This will show the senior management that managing DMS is a tangible benefit. Two out of the five objectives of the Guidebook supports this concept *for Performance-Based Services Acquisition (PBSA)* (DoD 2000), specifically:

> **Maximize performance:** Allows a contractor to deliver the required service by following its own best practices. Since the prime focus is on the end result, contractors can adjust their processes, as appropriate, through the life of the contract without the burden of contract modifications provided that the delivered service (outcome) remains in accordance with the contract. The use of incentives further motivates contractors to furnish the best performance of which they are capable.
>
> **Maximize competition and innovation**: Encouraging innovation from the supplier base by using performance requirements maximizes opportunities for competitive alternatives in lieu of government-directed solutions. Since PBSA allows for greater innovation, it has the potential to attract a broader industry base.

To implement the past performance requirements for obsolescence management, sections L and M should have evaluation requirements, such that discriminators can be discerned for the prime weapon system manufacturers with a solid obsolescence program. Section L is that place in the solicitation where information and guidance are provided to help offerors prepare proposals in response to the solicitation. Section M describes how the proposal will be evaluated for source selection purposes. The SOW or SOO[*], and Sections L and M, all tie together. The SOW or SOO describes the requirement and Section L requests information relating to how the offeror will execute that requirement for evaluation purposes. The following example describes one piece of a requirement to illustrate the relationship between the three areas simply.

SOW or SOO	Section L	Section M
The contractor shall establish and implement a parts obsolescence program	The offeror shall describe how their obsolescence program will reduce the impact of DMSMS	The offeror's approach for parts obsolescence management will be evaluated for best value in terms of technical approach and cost, with additional consideration for past performance and cost avoidance.

[*] Or performance work statement for performance based services acquisition

As noted in the PBSA Guidebook the use of incentives may further motivate the contractor to provide the best performance for the above example. The contract types are grouped into two broad categories: fixed-price contracts (see FAR Subpart 16.2) and cost-reimbursement contracts (see FAR Subpart 16.3). The specific contract types range from firm-fixed-price, in which the contractor has full responsibility for the performance costs and resulting profit (or loss), to cost-plus-fixed-fee, in which the contractor has minimal responsibility for the performance costs and the negotiated fee (profit) is fixed. In between are the various incentive contracts (see Subpart 16.4), in which the contractor's responsibility for the performance costs and the profit or fee incentives offered are tailored to the uncertainties involved in contract performance. For competitions obsolescence past performance and incentives should be considered. For sole source or follow-on contracts detailed contractual language in the SOW or SOO is required.

3.4.1 Profit Incentives for Aggressive DMSMS Management Practice Implementation (Livingston 2001)

The Director Defense Procurement issued a final rule amending the Defense Federal Acquisition Regulation Supplement (DFARS) to implement Section 813 of the National Defense Authorization Act for Fiscal Year 2000. Section 813 requires DoD to review its profit guidelines to consider whether appropriate modifications would provide an increased profit incentive for contractors to develop and produce complex and innovative new technologies. The rule amends the weighted guidelines method of profit computation at DFARS 215.404-71 to combine the management and cost control elements of the performance risk factor; to establish a new "technology incentive" range for technical risk; and to modify some of the cost control standards.

The rule modifies the evaluation criteria for management / cost control to include evaluation of the contractor's cost reduction initiatives. The contracting officer may assign a higher than normal profit factor value when the contractor's management / cost control effort is intense. Indicators for above normal conditions now include an aggressive cost reduction program and aggressive process improvements to reduce costs. The rule specifically cites technical insertion programs and obsolete parts control programs as examples of cost reduction initiatives the contracting officer should evaluate when determining profit factors associated with performance risk. This amendment to the DFARS, effective 13 December 2000, presents the contracting officer with an approach to encourage contractors to implement DMSMS management practices. The inclusion of obsolete parts control programs in the evaluation criteria for performance risk provides rationale to consider increasing profit incentive for contractors who implement them aggressively. This would also apply to technical insertion programs that deal with the rapidly growing problems posed by DMSMS.

3.5 DEPOT REPAIR LOCATION

Many legacy systems have an organic support depot that provides "maintenance and repair of military materiel requiring major overhaul, complete rebuild, or other high-order repair work for end items (including weapon systems), subsystems, parts, assemblies, and subassemblies. It may also include depot field teams, maintenance engineering, technical support, manufacture of parts,

certain modification (or actions related thereto), testing, and reclamation as required. Depot maintenance serves to support lower categories of maintenance by providing technical assistance and performing that maintenance beyond their responsibility or capabilities. Depot maintenance provides end items and stocks of serviceable equipment by using more extensive facilities for repair than is available in lower levels of maintenance activities." (AFMC/LG 2000)

Newer acquisitions are implementing flexible sustainment and total system performance responsibility (TSPR) strategies. The Air Force has implemented Boeing's C-17 flexible sustainment contract and a TSPR contract for Lockheed Martin for the F-117 (Kratz 2000)

> For the C-17—Boeing, the aircraft prime contractor, manages the national level support, including technology refreshment, supply management and depot maintenance.
>
> For the F-117—Lockheed Martin provides product support under a long-term, five-year contract (with two five-year options) with incentives for mission capable rates and supply availability.

Contractual language for these two contracts will be provided in the next revision. DMSMS Contractual language for legacy systems using an organic depot are still in development. "The DoD's greatest challenge is backfitting promising [logistic support] strategies for existing, fielded systems" (Kratz 2000). Once sample language is developed for organic depots, that material will be provided in the next version of these guidelines.

SECTION 4

CONTRACTUAL LANGUAGE

4.1 SAMPLE PARAGRAPHS AND CLAUSES

Prior to reviewing the sample contractual language, Sections 2 and 3 of this document must be reviewed. In tailoring an acquisition strategy and selecting this language the Program Manager (PM) address management constraints imposed on the contractor(s). Paragraph C2.6.6.3 in DoD 5000.2-R, Applying Best Practices (DoD 2001a), states that when developing contractual language, PMs shall avoid imposing government-unique restrictions that significantly increase industry compliance costs or unnecessarily deter qualified contractors, including non-traditional defense firms from proposing. Examples of best practices (DoD 2001a) that support the implementation of paragraph C2.6.6.3 and help mitigate DMSMS include:

- Integrated Product and Process Development (IPPD)
- Performance-based specifications
- Management goals
- Reporting and incentives
- Open systems approach that emphasizes commercially supported practices
- Products, performance specifications, and performance-based standards
- Replacement of government-unique management and manufacturing systems with common, facility-wide systems
- Technology insertion for continuous affordability improvement throughout the product life cycle
- Realistic cost estimates and cost objectives
- Adequate competition among viable offerors
- Best value evaluation and award criteria
- The use of past performance in source selection
- Results of software capability evaluations
- Government-industry partnerships, consistent with contract documents
- and the use of pilot programs to explore innovative practices.

Every attempt has been made to ensure that the sample contractual language meets the above requirements. In the event that the contractual language conflicts with the above “best practices” because of program specific requirements, then the PM should tailor the language accordingly. A summary of the contract language content will be provided here. Table 4-1 provides a suggested

Table 4-1. Suggested Applicability Matrix

Requirement	Common Practice Level	Appendix A Reference	Life Cycle Phase				Contract Type						
			Conceptual	Development	Production	Sustainment	CR	CPFF	CPIF	CPAF	FFP	FFP - LOE	FPIF
Parts Control Program	1	S1		●	●	●			●	●	●	●	●
GIDEP	1	S1, H4		●	●	●	●	●	●	●	●	●	●
Interchangeability Parts List	2	S1		●	●	●	●	●	●	●	●	●	●
Parts Obsolescence Management Plan	1	S2	●	●	●	●			●	●	●	●	●
Service Life Extension Program (SLEP)	3	S3				●					●	●	●
Support Integrated Product Team Meetings	1	S3		●	●	●			●	●	●	●	●
SLEP Program Design Document	3	S3				●					●	●	●
Interchangeability	1	S4	●	●	●	●			●	●	●	●	●
Parts Control Program	1	S4		●	●	●			●	●	●	●	●
Obsolescence Engineering	1	S5			●	●		●	●	●	●	●	●
COTS System Supportability	2	S6			●	●		●	●	●	●	●	●
Obsolescence Management Plan	1	S7				●			●	●	●	●	●
Obsolescence Reviews	2	S8				●			●	●	●	●	●
End of Life Parts Status	1	S9		●	●	●		●	●	●	●	●	●
DMSMS Management	1	S10		●	●	●		●	●	●	●	●	●
Obsolescence Database Maintenance	2	S11,16		●	●	●		●	●	●	●	●	●
Manufacturers and Distributor Tracking	2	S11,16		●	●	●		●	●	●	●	●	●
Non Standard Parts Management	1	S11,16		●	●	●		●	●	●	●	●	●
FMS Systems Maintenance	2	S11				●			●	●	●		●
Component Engineering Services	1	S11		●	●	●		●	●	●	●	●	●
Associate Contractor Agreement	1	S12			●	●		●	●	●	●		●
Second Source Re-Engineering	3	S12			●	●		●	●	●	●		●
Product Data Baseline	1	S12		●	●	●		●	●	●	●	●	●
Health Model Development and Evaluation	2	S12		●	●	●		●	●	●	●	●	●
Parts Control Plan	1	S13,14		●	●	●			●	●	●		●
Engineering Technology Assessments	2	S15		●	●	●		●	●	●	●	●	●
Parts Management Program	1	S17		●	●	●			●	●	●		●
DMSMS Notification and Relief	1	H1				●			●	●	●		●
DMSMS Notification and Producibility	1	H2			●	●			●	●	●		●
DMSMS Resolution and Funding	2	H3			●	●			●	●	●		●
DMSMS Notification and Resolution	1	H5		●	●	●		●	●	●	●	●	●
Obsolete Items (DSCP instruction)	1	L1				●					●		
COTS Supportability	2	L2				●			●	●	●		●
DMSMS and Producibility	1	L3			●	●			●	●	●		●
Identification and Resolution	1	L4		●	●	●		●	●	●	●	●	●
Use of COTS	2	M1			●	●			●	●	●		●
Open System Architecture	3	M2			●	●			●	●	●		●
Software Development Plan	2	M2			●	●			●	●	●		●
COTS Supportability	2	M3			●	●			●	●	●		●
DMSMS and Producibility	1	M4			●	●			●	●	●		●

applicability matrix and common practice intensity level* for the SOW/SOO, Section H, and Section L&M, paragraphs and edited clause excerpts provided. SOW and SOO paragraphs that are more applicable to procuring activity or program office support contractors and are not directly related to an acquisition are not included in Table 4-1. Miscellaneous paragraphs and clauses are provided in Section 4.6. The miscellaneous paragraphs provide examples of:

- Spares and Obsolescence [MC1]
- Mission Critical Computer Resources [M2]
- Obsolescence Warranty [M3]
- Section I – Incentive Fee Clause [M4]

A compendium of all collected DMSMS contractual language, with the complete citation, is provided in Appendix A. Once the PM has reviewed this sample contractual language, the IPT should prepare a draft RFP and provide it, along with the business case analysis that justifies the implementation of DMSMS language, to appropriate senior management or the source selection authority.

4.2 SOW OR SOO PARAGRAPHS

The following ***edited excerpts*** of SOW or SOO paragraphs are presented to provide suggested requirements to place on contract. Because the majority of these requirements have only been in contracts for a few years and some are proposed and not on contract, no recommendation as to the success will be provided. However, subsequent revisions of these guidelines will provide information on lessons learned and will attempt to identify the best requirements based on documented program cost avoidance or total ownership cost reductions. ***Appendix A provides the complete paragraph citation***. The reference code in [brackets] refers to the Appendix A citation. For example [S1] is the first SOW sample paragraph, [S2] is the second example and so forth. SOW or SOO paragraphs that are more appropriate for support contractors will be noted. The PM may review these paragraphs to determine if aspects of the language could be used in an acquisition or sustainment contract.

Parts Control Program [S1] – The contractor shall implement a parts obsolescence program to include a quarterly report and parts control plan. The contractor may select alternate parts that meet component performance, environmental, and physical characteristics to the shop replaceable unit (SRU) level. The use of plastic parts may be evaluated when there is no other cost-effective alternative.

Government Industry Data Exchange Program (GIDEP) [S1] – The contractor shall participate in GIDEP to screen parts prior to their selection.

* The common practices (ARINC 2000) and this sample language were collected and developed independently. The paragraph titles and common practice name may not correlate and new practices may be identified, in either case, the applicable intensity level will be identified.

Interchangeability Parts List [S1] – The contractor shall implement an interchangeability parts list that contains the vendor name and vendor part number, and comparison of the alternate part versus the part it replaces detailing any differences in the specifications, testing, and manufacturing operations performed by the vendor.

Parts Obsolescence Management Plan [S2] – The contractor shall document procedures for identifying and controlling diminishing manufacturing sources (DMS) and obsolescent technologies in a Parts Obsolescence Management Plan.

Service Life Extension Program (SLEP) [S3] – The contractor shall document a cost effective COTS/NDI solution, in Engineering Change Proposal (ECP) format, to the parts obsolescence problem currently affecting the operation, maintenance, and support of the *system*. The ECP will present HW/SW configuration(s) that will, when implemented, extend the service life of the system

Support Integrated Product and Process Development (IPPD) Integrated Product Team (IPT) Meetings [S3] – The contractor shall support the IPPD IPT meetings to be held bimonthly starting with the formal kickoff meeting scheduled for the week of *Date*. The core IPT team members will consist of (but not limited to) representatives from the government users, maintainers, and support agencies. The contractor will be a contributing player and participant but not a voting member of the IPT.

SLEP Program Design Document (PDD) [S3] –The contractor shall document the COTS/NDI mechanical and electrical component's parts selection process used in meeting the PIDS functional and performance requirements in the SLEP PDD.

Interchangeability [S4] – The contractor shall ensure interchangeability and backward compatibility at the SRU/SRA, and LRU/WRA levels, with the current configuration. The only permissible changes are those required to overcome parts obsolescence, improve produce-ability, or correct any latent design deficiencies. No changes will be permitted that affect the form, fit, or function of the individual LRU/WRA and/or SRU/SRA, the system's functional allocation, or interface definition.

Parts Control Program [S4] – The contractor shall establish and/or maintain a parts control program IAW MIL-HDBK-965. The contractor shall notify the Government as soon as a part is identified as obsolete. For obsolete parts, the contractor shall locate a second source, a different MIL-qualified part that performs the same function without redesign, or a non-standard part that performs the same function without redesign. If a non-standard part is chosen, the contractor shall submit a non-standard parts request. If the aforementioned steps do not produce a substitute part and a redesign is required to solve the obsolete part problem, the contractor shall submit an ECP upon government direction.

Obsolescence Engineering [S5] – The contractor shall investigate, evaluate, develop and replace, where applicable, obsolete and non-obtainable parts/components for all supported systems.

COTS System Supportability [S6] – The contractor shall provide engineering and technical services for the *system name* equipment Commercial Off The Shelf (COTS) Obsolescence Resolution Effort (CORE). The contractor shall assist in the identification of obsolete items and provide technical and engineering research and analyses of potential obsolete COTS parts replacements. The contractor shall deliver a monthly report not later than the 5th of each month, identifying the vendors surveyed, alternate supply sources, repair data development status, COTS procurement status, status of COTS items under repair and related repair issues, ECP development status and issues, COTS obsolescence item list additions/deletions and related COTS issues.

Obsolescence Management Plan [S7] – The Contractor shall develop a plan for managing the loss or impending loss of manufacturers or suppliers for the spare and repairable items covered under the system name performance based logistics (PBL) Program.

Obsolescence Reviews [S8] An obsolescence review is an analysis to determine whether system life cost savings are obtainable by acquiring newer technology resources relative to continued operation of existing outdated resources. The contractor shall evaluate existing outdated computer resources to determine whether the cost of operating them is greater than the cost of acquiring and operating technologically newer resources. When the cost of operating existing outdated resources is greater than the cost of acquiring and operating technologically newer resources, agencies shall replace the existing outdated resources.

Reporting Status of EOL Parts[S9] – The contractor shall report on the status of end of life (EOL) hardware that has been procured for *system name*. EOL hardware includes the following: electronic components/piece parts, mechanical hardware, COTS and other items which the *program office name* authorized/directed the contractor to make an EOL buy.

DMSMS Management [S10] – The contractor shall maintain—or develop alternate sources of supply/designs for—all components, materials, assemblies, subassemblies and units throughout the contract. If DMSMS affects production of the *system name,* the contractor shall pursue and secure DMSMS case solutions such as alternate vendors, substitute parts, or redesign(s) as part of and within the price of each CLIN. The contractor shall resolve such issues in accordance with procedures outlined in the *system name* DMSMS Management Plan and with the quality provisions specified in the contract.

Component Obsolescence Management Database Maintenance [S11] – The contractor shall analyze the avionics system technical data documentation supplied by *program office name* to determine exactly what information needs to be incorporated into the government furnished *system name* component obsolescence management database, to update the database to the current hardware configuration. The contractor shall incorporate the change information into the *system name* component obsolescence management database while maintaining configuration control of the database and verify that the update is both complete and did not degrade the pre-existing data.

Strategic Manufacturers/ Distributors Tracking [S11] – The contractor shall track, through vendor polls, the qualified strategic manufacturers/distributors of parts contained in the system

name component obsolescence management database to maintain the government's pro-active obsolescence prediction capability for the avionics systems vendor status. The contractor shall develop and implement, in conjunction with *program office name*, a standard case file for use with problem devices which warrant formal action, delineating options and firm recommendations by the contractor.

Non-Standard Parts management [S11] – The contractor shall provide management of all non-standard parts contained in the *system name* component obsolescence management application, including all hybrids, ASICs, oscillators and custom devices, which are OEM specific and cannot be found in standard part catalogs.

DMS Technical and Engineering Support [S11] – [Support contract] The contractor shall provide dedicated DMS management and analysis support, through extensive use of the Component Obsolescence Management application. The contractor shall provide special reports and analyses on an "as required" basis. The government will provide the avionics hardware specifications, amendments, workspace, and access to government support equipment as required .

DMS Reliability Engineering Support [S11] – [Support contract] The contractor shall provide dedicated DMS Reliability Engineering Support to enhance data and analyses derived from the DMS program. The contractor shall provide special reports and analyses on an "as required" basis. The government will provide the avionics hardware specifications, amendments, workspace, and access to government support equipment as required.

Trade Studies and Technology Surveys [S11] – [Support contract] The contractor shall perform trade studies on the microelectronics content of the *system name* Subsystems, which address the following subjects:

Plastic Encapsulated Microelectronics
MIL-STD 883 testing of microelectronics
Industrial grade microelectronics
Offshore manufacturing facilities
Shrinking of die sizes
Lower supply voltage devices
Microwave/RF Technology Address manufacturing initiatives

FMS Systems Maintenance [S11] – The contractor shall provide application maintenance of FMS specific systems as required. FMS specific systems typically occur when the US Military discontinues the use of systems, while the FMS customers opt for continued use and maintenance of those items. A separate contract line item will be established for FMS funding directly to the contractor for support of this maintenance activity.

Component Engineering Services [S11] – The contractor shall provide detailed design/ component engineering support for the resolution of specific devices that have become obsolete, including redesign support as needed, identification and evaluation of suitable substitute parts, locating sources of discontinued die for LOT buy or other solution options.

General Parts Research [S11] – [Support contract] The contractor shall assist *program office name* in the assessment and resolution of obsolescence issues as they arise including, but not limited to, analysis and evaluation of technical proposals for particular 'piece part' obsolescence elimination by industry piece part manufacturers and Original Equipment Manufacturers (OEM).

Government/Customer Furnished Resources [S11] – [Support contract] The *program office name* will provide the contractor access to data required for the completion of this delivery order. Typically this data will be in the form of Technical Orders (TOs) or Illustrated Parts Breakdowns (IPBs) for each system to be entered into the component obsolescence management application.

Associative Contractor Agreement [S12] – The contractor shall share information and pass data to the prime contractor as necessary. The contractor shall facilitate the sharing of the data through the development and implementation of an Associative Contractor Agreement. This agreement shall be in place within 60 days of contract award. The contractor shall deliver all applicable data to the government with unlimited rights.

Second Source Re-engineering [S12] – The contractor shall conduct second source re-engineering efforts for selected *system name* SRUs (or subassemblies thereof) of the *system name* subsystem. The objective is to develop second sources for all critical components, generate a system health model and functional performance baseline, and re-establish system supportability.

Product Data Baseline [S12] – The contractor shall provide a relational database application for the management of component life-cycle availability and system structural hierarchy information. This hierarchy will be based on an indentured structured parts list, which describes the system's interconnectivity. The indentured parts list for *system name,* as well as any available Technical Data Package (TDP) information, will be provided to the contractor as Government Furnished Information (GFI). The contractor shall verify the contents of the parts list against the technical data package and enter the data into a health model.

Health Model Development [S12] – The contractor shall develop a detailed component-level health model for all LRUs in the *system name* that includes all digital components, provides immediate assessment of the *system name* critical SRUs, and whose capabilities include, but are not limited to, data scrub, data analysis, electronic formatting of the data, and determination of critical SCD data elements that need to be entered in the health model database.

Health Model Evaluation [S12] – The contractor shall complete comprehensive health model evaluations of the system name.

Component Supportability Engineering [S12] – The contractor shall provide engineering support to *program office name* for *system name* hardware components, subassemblies, and SRUs as assigned which are identified as non-procurable, including the following activities for the number of components (in parentheses) assigned:

Component Research: (xx) The contractor shall investigate the component in terms of whether the component is available from other sources, applicability to other LRUs, systems, and platforms.

Component Repackaging: (xx) For those solutions where alternate dies are suitable and available, the contractor shall repackage the dies in component packages which are form, fit, and function compatible with the original part, the SRU and system requirements.

Substitution: (xx) For those components for which a substitute component is recommended or identified, the contractor shall insure that the substitute part meets all system requirements.

Reverse Engineering: (xx) The contractor shall conduct reverse-engineering activities for components for which no alternate or substitute parts can be identified. The parts to be reverse-engineered will consist of the following types:

- Low Complexity: (1) Under 1000 gates/junctions
- Medium Complexity: (1) 1000-5000 gates/junctions
- High Complexity: (1) >5000 gates/junctions

Complexity level may be affected by availability and completeness of component design data such as schematics, layout drawings, test vectors, ATPs, etc.

Radiation Testing: (xx) The contractor shall identify the required type and magnitude of radiation testing for substitute, alternate, or reverse-engineered components as required to meet *system name* Hardness Critical requirements.

Parts Control Plan [S13] – The contractor shall develop and ensure an integrated approach to improved responsiveness and use of the most cost-effective solutions to DMSMS problems affecting the system. The contractor shall develop and implement a Parts Control Plan (PCP) that includes procedures for addressing DMSMS concerns in the selection of components.

Parts Control Plan [S14] – For obsolete parts, the contractor shall select replacement parts in the sequence listed below.

a. New Source for the same part.
b. New technology direct replacement part.
c. Lower MIL quality level part.
d. MIL-STD-883 screened or tested part.
e. Commercial ceramic part.
f. Commercial plastic part (requires prior NAVSEA approval).

Engineering Technology Assessments [S15] – The contractor shall conduct engineering technology assessment(s) by providing microelectronic management and obsolescence avoidance such that the result of the assessment(s) will be an understanding of the current microelectronic status of the system, the scope of any immediate nonavailability and obsolescence problem, the

magnitude of the future problem, and any possibilities for alleviating the impacts. The contractor will develop a detailed cost analysis of the alternative solution(s).

Component Obsolescence Database Maintenance [S16] – The contractor shall analyze the system technical data documentation to determine what information needs to be incorporated into the Component Obsolescence Management system, to update the database to the current hardware configuration. The contractor shall incorporate the change information into the Component Obsolescence database while maintaining configuration control of the database and verifying that the update is both complete and did not degrade the preexisting data.

Component parts tracking [S16] – The contractor shall track, through vendor polls, etc., the qualified manufacturers/distributors of parts contained in the Component Obsolescence Management database.

Component Solution Engineering Services [S16] – The contractor shall assess and resolve obsolescence issues as they arise, including, but not limited to, analysis and evaluation of technical proposals for particular piece-part obsolescence resolution by industry piece-part manufacturers and Original Equipment Manufacturers (OEM).

Parts Management Program [S17] – The contractor shall establish and maintain a Parts Management Program that ensures the use of parts that meet contractual requirements, reduces proliferation of parts through standardization, enhances equipment reliability and supportability, and proactively manages obsolescence. Within *XX* days after contract award, the contractor shall provide an Parts Management Program plan or procedure for review and use. The *program office name* may perform audits to ascertain program conformance and adequacy of the implementing procedures. The contractor shall utilize MIL-HDBK-512 as a guide for developing and maintaining the Parts Management Program.

4.3 SECTION H SPECIAL CLAUSES

The following ***edited excerpts*** of RFP Section H clauses are presented to provide suggested requirements to place on contract. Because the majority of these requirements have only been in contracts for a few years and some are proposed and not on contract, no recommendation as to the success will be provided. However, subsequent revisions of these guidelines will provide information on lessons learned and will attempt to identify the best requirements based on documented program cost avoidance or total ownership cost reductions. ***Appendix A provides the complete clause citation***.

DMSMS Notification and Relief [H1] – The contractor shall promptly notify the Contracting Officer in writing whenever the contractor believes that one or more of the components or materials intended to be incorporated directly into an end item specified to be delivered under the purchase order or contract is a DMS component. The notice shall identify the part number, national stock number, and nomenclature of each DMS component.

If the contractor believes that one or more of the components or material intended to be incorporated into an end item specified to be delivered under the purchase order or contract is a

DMS component, the contractor may request contractual relief according to this clause. The contractor shall submit the request in writing to the Contracting Officer within thirty (30) days after the contractor discovers a DMS situation.

DMSMS Notification and Producibility [H2] – The contractor is responsible for identification, resolution and implementation for all DMSMS/Obsolescence/Producibility issues associated with production and delivery of hardware under this contract in accordance with the TDP. For purposes of this clause, Producibility is defined as the ability to procure, fabricate, assemble, and test an item using available production technology while still meeting the necessary quality and performance requirements.

The provisions of this special provision shall apply to all technical data supplied as a part of any change issued under this contract, provided that any additional DMSMS/Obsolescence/ Producibility effort required by reason of a Government-issued change shall entitle the contractor to an equitable adjustment for which the amount shall be included in the settlement of the change order for the Government-issued change.

DMSMS Resolution and Funding [H3] – The contractor shall be responsible for identifying and resolving DMS for current and future production deliveries in accordance with the Statement of Work (SOW) paragraph ____, and this special contract requirement. The contractor is contractually obligated to meet this schedule except as provided for in this clause and AFFAR Supplemental 5352.217-9000, Long Lead Limitation of Government Liability.

If, during the execution of Lot 1 Advance Buy, a DMS unknown (pop-up) occurs that would impact a future production lot, the contractor shall take the necessary action to support the requirements specified in SOW paragraph____. The contractor shall track, at the total DMS budget line, rather than by project, DMS expenditures separately during the Advance Buy period of performance. The contractor shall separately estimate and track pop-ups by project and provide this information to the government on an as needed basis. This is required for future pop-up estimates and budgets.

GIDEP [H4] – The contractor shall notify GIDEP of DMSMS items and materials that suppliers/vendors have declared obsolete or discontinued that may impact production or logistics support of systems, subsystems, software, or equipment. The contractor shall take appropriate action and make appropriate notification, as deemed necessary by the Contractor, in response to GIDEP Failure Experience and DMSMS reports electronically distributed which may impact the performance of materials procured hereunder. The contractor shall maintain a status of GIDEP Failure Experience and DMSMS reports and the benefits accrued thereof, and shall provide an Annual Utilization Report to GIDEP.

DMSMS Notification and Resolution [H5] – The contractor shall conduct a detailed evaluation of all technical data associated with this contract. Such evaluation shall include, but not be limited to, analysis, identification, and recommended corrections for problems associated with DMSMS/Obsolescence.

The contractor shall submit DMSMS/Obsolescence Issues to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the contractor shall submit a copy of the DMSMS/Obsolescence Issues simultaneously to the Administrative Contracting Officer and the Contracting Officer .

If a DMSMS/Obsolescence change is accepted, the contractor shall share in net acquisition savings according to the Incentive Fee Clause I-1

4.4 SECTION L – INSTRUCTIONS TO OFFERORS CLAUSES

The following ***edited excerpts*** of RFP Section L clauses are presented to provide suggested instructions to offerors to place on contract. Because the majority of these requirements have only been in contracts for a few years and some are proposed and not on contract, no recommendation as to the success will be provided. However, subsequent revisions of these guidelines will provide information on lessons learned and will attempt to identify the best instructions based on documented program cost avoidance or total ownership cost reductions. ***Appendix A provides the <u>complete</u> clause citation***.

Obsolete Items [L1] - If any item in the Schedule either becomes obsolete or is superseded during the term of this contract, the contractor shall advise the Contracting Officer thereof within fifteen (15) business days of the determination of obsolescence, or of the determination to supersede the Scheduled item. If the obsolete or superseded item is covered by a delivery order issued prior to the determination to declare that item obsolete or superseded, the notice shall be given to the Contracting Officer within five (5) business days of the date of the determination.

COTS Supportability [L2] – Technical and Program Management Approach and Experience. Provide a technical and program management approach that demonstrates the offeror's understanding of the work required to successfully accomplish the Statement of Work (SOW) tasks and a description of capability to meet the required performance delivery date. Provide a listing of not more than three relevant "project" examples that shall include requirements to support COTS equipment in fleet and shore based life cycle applications, requirements to provide *system name* ILS, and hardware maintenance and modification requirements similar to those described in the SOW.

Past Performance. Provide three (3) past performance references that reflect recent relevant experience performed within the past five-(5) years.

DMSMS and Producibility [L3] – DMSMS/Obsolescence/Producibility: This part shall describe the offeror's approach, which details the methodology to be used in the identification and resolution of DMSMS/Obsolete parts/Producibility. Technical: The adequacy of the offeror's approach and how the proposal demonstrates its understanding of the Government's requirement will be evaluated. The Technical Area is divided into four elements: Production Capability, DMSMS/Obsolescence/Producibility, Quality and Production, and Scheduling. Production Capability and DMSMS/Obsolescence/Producibility are equally weighted and each is slightly more important than quality, which is somewhat more important than production scheduling.

Identification and Resolution [L4] – This part shall describe the offeror's approach, which details the methodology to be used in the identification and resolution of DMSMS/obsolete parts. Electronic Parts, Materials, and Processes (PMP) Control Program: The offeror shall describe in detail his Electronic PMP Control Program which includes, as a minimum, controls and policies on the following subjects: Government involvement, including Military Parts Control Advisory Groups (MPCAG); parts selection; approved parts list; supplier management; part quality; part derating/tolerance analysis; plastic encapsulated devices; testing/analysis required or performed to assure compliance for parts procured non-compliant to Government or DOD-adopted industry standards (including custom parts) printed wiring assembly design and component mounting practices; materials and equipment used for electronic manufacturing processes; electrostatic discharge control; maintenance of solderability of parts; printed boards and components; process controls/workmanship methodologies; training/proficiency of the workforce; rework and repair of PWAs and; rework and repair of cable assemblies.

4.5 SECTION M – EVALUATION CRITERIA CLAUSES

The following ***edited excerpts*** of RFP Section M clauses are presented to provide suggested evaluation criteria to place on contract. Because the majority of these requirements have only been in contracts for a few years and some are proposed and not on contract, no recommendation as to the success will be provided. However, subsequent revisions of these guidelines will provide information on lessons learned and will attempt to identify the best evaluation criteria based on documented program cost avoidance or total ownership cost reductions. ***Appendix A provides the complete clause citation***.

Use of COTS [M1] – Commercial Leverage (15%) Proposals must demonstrate that a commercial item or items form the core of the prototype. In addition, proposals that use open commercial standards to avoid obsolescence will be viewed more favorably. Proposals that are based on widely used commercial items will fare better than those whose "commercial core" has fewer applications outside the defense realm. Proposal based on items that (1) are not currently available in the commercial marketplace and have neither clear plans nor pathways for sale to non-government customers, or (2) are or will be available for sale only to Government customers will generally score poorly.

> Authors note: The remaining selection criteria are as follows:
>
> O&S Savings (30%)
> Military Customer Commitment (25%)
> Technical and Management Approach (15%)
> Military Department Share of Project Costs (15%)

Open System Architecture [M2] – The proposal will be evaluated for the potential ability of the Air Vehicle to possess the attributes of an open architecture: 1) modular structure and partitioning; 2) well defined, preferably non-proprietary, internal and external interfaces; 3) use of standards adopted by standards bodies or the commercial marketplace; 4) controlled coupling among subsystem elements; 5)scalability and evolvability with minimal impact to the system; 6)

ability of the Air Vehicle to function within the context of the Air System as a node in the C4I 2010 system of systems architecture; **7) technology independence and parts obsolescence risk mitigation;** 8) support for reliability and maintainability; 9) guaranteed timing and real-time execution; 10) information assurance and protection. This evaluation also includes the completeness of the architecture models, consistency of information mapped across the models, and the ability of the architecture to support the Source Selection Aspects of Interoperability, and Data Fusion and Information Management.

Software Development Plan [M2] – The proposal will be evaluated for the Offeror's potential ability to implement an effective software design, development and support process, as documented in the Offeror's Software Development Plan (SDP). The evaluation of this aspect will include:

Review of the proposed processes and infrastructure for software development
Integration of these processes with the overall systems engineering process
Design for re-use of software components
System/Software Engineering Environment (tool-set, facilities, and processes for accommodating System/Software Engineering Environment component obsolescence)
Assessment of the software development effort

COTS Supportability [M3] – Each contractor shall be evaluated relative to the following:
Factor 1: Technical and Program Management
Factor 2: Past Performance
Factor 3: Evaluated Cost

Factor 1, Technical and Program Management Experience. The Government will evaluate each offeror's Technical and Program Management Experience to perform the requirements in the solicitation, considering the offeror's Technical and Program Management Approach and Experience and Resumes of proposed personnel.

Factor 2, Past Performance. Past Performance is a measure of the degree, to which an offeror satisfied its customers in the past and complied with Federal, state, and local laws and regulations. The Government will contact some of each offeror's customers to ask whether or not they believe:

That the offeror consistently met required time frames
That the offeror maintained stable well-trained staffing under contractual arrangements similar to the order contemplated under this solicitation
That the offeror was capable, efficient and effective
That the offeror's performance conformed to the terms and conditions of its contract
That the offeror was committed to customer satisfaction; and
if given a chance would they select the same or a different contractor.

Factor 3, Evaluated Cost. The evaluation will be based on an analysis of the realism and completeness of the cost data, the traceability of the cost to the offeror's capability data and the proposed allocation of man-hours and labor mix.

DMSMS and Producibility [M4] – The Government reserves the right to award the production quantity CLINs with or without their corresponding First Article CLINs and with or without the DMSMS/Obsolescence/Producibility CLINs.

The evaluation criteria are delineated in this section by areas, elements within an area, and factors within an element. Evaluation will include 3 areas: Technical, Performance Risk, and Price. Technical is somewhat more important than Performance Risk which is significantly more important than Price. The combined areas of Technical and Performance Risk are substantially more important than Price.

The adequacy of the offeror's approach and how the proposal demonstrates its understanding of the Government's requirement will be evaluated. The Technical Area is divided into four elements; Production Capability, Diminishing Manufacturing Sources and Material Shortages (DMSMS)/Obsolescence/Producibility, Quality, and Production Scheduling. Production Capability and DMSMS/Obsolescence/Producibility are equally weighted and each is slightly more important than quality, which is somewhat more important than production scheduling.

(2) DIMINISHING MANUFACTURING SOURCES AND MATERIAL SHORTAGES (DMSMS)/OBSOLESCENCE/PRODUCIBILITY: This element consists of the following five (5) factors, which are of approximately equal weight:

(a) The proposed process the contractor will use to identify and resolve obsolete parts will be evaluated for adequacy. The evaluation will consider the specific procedures, criteria, and techniques the contractor proposes to use.

(b) The adequacy of the proposed process the contractor will use to identify new sources will be evaluated.

(c) The proposed procurement/test lead-times will be evaluated to determine whether or not the proposed schedules will allow for completion of deliveries within the contract period of performance.

(d) The adequacy of the offeror's proposed analysis and testing will be evaluated to ensure that it will satisfy all component, subassembly, and system level form, fit and function requirements.

(e) The availability of tools and equipment to be used in performance of the contract, and the adequacy of the techniques to be employed will be evaluated.

4.6 MISCELLANEOUS PARAGRAPHS AND CLAUSES

The following ***edited excerpts*** of miscellaneous paragraphs and clauses are presented to provide the PM with additional ideas related to contractual language to mitigate the impact of DMSMS. Subsequent revisions of these guidelines will provide information on lessons learned and will

attempt to identify the best evaluation criteria based on documented program cost avoidance or total ownership cost reductions. ***Appendix A provides the <u>complete</u> citations***.

Spares and Obsolescence [MC1] – Spares Ownership and Supply Chain Management. The in-service support contractor (ISSC) would have complete accountability for supply chain management and would also own all required spares until such time that they were installed on the aircraft.

Mission Critical Computer Resources [MC2] – The system hardware will consist of multiple COTS processors, including microcomputers, single board computers, minicomputers, super minicomputers, central processing units, internal processing units, or special processing units such as array processors. Additionally, the hardware will consist of COTS peripherals, controllers, and cables. COTS interfaces will be maximized. Where developmental interfaces are required, such as between simulation equipment and GFE, COTS documentation will be augmented to reflect the interfaces to the first active circuits at the GFE and simulation interfaces. There are no identified performance requirements that will preclude the use of COTS hardware. To minimize obsolescence problems during the development cycle, the targeted hardware platform will not be selected until late in the development cycle. Design requirements require a 50% spare margin for memory, 50% spare for processing time and 50% for input/output capacity at acceptance.

Obsolescence Warranty [MC3] – Included in this warranty is parts obsolescence (inability to repair a failed assembly because the parts are no longer available). The subcontractor will protect against parts obsolescence by taking necessary actions, including, but not limited to:

a. Stockpiling critical component
b. Implementing an open-architecture design
c. Identifying and securing multiple suppliers

Section I. Incentive Fee Clause [M4]
As prescribed in 16.307(d), insert the following clause: Incentive Fee (Mar 1997)
The Government shall pay the Contractor for performing this contract a fee determined as provided in this contract. The target cost and target fee specified in the Schedule are subject to adjustment if the contract is modified in accordance with paragraph (d) of this clause.

The fee payable under this contract shall be the target fee increased by _____ [Contracting Officer insert Contractor's participation] cents for every dollar that the total allowable cost is less than the target cost or decreased by _____ [Contracting Officer insert Contractor's participation] cents for every dollar that the total allowable cost exceeds the target cost. In no event shall the fee be greater than _____ [Contracting Officer insert percentage] percent or less than _____ [Contracting Officer insert percentage] percent of the target cost.

SECTION 5

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APPENDIX A

COMPENDIUM OF SAMPLE DMSMS CONTRACT LANGUAGE

The following examples of paragraphs and clauses are presented to provide suggested language. Because the majority of these paragraphs and clauses have only been in contracts for a few years and because some are proposed and not on contract, no recommendation as to the success will be provided. However, subsequent revisions of these guidelines will provide information on lessons learned and will attempt to identify the best paragraphs and clauses based on documented program cost avoidance or total ownership cost reductions. The following ground rules are used:

- Sources of the language will be available upon request to authorized program managers. Contact DMEA for release.
- A brief description of where the language was used will be provided.
- Applicable acquisition phase(s) and contract type will be identified
- If a paragraph or clause is on contract only the actual acquisition phase(s) and type of contract will be noted. The PM should consider the language for other contract types.
- The paragraphs were presented "as is" except for minor edits to ensure consistency with the format of these guidelines and to remove reference to specific programs.
- Only pertinent paragraphs related to obsolescence are provided. Complete SOW and SOO clauses may be available from the source.

A.1 SOW OR SOO PARAGRAPHS

S1 Military avionics system for prime contractor¾ FFP (Production and Sustainment)

Parts Control Program – The contractor shall establish and implement a parts obsolescence program. This program shall include a report to categorize and quantify identification of obsolete parts, problem resolution, and a recommended approach for mitigating risks associated with obsolete parts over the life of the system. The contractor shall maintain a parts selection, control, and standardization program in accordance with this task. The contractor

may select parts from the criteria listed below, provided that they meet component performance (e.g., tuning, tolerance, temperature, etc.) and environmental and physical characteristics (form, fit, and function) requirements to the shop replacement unit (SRU) level.

a. Program Parts Selection List
b. MIL-STD.
c. QPL.
d. QML.
e. DSCC.
f. Parts from ISO-9000 certified vendors.
g. Previously-approved non-standard parts
h. MIL-FLOW (MIL-FLOW is defined as parts that are specified to meet the form, fit, and functional requirements but are only exposed to a subset of the full MIL-STD screening and testing).

Any other requests that do not meet these requirements must have prior approval from the Government via a contracts letter. The Government will provide a response within 45 days of receipt of the contractor request. When there is no known replacement part from the part criteria list, plastic parts may be evaluated to resolve obsolescence problems. Plastic parts must be qualified in accordance with *contractor name internal procedure.* The test report, detailing the results of the qualification tests shall be referenced as part of the Class I/II ECP that incorporates the change into the hardware. Plastic parts approved for use shall be stored and handled in accordance with *contractor name internal procedure.*

Government Industry Data Exchange Program (GIDEP) – The contractor shall participate in the GIDEP database to screen parts prior to their selection.

Interchangeable Parts List – The contractor shall maintain and update an electronic interchangeable parts list, a copy of which shall be made available to the government, upon their request. This parts list shall contain the vendor name and vendor part number, and comparison of the alternate part versus the part it replaces detailing any differences in the specifications, testing, and manufacturing operations performed by the vendor. The next higher assemblies shall also be provided along with reference designators, alternate and generic part numbers.

S2 Supplier SOW for major aircraft platform ¾ FFP (Development and Production)

Parts Obsolescence Management Plan - Procedures for identifying and controlling diminishing manufacturing sources (DMS) and obsolescent technologies will be documented in a Parts Obsolescence Management Plan and shall meet the following requirements as a minimum.

a. Identify obsolete parts used in deliverable equipment via use of existing prediction tools/methods. Commercial database tools, GIDEP, etc. may be used for this purpose. This is a continuous review process that begins at initial design and proceeds throughout the life of the contract.

b. Submit an indentured parts list 45 days prior to CDR

c. Present DMS status at CDR

d. Perform trade study for all identified DMS items. Trade study shall include comprehensive recurring and non-recurring costs for all identified options including support equipment, test equipment, retrofit costs, etc.

e. All parts buy and redesign (including F3I redesign) DMS solutions shall be coordinated with the prime contractor.

The goal of a DMS solution is to provide the lowest cost/lowest risk (technical and business). In addition, all designs should be obsolescence resistant. Parts that are more susceptible to obsolescence should be incorporated with cost effective replacement as a design consideration.

S3 Service Life Extension Program shipboard equipment ¾ FFP (Sustainment)

REQUIREMENTS

The contractor shall provide engineering services in accordance with (IAW) this Statement of Work (SOW). The purpose of this effort is to document a cost effective COTS/NDI solution, in Engineering Change Proposal (ECP) format, to the parts obsolescence problem currently affecting the operation, maintenance, and support of the *system name*. The ECP will present HW/SW configuration(s) that will, when implemented, extend the service life of the system. Specific SOW tasking is as follows;

TASK DESCRIPTIONS

Support Integrated Product and Process Development (IPPD) Integrated Product Team (IPT) Meetings – the contractor will support the IPPD IPT meetings to be held bimonthly (every two months) starting with the formal kickoff meeting scheduled for the week of *Date*. The purpose
of these meetings will be to communicate status and to offer guidance on the taskings and deliverables required for this effort. The guidance forthcoming from the IPTs will refine the
efforts as they mature without changing the contractual scope. The core IPT team members will consist of (but not limited to) representatives from the government users, maintainers, and support agencies. The contractor will be a contributing player and participant but not a voting member of the IPT.

Submit SLEP Program Design Document (PDD) –The *system name* SLEP PDD shall document the COTS/NDI mechanical and electrical component's parts selection process used in meeting the PIDS functional and performance requirements. The PDD shall include the following:

> A section documenting the reliability of the mechanical and electrical components selected and a Failure Modes Effects and Criticality Analysis (FMECA). The FMECA shall document the contractors engineering trade off analysis/studies performed for final parts selection. The end of this section will document the electronic packaging and structural integrity design analysis performed and all steps used to ruggedize and package the components in the existing system enclosure to ensure proper operation in the environment.
>
> A top-level breakdown (using reference designators) of the Bill of Materials (BOM) will be documented to the sub-assembly level and when practical to the component level (see note at end of this section). The information in the BOM will include, at the least, a reference designation, component name, component quantity, part number, vendor's name and telephone number, vendor's manufacturing projected end date, and component/subassembly price (fully loaded cost) for all purchased components. The projected final unit cost will be provided.

S4 Avionics system ¾ FFP (Production)

Scope - This Statement of Work (SOW) defines the tasks required to plan for, establish a production line for, test, produce and deliver *system name* SRUs, SRAs, LRUs, WRAs and complete system shipsets. This SOW also defines tasks to identify impacts to and ensure interchangeability and backwards compatibility of the system in systems engineering, logistics and software disciplines; and design and implement future engineering changes. The *system name* shall be produced in accordance with the Technical Data Package with precedence given to the drawings contained in the TDP. The contractor shall ensure interchangeability and backward compatibility at the SRU/SRA, and LRU/WRA levels, with the current *system name* configuration. The only permissible changes are those required to overcome parts obsolescence (i.e. changes to equipment design as a result of obsolete technology and/or vanishing suppliers); improve produce-ability (i.e. changes to the hardware for the purpose of accommodating existing capital equipment); or correct any latent design deficiencies (i.e. correct any errors found in the TDP). No changes will be permitted that affect the form, fit, or function of the individual LRU/WRA and/or SRU/SRA, the system's functional allocation, or interface definition. Furthermore, changes that solely improve testability, reduce part count, or provide additional performance capability will not be permitted.

Parts Control Program - The contractor shall establish and/or maintain a parts control program IAW MIL-HDBK-965. The contractor shall comply with procedure II of section 5.0, Detailed Requirements. The contractor shall notify the Government as soon as a part is identified as obsolete. For obsolete parts, the contractor shall locate a second source, a different MIL-qualified part that performs the same function without redesign, or a non-standard part that performs the same function without redesign. If a non-standard part is chosen, the contractor shall submit a

non-standard parts request. If the aforementioned steps do not produce a substitute part and a redesign is required to solve the obsolete part problem, the contractor shall submit an ECP upon government direction.

S5 Obsolescence Engineering on Ground Radars ¾ Contract type unavailable (Sustainment)

Investigate, evaluate, develop and replace, where applicable, obsolete and non-obtainable parts/components for all supported systems. Recommend engineering changes, which would improve technical performance, improve reliability and maintainability or reduce operating costs. Recommendations and technical solutions to obsolescence issues shall be identified.

S6 COTS System Supportability ¾ CPFF, CPIF (Sustainment)

The contractor shall provide engineering and technical services for the *system name* equipment Commercial Off The Shelf (COTS) Obsolescence Resolution Effort (CORE). The contractor shall assist in the identification of obsolete items and provide technical and engineering research and analyses of potential obsolete COTS parts replacements. The contractor shall conduct testing as directed for replacement items utilizing equipment identified by *program office name*. The contractor shall interface with all vendors of *system name* equipment commercial items at quarterly intervals and determine part supportability and production information and shall maintain the COTS Cross Reference Database with this data. The contractor shall electronically develop and distribute trouble reports and change proposals in accordance with the Configuration Management Plan to resolve COTS obsolescence issues. The contractor shall develop data in support of testing of modifications and repair of COTS circuit boards and assemblies as directed. The contractor shall locate alternate sources of commercial item replacement parts. The contractor shall provide a monthly report identifying the vendors surveyed, alternate supply sources, repair data development status, COTS procurement status, status of COTS items in repair and related repair issues, ECP development status and issues, COTS obsolescence item list additions/deletions and related COTS issues. The contractor shall provide a test report of interchangeability evaluation and testing status within 10 days after completion of test events. Contractor shall deliver a monthly report not later than the 5th of each month, identifying the vendors surveyed, alternate supply sources, repair data development status, COTS procurement status, status of COTS items under repair and related repair issues, ECP development status and issues, COTS obsolescence item list additions/deletions and related COTS issues. Report delivered electronically, in contractor format.

The contractor shall design, obtain, produce, modify, assemble, screen for operability, repair, refurbish, deliver, stage and ship parts, material and assemblies as required for *system name* equipment Installation and Checkout (INCO) kit replenishment, initial outfitting material, initial spares load out, engineering change kits, mini-stock point asset replacements and obsolescence resolution as directed by *program office name*.

S7 Performance Based Logistics (PBL) for Helicopter ¾ Contract type unavailable (Sustainment)

Obsolescence Management Plan. The Contractor will develop a plan for managing the loss or impending loss of manufacturers or suppliers for the spare and repairable items covered under the *system name* PBL Program. The Contractor's obsolescence management plan will prevent impact to contract performance metrics and will prevent additional costs to be incurred by the Government due to obsolescence. Changes considered necessary by the Contractor to ensure the continued manufacture and/or repair of the items will be made in accordance with the Flight Safety Parts Management requirements and Configuration Management requirements.

S8 Department of Transportation Computer Systems ¾ Contract type unavailable (Sustainment)

Obsolescence Reviews: An obsolescence review is an analysis to determine whether system life cost savings are obtainable by acquiring newer technology resources relative to continued operation of existing outdated resources. Evaluate existing outdated FIP resources to determine whether the cost of operating them is greater than the cost of acquiring and operating technologically newer resources. When the cost of operating existing outdated resources is greater than the cost of acquiring and operating technologically newer resources, agencies shall replace the existing outdated resources.

S9 Electronic, mechanical, and COTS Systems ¾ Contract Type unavailable (Production)

Draft Requirements For Reporting Status Of EOL Parts – The contractor shall report on the status of end of life (EOL) hardware that has been procured for *system name*. EOL hardware includes the following: electronic components/piece parts, mechanical hardware, COTS and other items which the *program office name* authorized/directed the contractor to make an EOL buy.

The status report for the EOL hardware shall include the following:

a. *System name* part number(s)
b. Vendor part number(s)
c. Quantity authorized to be procured
d. Quantity actually procured
e. Quantity actually delivered
f. Quantity used during the reporting period
g. Quantity remaining at the end of the reporting period

The quantity of hardware used includes EOL assets used for manufacturing and scrap incurred during the manufacturing process.

The initial list of EOL hardware shall be reviewed and approved by the *program office name* within 30 days of contract award. As the contractor makes additional EOL buys, the part number shall be added to the list of EOL hardware that the contractor shall report on. Additional EOL hardware procurements shall be reviewed and approved by the *program office name*.

The status of EOL hardware shall be reported to the *program office name* on a monthly basis.

The contractor shall respond to EOL issues identified by the *program office name* within 14 days after notification. The response includes, but not limited to the following: identification of alternate/substitute part, proposal/recommendation on making an end of life buys, report on impacts to applicable CCA(s)/system. The contractor shall notify the Government of EOL notices received from vendors within 14 days of receipt.

S10 Electronics System ¾ Contract Type unavailable (Production)

Diminishing Manufacturing Sources/Material Shortages (DMSMS)Management – The contractor shall be responsible for the maintenance of or the development of alternate sources of supply/designs for all components, materials, assemblies, subassemblies and units throughout the contract. If DMSMS affects production of the *system name*, the Contractor shall be responsible to pursue and secure DMSMS case solutions such as alternate vendors, substitute parts, or redesign(s) as part of and within the price of each CLIN. Resolution shall be in accordance with procedures outlined in the *system name* DMSMS Management Plan and shall be in accordance with the quality provisions specified in the contract.

S11 Avionics Systems ¾ FFP (Sustainment)

The contractor shall provide all specialized engineering and manufacturing services and materials to perform the tasks described herein. No parts substitutions or deviations from are authorized unless written approval has been provided by the Government.

Component Obsolescence Management Database Maintenance – The contractor shall analyze the avionics system technical data documentation supplied by *program office name* to determine exactly what information needs to be incorporated into the government furnished *system name* component obsolescence management database, to update the database to the current hardware configuration. The contractor shall incorporate the change information into the *system name* component obsolescence management database while maintaining configuration control of the database and verify that the update is both complete and did not degrade the pre-existing data. Maintenance of the database shall include changes, modification, and upgrades as required to maintain compatibility with software and hardware.

Strategic Manufacturers/ Distributors Tracking – The contractor shall track, through vendor polls, the qualified strategic manufacturers/distributors of parts contained in the *system name* component obsolescence management database to maintain the government's pro-active obsolescence prediction capability for the avionics systems vendor status (DI-MGMT-80365/T). The contractor shall develop and implement, in conjunction with *program office name*, a standard case file for use with problem devices which warrant formal action, delineating options and firm recommendations by the contractor. These files will become an integral part of the component obsolescence management database and will be updated quarterly as part of the component obsolescence management update.

Non-Standard Parts management – The contractor shall provide management of all non-standard parts contained in the customer's component obsolescence management application. This includes all hybrids, ASICs, oscillators and custom devices, which are OEM specific and cannot be found in standard part catalogs.

DMS Technical and Engineering Support – The contractor shall provide dedicated DMS management and analysis support, through extensive use of the Component Obsolescence Management application. Special reports and analyses shall be provided on an as required basis. The government will provide the avionics hardware specifications, amendments, work space, and access to government support equipment as required .

DMS Reliability Engineering Support – The contractor shall provide dedicated DMS Reliability Engineering Support to enhance data and analyses derived from the DMS program. Special reports and analyses shall be provided on an as required basis. The government will provide the avionics hardware specifications, amendments, workspace, and access to government support equipment as required.

Trade Studies and Technology Surveys – The contractor shall perform trade studies on the microelectronics content of the *system name* Subsystems, which address the following requirements:

> Plastic Encapsulated Microelectronics circuits used in *system name* Subsystems. As a minimum address issues of long term storage, long term use with the avionics being powered up then shut down as done in normal fighter applications. Consider all environmental conditions, which can be identified, as applicable to the fighter application.
>
> MIL-STD 883 testing of microelectronic circuits used in [program name] Subsystems. As a minimum address issues that cause mission aborts through degraded performance.
>
> Address the use of industrial grade microelectronics in the [program name] Subsystems. As a minimum compare the environmental conditions of the fighter environment and this grade of microelectronics on fighter avionics.
>
> Address the use of offshore facilities for the manufacturing and/or test of microelectronics used in fighter aircraft applications. As a minimum address any quality impacts to the avionics.
>
> Address the use of shrinking of die sizes (both analog and digital) and the changes in the parametric values that migrate to the avionics performance impacted.
>
> Address the initiative of lowering supply voltages to microelectronics devices. As a minimum address legacy systems considering that only lower supply voltage devices will be available for maintenance support.
>
> Address manufacturing initiatives in the Microwave/RF Technology advances that impact avionics. As a minimum address the advances that can be migrated to legacy avionics.

FMS Systems Maintenance – The contractor shall provide application maintenance of FMS specific systems as required. FMS specific systems typically occur when the US Military discontinues the use of systems, while the FMS customers opt for continued use and maintenance of those items. A separate contract line item shall be established for FMS funding directly to the contractor for support of this maintenance activity.

Component, Design, Solution Engineering Services – The contractor shall perform component engineering support on the microelectronics content of *system name* Subsystems which address the following requirements:

> Component Engineering Services – The contractor shall provide detailed design/ component engineering support for the resolution of specific devices, which have become obsolete. This includes redesign support as needed, identification and evaluation of suitable substitute parts, locating sources of discontinued die for LOT buy or other solution options. The contractor shall make recommendations on components, designs, and alternate solution options as required.
>
> General Parts research and solution recommendations - The contractor shall assist *program office name* in the assessment and resolution of obsolescence issues as they arise. This includes, but is not limited to, analysis and evaluation of technical proposals for particular 'piece part' obsolescence elimination by industry piece part manufacturers and Original Equipment Manufacturers (OEM). This also includes examination, investigation, and identification of piece parts and their qualified sources, for which the government does not have engineering data.

Government/Customer Furnished Resources – The *program office name* will provide the contractor access to data required for the completion of this delivery order. Typically this data will be in the form of Technical Orders (TOs) or Illustrated Parts Breakdowns (IPBs) for each system to be entered into the component obsolescence management application.

S12 Major Aircraft Program Supportability ¾ FFP (Sustainment)

The contractor shall not deviate from the scope of work defined herein unless notified in writing from the PCO. The contractor is responsible for insuring that any subcontractors engaged for this effort also conform to the scope of work defined herein.

The contractor shall share information and pass data to the prime contractor as necessary. The contractor shall facilitate the sharing of the data through the development and implementation of an Associative Contractor Agreement. This agreement shall be in place within 60 days of contract award. All data delivered to the government shall be delivered with unlimited rights.

Second Source Re-engineering – The contractor shall conduct second source re-engineering efforts for selected *system name* SRUs (or subassemblies thereof) of the *system name* subsystem. The objective is to develop second sources for all critical components, generate a system health model and functional performance baseline, and re-establish system supportability. This task will develop pre-production prototype replacements for the obsolete components/SRUs, generate complete Technical Data Packages (TDP), and identify qualified second source fabrication houses for obtaining them. The redesign/re-engineering of hardware shall not affect Operational Flight Program (OFP) Software.

Product Data Baseline – The contractor shall provide a relational database application for the management of component life-cycle availability and system structural hierarchy information. This hierarchy will be based on an indentured structured parts list, which describes the system's interconnectivity. The indentured parts list for the *system name*, as well as any available Technical Data Package (TDP)information, shall be provided to the contractor as Government Furnished Information (GFI). The contractor shall verify the contents of the parts list against the technical data package and enter the data into a health model.

Health Model Development – The contractor shall develop a detailed component-level health model for all LRUs in the *system name*. This effort shall cover all digital components and shall provide immediate assessment of the *system name* critical SRUs. In addition, the health model capabilities shall include, but not be limited to data scrub, data analysis, electronic formatting of the data, and determination of critical SCD data elements that need to be entered in the health model database. Using the Health Model the contractor shall identify and prioritize those components with existing or upcoming supportability problems. The contractor shall procure and utilize a commercial software package for the health model database. The previously developed product data baseline will be used for health model data input. This database will be used to monitor and verify microelectronics component

availability for the life of the weapon system. The contractor shall complete the following actions relative to the *system name* health model:

a. Track specific components that have been installed from the bill of materials. Specific OEM Source Control Drawings (SCD) shall be installed into the application to ensure complete tracking.
b. Obsolescence impact reports shall be available for all levels (System, LRU, SRU (or subassemblies thereof)).
c. Establish criteria for defining levels of DMSMS and flag/track affected parts accordingly.
d. Provide a projection (in years) for a safe procurement window.
e. Utilize algorithms to comprehend both technology and market demand to predict unit obsolescence/supportability as a function of time.
f. Generate an indentured parts tree for visual examination of all structural relationships. The structure will contain all of the connectivity data for the systems hierarchy or indenturing levels.
g. Generate custom queries such as Class (IC or Discrete, etc.), Group (Analog vs. Digital), Family (e.g. 54ALS), Manufacturer (National, TI, etc.) and others as available.

Health Model Evaluation – The contractor shall complete comprehensive health model evaluations of the *system name*.

Component Supportability Engineering – The contractor shall provide engineering support to *program office name* for *system name* hardware components, subassemblies, and SRUs as assigned which are identified as non-procurable. The engineering support shall include the following activities for the number of components (in parentheses) assigned:

- Component Research: (xx) The contractor shall investigate the component in terms of whether the component is available from other sources, applicability to other LRUs, systems, and platforms. Also determine whether other components can be substituted or modified for use. For active components, the contractor shall determine if alternate dies or other sources of dies are available.

- Component Repackaging: (xx) For those solutions where alternate dies are suitable and available, the contractor shall repackage the dies in component packages which are form, fit, and function compatible with the original part, the SRU and system requirements. The contractor shall conduct all necessary testing to provide the audit trail required by the applicable Mil-Spec requirements.

- Substitution: (xx) For those components for which a substitute component is recommended or identified, the contractor shall insure that the substitute part meets all system requirements. The contractor shall conduct any testing necessary to confirm that the part is a suitable replacement to the original. The contractor shall also redline the appropriate engineering drawings to reflect the substitute component.

- Reverse Engineering: (xx) The contractor shall conduct reverse-engineering activities for components for which no alternate or substitute parts can be identified. The contractor shall provide a TDP for all reverse engineered components to *program office name* for review prior to prototype or pre-production fabrication. The parts to be reverse-engineered will consist of the following types:

  - Low Complexity: (1) Under 1000 gates/junctions
  - Medium Complexity: (1) 1000-5000 gates/junctions
  - High Complexity: (1) >5000 gates/junctions

  Complexity level may be affected by availability and completeness of component design data such as schematics, layout drawings, test vectors, ATPs, etc.

- Radiation Testing: (xx) The contractor shall identify the required type and magnitude of radiation testing for substitute, alternate, or reverse-engineered components as required to meet *system name* Hardness Critical requirements. In addition, the contractor shall arrange to conduct such testing to verify compliance of the parts to all applicable requirements.

The following SOW paragraphs (S13 through S.xx) were obtained from AMC Pamphlet (AMC-P 5-2) Department Of The Army Headquarters, United States Army Materiel Command 18 March 1999 *Diminishing Manufacturing Sources and Material Shortages*

S13 AMSEL-LC-LM-PR Army Parts Control Plan

Diminishing Manufacturing Sources and Material Shortage (DMSMS). The offeror shall develop and implement procedures within facility to ensure an integrated approach to improved responsiveness and use of the most cost-effective solutions to DMSMS problems affecting the system. The Parts Control Plan (PCP) shall include the offeror's procedures for addressing DMSMS concerns in the selection of components.

S14 Navy SPS-49 Radar Parts Control Plan

Obsolete Parts. For obsolete parts, the contractor is authorized to select replacement parts in the sequence listed below. The contractor shall update the substitute parts list with the replacement component in lieu of updating affected assembly parts lists and the use of vendor part numbers in lieu of Source Control Document (SCD) part numbers shall be allowed. If a commercial part is selected as a replacement for an obsolete part, the contractor shall notify Naval Sea Systems Command (NAVSEA) in writing within 5 working days of the selection and provide a status of commercial part selection at the program's reviews. Precedence of Replacement Part Selection:

a. New Source for the same part.
b. New technology direct replacement part.
c. Lower MIL quality level part.
d. MIL-STD-883 screened or tested part.
e. Commercial ceramic part.
f. Commercial plastic part (requires prior NAVSEA approval).

S15 ARMY BLACKHAWK

Provide microelectronic management and obsolescence avoidance by conducting engineering technology assessment(s). The result of the assessment(s) is an understanding of the current microelectronic status of the system, the scope of any immediate nonavailability and obsolescence problem, the magnitude of the future problem and any possibilities for alleviating the impacts. Possible solutions will include alternative manufacturing, redesign, substitution, emulation, and life-of-type buy. A detailed cost analysis of the alternative solution(s) will be formulated. Upon completion of the technology assessment, follow-on studies will be performed as needed. The follow-on studies will include updated technology assessments for newly obsolete parts and implementation of the proposed solutions. Coordination between the affected organizations and the contractors will be provided.
The baseline database resulting from the technology assessment will be maintained within the Production Control Group, Industrial Operations Division. The contained microelectronic data will be monitored regularly for GIDEP affectivity. Any affectivity will be reported to the pertinent organization(s) with solution recommendations.
The Production Control Group shall provide the above services for discrete components and connectors at the request of the customer. The Production Control Group shall provide resolution of the BLACKHAWK procurement problems, based on costs estimated within the funding statement.

The following SOW paragraphs were obtained from the draft document *Contractual Considerations for DMSMS*, jointly published by US Army AMCOM and AFRL/MLME, June 29, 2000.

S16 Diminishing Manufacturing Sources (DMS) Support

The contractor shall provide DMS support as required by the *program office name*. This support shall include, but not be limited to; management of the Component Obsolescence Database, continuous assessment of component availability for customer systems, detailed engineering evaluations and support for DMS component issues, alerting the customer of DMS issues specifically affecting their systems, and providing recommendations to the customer for resolving DMS issues based on cost, risk or other critical management factors.

Component Obsolescence Database Maintenance - The contractor shall analyze the system technical data documentation to determine exactly what information needs to be incorporated into the Component Obsolescence

Management system, to update the database to the current hardware configuration. The contractor shall incorporate the change information into the Component Obsolescence database while maintaining configuration control of the database and verify that the update is both complete and did not degrade the preexisting data. Maintenance of the database shall include changes, modification, and upgrades as required to maintain compatibility with software and hardware at the customer facility. Capability, functionality or feature enhancements of the Component Obsolescence Management software application shall be incorporated via configuration control process to meet the changing needs of obsolete device management.

Component parts tracking – The contractor shall have a staff with in-depth knowledge of semiconductors and the semiconductor industry. The contractor shall have adequate staff and facilities in place to track, through vendor polls, etc., the qualified manufacturers/distributors of parts contained in the Component Obsolescence Management database. The contractor shall maintain the government's pro-active obsolescence prediction capability for the systems vendor status. The contractor will monitor life cycle trends of integrated circuit families (i.e. TTL, LSTTL Bipolar Logic) in order to closely predict the demise of device groupings affecting the systems. The contractor shall develop and implement, in conjunction with the customer, a standard case file for use with problem devices which warrant formal action, delineating options and firm recommendations by the contractor. These files will become an integral part of the Component Obsolescence Management database and will be updated quarterly as part of the Component Obsolescence Management database update.

Component Parts, Non-Standard Parts management – The contractor shall provide management of all non-standard parts contained in the Component Obsolescence Management system. This includes all hybrids, ASICs, oscillators and custom devices, which are OEM specific and cannot be found in standard part catalogs.

Component Solution Engineering Services, research and solution recommendations – The contractor shall assist the customer in the assessment and resolution of obsolescence issues as they arise. This includes, but is not limited to, analysis and evaluation of technical proposals for particular piece-part obsolescence resolution by industry piece-part manufacturers and Original Equipment Manufacturers (OEM). This also includes examination, investigation, and identification of piece parts and their qualified sources, for which the government does not have engineering data.

CDRLs

Monthly Status Report
Health Model (Initial Evaluation)
Health Model Assessments (Quarterly)

S17 MIL-HDBK-512 Parts Management (Appendix A)

Tasks for parts management. The specific acquisition requirements may require the tailoring of the principal SOW tasks.

Example A. 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 and enhance equipment reliability and supportability, and proactively manage obsolescence. Within XX days after contract award, an internal company plan 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 shall/can utilize MIL-HDBK-512 as a guide for developing and maintaining the Parts Management Program.

Example B. The contractor is encouraged to establish and maintain a Parts Management Program, and within XX days after contract award, internal company plan 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 as a guide for developing and maintaining the Parts Management Program.

Example C. 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, and enhance equipment reliability and supportability. The procedures, planning and all other documentation media and data that define the Parts Control Program and the parts selected for use shall be made available to the government for their review and use. The government may perform any necessary inspections, verifications, and evaluation to ascertain conformance to requirements and adequacy of the implementing procedures.

A.2. SECTION H SPECIAL CLAUSES

H1 Major aircraft program¾ Contract Type Unavailable (Production and Sustainment)

A diminishing manufacturing sources or material shortages component ("DMSMS component") is a component or material, intended to be incorporated directly into an end item specified to be delivered under the purchase order or contract, that is unavailable from all manufacturers known to the Contractor, in the quantity necessary to comply with the delivery terms of the purchase order or contract.

The Contractor shall promptly notify the Contracting Officer in writing whenever the Contractor believes that one or more of the components or materials intended to be incorporated directly into an end item specified to be delivered under the purchase order or contract is a DMS component. The notice shall identify the part number, national stock number, and nomenclature of each DMS component.

(Paragraph C) If the Contractor believes that one or more of the components or material intended to be incorporated direction into an end item specified to be delivered under the purchase order or contract is a DMS component, the Contract may request contractual relief according to this clause. The Contractor shall submit the request in writing to the Contracting Officer within thirty (30) days after the Contractor discovers a DMS situation. The request shall indicate that it is a request for contractual relief according to this clause and shall include, if applicable, the following information:

a. Part number for each DMS component, its national stock number, nomenclature and actual manufacturer;
b. Part number of the end item where the DMS component is incorporated, national stock number, nomenclature, and actual manufacturer of the end item, description of the physical location on the weapon system where the end item is used;
c. Identification of the organization of organizations within DoD that manage the end item and those that manage each DMS component of the end item;
d. Identification of other public and private entities known by the Contractor to use substantially the same DMS component or end item;
e. All technical remedies the Contractor recommends, if any, to overcome or mitigate the unavailability of DMS components (e.g., an engineering change proposal or the substitution of components having the same form, fit, and function); and
f. A statement substantially as follows signed by an individual authorized to bind the Contractor contractually:

"To the best of the Contractor's knowledge and belief, the components or materials identified according to paragraph (c) of the clause titled Relief from Diminishing Source or Material Shortage Components of [purchase order or contract] number _____ are DMS component(s) according to the definition in paragraph (a) of that clause".

The contracting Officer shall decide whether the request complies with the informational requirements of paragraph (c). If the Contracting Officer finds that the request substantially complies with such requirements, the Contracting Officer shall determine whether the components or materials identified according to the paragraph (c) are DMS components. In making the determination, the Contracting Officer:

a. Shall consider the information the Contractor furnished with the request; and
b. Shall consult knowledgeable technical personnel, and, to the extent practicable, the organizations and points of contact the Contractor identified in the request; and

c. May consider any other relevant information available to the government.

If the Contracting Officer finds that the Contractor's request does not substantially comply with the informational requirements of paragraph (c), or if the Contracting Officer determines that none of the components or materials identified according to paragraph (c) is a bona fide DMS component, the Contracting Officer shall, within thirty (30) calendar days of receipt of the request, notify the Contractor in writing accordingly. The notice shall identify the deficiencies in the request, or shall state the reasons the government disagrees with the Contractor's statement that the components or materials identified are DMS components. The Contracting Officer may, thereafter, accept any revision of the request if the Contractor is not then in breach of any material requirement of the contract.

If the Contracting Officer finds that the Contractor's request substantially complies with the informational requirements of paragraph (c), and determines that one or more of the components or materials identified are bona fide DMS components, the Contracting Officer shall, within thirty (30) calendar days of receipt of the request, notify the Contractor in writing accordingly. The notice shall constitute the government's acknowledgement that, if the Contractor fails to deliver the end item within the time specified in the purchase order or contract, the government will consider the DMS components to be a cause beyond the control and without the fault or negligence of DMS components. Additionally, the Contracting Officer may consider a proposal, if offered by the Contractor, to address the additional costs associated with alternative sources of work-around solutions to such DMS situation.

No provision of this clause, nor any action taken by the government according to this clause, shall, in itself, relieve the Contractor of the duty to respond to any delinquency notice prescribed in FAR 49-607. Failure to agree upon the existence of a DMS situation shall be a dispute within the meaning of the clause in this contract entitled "Disputes".

H2 Guided Missile System ¾ Contract type unavailable (Production)

1. INTRODUCTION.

This clause is intended to address the problems associated with components, parts, or assemblies that are or may become obsolete during performance of this effort. The contractor is responsible for identification, resolution and implementation for all DMSMS/Obsolescence/producibility issues associated with production and delivery of hardware under this contract in accordance with the TDP. For purposes of this clause, producibility is defined as the ability to procure, fabricate, assemble, and test an item using available production technology while still meeting the necessary quality and performance requirements.

2. SCOPE.

a. Prior to production and throughout performance of this contract the contractor shall perform a detailed evaluation of all technical data associated with this contract. Such evaluation shall include, but not be limited to, analysis, identification, and recommended corrections for problems associated with DMSMS/Obsolescence/Producibility.

b. The contractor shall submit RFD/Ws that provide solutions which assure that all components, assemblies, and parts thereof, can be produced, fabricated, and assembled in complete accordance with the requirements of the technical data, corrected as required by this clause. DMSMS/Obsolescence/Producibility issues and their resolutions shall be prepared and submitted using the RFD/W process set forth in Section C-7 of this contract.

c. The identification of DMSMS/Obsolescence/Producibility issues and the necessary correction thereof shall not be cause under this contract for any price increase or revision in the delivery schedule.

3. CONTRACTOR OBLIGATIONS. The provisions of this special provision shall apply to all technical data supplied as a part of any change issued under this contract, provided, however, that any additional DMSMS/Obsolescence/Producibility effort required by reason of a Government-issued change shall entitle the contractor to an equitable adjustment for which the amount shall be included in the settlement of the change order for the Government-issued change.

4. APPROVAL REQUIREMENTS-REJECTIONS.

a. The Government reserves the right to reject any DMSMS/Obsolescence/Producibility RFD/W by providing written notice to the contractor within 20 workdays after receipt of the RFD/W by the PCO. The Government will provide justification for any disapproval.

b. Approval of a DMSMS/Obsolescence/Producibility RFD/W shall be (Whichever may occur first.):

(1) By written notice from the PCO by letter, fax, or other form of reply designated therein as an approval of RFD/W;

(2) Assumed by the contractor 20 workdays after receipt of the DMSMS/Obsolescence/ Producibility RFD/W by the PCO.

c. Upon Government approval of a DMSMS/Obsolescence/Producibility RFD/W, as aforesaid, the contractor's obligations relating to such DMSMS/Obsolescence/Producibility proposal shall be discharged to the extent that the deficiency is corrected in the hardware. If the incorporation of such approved DMSMS/Obsolescence/Producibility RFD/W does not correct the deficiency, the contractor shall yet remain responsible for resubmitting and accepting any further change to the technical data without increase in contract price or extension in delivery schedule and incorporate such DMSMS/Obsolescence/
Producibility change into the contract items not yet accepted by the Government.

6.GOVERNMENT INFORMATION. The Government reserves the right to convey information to the contractor for his use in DMSMS/Obsolescence/Producibility changes. Any such information so conveyed shall not entitle the contractor to any price or delivery schedule adjustment or damages pursuant to any clauses of this contract or otherwise.

7.DMSMS/Obsolescence/Producibility DISPUTES. Failure of the parties to agree upon any determination of the necessity for, or the designation of, a change to be made under this provision shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

8.RIGHTS AND REMEDIES. The rights and remedies of the Government provided in this provision are in addition to and do not limit any rights afforded to the Government by any other clause of this contract.

9.PRODUCTION METHODS AND PROCESSES. Changes to the TDP shall not be submitted under this clause which are recommended solely to permit performance in accordance with contractor's or subcontractor's production methods or processes.

10.RIGHTS IN TECHNICAL DATA. Any and all data submitted by the contractor as required in paragraph 4 shall be provided the Government with rights in accordance with the "Rights in Technical Data" clause of this contract.

H3 Major Aircraft Weapon System ¾ FFP (Production)

(a) The contractor shall be responsible for identifying and resolving DMS for current and future production deliveries in accordance with the Statement of Work (SOW) paragraph ____, and this special contract requirement. The contractor is contractually obligated to meet this schedule except as provided for in this clause and AFFAR Supplemental 5352.217-9000, Long Lead Limitation of Government Liability.

(b) AFFARS 5352.217-9000 limits the contractor's authorization to make expenditures or incur obligations for schedule protection, including DMS. If, during the execution of Lot 1 Advance Buy, a DMS unknown (pop-up) occurs that would impact a future production lot, the contractor shall take the necessary action to support the requirements specified in SOW paragraph____. However, the contractor is not authorized to buy parts beyond Lot 3 without prior approval from the government. Any impacts to schedule protection caused by this restriction shall be immediately made know to the government.

(c) In addition, the contractor shall not request additional funding for DMS until $_____ of the amount identified in AFFARS 5352.217-9000 has been expended or committed for DMS. Any requests for additional DMS funding must demonstrate those expenditures and/or commitments made by the contractor.

(d) The contractor is required to track DMS expenditures separately during the Advance Buy period of performance. This shall be done at the total DMS budget line, not by project. However, the contract shall separately estimate and track pop-ups by project. This is required for future pop-up estimates and budgets and will be provided to the government on an as needed basis.

(e) In resolving DMS, the contractor shall perform an analysis of alternatives for each pop-up project. This information will be provided to the government prior to implementation, for information purposes only. The contractor is responsible for implementing the solution with the lowest cost impact for the total program considering all factors (strategic change plan, retrofit costs, support costs, redesign costs, etc).

(f) Any pop-ups that occur during the proposal process shall be identified as known requirements in the definitive proposal required by H-025, Long Lead Advance Buy Requirements. The definitive proposal for DMS shall include cost or pricing information for one year increment of each DMS project as well as a Rough-Order-of-Magnitude (ROM) estimate for the total project, including the projected cash outlay by year. The proposal will also identify planned accomplishments and/or major milestones for the year.

H4 General GIDEP Clause ¾ All Contract types and life cycle phases

SUP 5252.227-9400 Government-Industry Data Exchange Program (JAN 1999) Insert the following clause in solicitations and contracts for research, design, development, production, logistics support and testing of mission related material, where the contract value is expected to exceed $500,000. (Mission related material is defined as any material, software or items which must operate properly in systems, subsystems, equipment, facilities that were developed and procured to support U.S. Naval and/or Marine Corp forces.) When this clause is used, solicitations and contracts shall include distribution of data requirements set forth in NAVSUPINST 5200.26 series to GIDEP. "Subcontractor" may be substituted for "Contractor" when appropriate. (Ref: SECNAVINST 5200.20)

GOVERNMENT INDUSTRY DATA EXCHANGE PROGRAM (JAN 1999)
(a) The Contractor shall establish and maintain procedures to enable their full participation in the Government Industry Data Exchange Program (GIDEP), in accordance with the latest revision of S0300-BU-GYD-010. Compliance with this clause shall not relieve the Contractor from complying with any other performance requirements of the contract.
(b) The Contractor shall review and maintain status of GIDEP failure experience and Diminishing Manufacturing Source and Materials Shortages) (DMSMS) reports. The Contractor shall notify the procuring activity immediately when items of the Contractors supply or support are impacted.
(c) The Contractor shall prepare GIDEP ALERTs/Problem Advisories, as appropriate, in accordance with the procedures prescribed in S0300-BT-PRO-010, GIDEP Operations Manual, Chapter 7, nonconforming materials which impact production or may have an adverse impact on space or logistics support and repair.
(d) The Contractor shall notify GIDEP of DMSMS items and materials that suppliers/vendors have declared obsolete or discontinued in accordance with S0300-BT-PRO-010, Chapter 11, that may impact production or logistics support of systems, subsystems, software, or equipment.
(e) Appropriate action and notification, as deemed necessary by the Contractor, shall be taken in response to GIDEP Failure Experience and DMSMS reports electronically distributed which may impact the performance of materials procured hereunder.
(f) The Contractor shall maintain a status of GIDEP Failure Experience and DMSMS reports and the benefits accrued thereof, and shall provide an Annual Utilization Report to GIDEP, in accordance with S0300-BT-PRO-010, Chapter 5.
(g) The Contractor shall insert paragraphs (a) through (g) of this clause in all subcontracts hereunder exceeding $500,000.

(End of Clause)

The following Section H Clauses were obtained from the draft document *Contractual Considerations for DMSMS,* jointly published by US Army AMCOM and AFRL/MLME, June 29, 2000.

H5 DRAFT, Section H Clause for Performance Specification ¾ CPIF (Sustainment)

1. INTRODUCTION.

For electronic components, parts, or assemblies that are or may become obsolete during performance of this effort., the contractor is responsible for identification, resolution and implementation for all DMSMS/Obsolescence issues associated with hardware under this contract.

2. SCOPE.

a. Throughout performance of this contract the contractor shall conduct a detailed evaluation of all technical data associated with this contract. Such evaluation shall include, but not be limited to, analysis, identification, and recommended corrections for problems associated with DMSMS/Obsolescence.

b. The contractor shall submit changes that provide solutions which assure that all components, assemblies, and parts thereof, can be produced, fabricated, and assembled in complete accordance with the system performance specification, corrected as required by this clause. DMSMS/Obsolescence issues and their resolutions shall be prepared and submitted as set forth in Paragraph 3 of this clause.

c. The identification of DMSMS/Obsolescence issues and the necessary correction thereof shall not be cause under this contract for any price increase or revision in the delivery schedule.

3. CONTRACTOR OBLIGATIONS. This provision shall apply to all technical data supplied as a part of any change issued under this contract, provided, however, that any additional DMSMS/Obsolescence effort required by reason of a Government-issued change shall entitle the contractor to an equitable adjustment for which the amount shall be included in the settlement of the change order for the Government-issued change.

a. *DMSMS/Obsolescence issues preparation.* As a minimum, the Contractor shall include in each DMSMS/Obsolescence issue the information described in paragraphs a.(1) through (8) of this clause. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern preparation. The submissions shall include the following:

(1) A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

(2) A list and analysis of the contract requirements that must be changed if accepted, including any suggested specification revisions.

(3) Identification of the unit to which the change applies.

(4) A separate, detailed cost estimate for the affected portions of the existing contract requirement. The cost reduction associated shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

(5) A description and estimate of costs the Government may incur in implementing the change, such as test and evaluation and operating and support costs.

(6) A prediction of any effects the proposed change would have on collateral costs to the agency.

(7) A statement of the time by which a contract modification accepting the change must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(8) Identification of any previous submissions of the change, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

b. *Submission.* The Contractor shall submit *DMSMS/Obsolescence Issues* to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the *DMSMS/Obsolescence Issues* simultaneously to the Administrative Contracting Officer and the Contracting Officer .

4. APPROVAL REQUIREMENTS-REJECTIONS.

a. The Government will either approve or disapprove all DMSMS/Obsolescence/ changes proposed by providing written notice to the contractor within 20 workdays after receipt of the change notice by the PCO. The Government will provide justification for any disapproval.

b. Approval of a DMSMS/Obsolescence change shall be (Whichever may occur first.):

(1) By written notice from the PCO by letter, fax, or other written form of approval of the change;

(2) Assumed to be approved by the contractor 20 workdays after receipt of the DMSMS/Obsolescence/ Producibility change by the PCO.

c. Upon Government approval of a DMSMS/Obsolescence change, the contractor's obligations relating to such DMSMS/Obsolescence proposal shall be discharged to the extent that the deficiency is corrected in the hardware. If the incorporation of such approved DMSMS/Obsolescence change does not correct the deficiency, the contractor shall yet remain responsible for resubmitting and accepting any further change to the hardware without increase in contract price or extension in delivery schedule and incorporate such DMSMS/ Obsolescence change into the contract items not yet accepted by the Government.

5. CONTRACTOR INCENTIVES. If a DMSMS/Obsolescence change is accepted, the Contractor shall share in net acquisition savings according to the Incentive Fee Clause I-1

6. GOVERNMENT INFORMATION. The Government reserves the right to convey information to the contractor for his use in DMSMS/Obsolescence changes. Any such information so conveyed shall not entitle the contractor to any price or delivery schedule adjustment or damages pursuant to any clauses of this contract or otherwise.

7. DMSMS/Obsolescence DISPUTES. Failure of the parties to agree upon any determination of the necessity for, or the designation of, a change to be made under this provision shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

8. RIGHTS AND REMEDIES. The rights and remedies of the Government provided in this provision are in addition to and do not limit any rights afforded to the Government by any other clause of this contract.

9. PRODUCTION METHODS AND PROCESSES. Changes shall not be submitted under this clause which are recommended solely to permit performance in accordance with contractor's or subcontractor's production methods or processes.

10. RIGHTS IN TECHNICAL DATA. Any and all data submitted (be careful, delivered is the usual term used. Will there ever be proprietary material?) by the contractor as required in paragraph 4 shall be provided the Government with rights in accordance with the "Rights in Technical Data" clause of this contract.

A.3 SECTION L – INSTRUCTIONS TO OFFERORS CLAUSES

L1 Obsolete Items ¾ FFP (Sustainment)

OBSOLETE/SUPERSEDED ITEMS (NOV 1995) DISC 52.211-9I02 L058
(a) If any item in the Schedule either becomes obsolete or is superseded during the term of this contract, the Contractor shall advise the Contracting Officer thereof within fifteen (15) business days of the determination of obsolescence, or of the determination to supersede the Scheduled item. If the obsolete or superseded item is covered by a delivery order issued prior to the determination to declare that item obsolete or superseded, the notice shall be given to the Contracting Officer within five (5) business days of the date of the determination. The notice shall include complete information concerning any superseding item as it relates to the form, fit and function of the superseded item. If an item is determined to be obsolete without replacement, the notice shall include complete information concerning the availability of alternate sources, or information regarding a substitute item. As soon as practicable after receipt of such notice, the Contracting Officer will advise the Contractor of the acceptability or unacceptability of the superseding or substitute item, and the contract shall be modified accordingly.

(b) If the superseded item is replaced by an item which is competitive, that item will either be deleted from the Schedule or eliminated as an item to be purchased from the contractor's commercial catalog.

L2 COTS Supportability ¾ FFP (Sustainment)

Technical and Program Management Approach and Experience. Provide a technical and program management approach that demonstrates the offeror's understanding of the work required to successfully accomplish the Statement of Work (SOW) tasks and a description of capability to meet the required performance delivery date. Provide a listing of not more than three relevant "project" examples that shall include requirements to support COTS equipment in fleet and shore based life cycle applications, requirements to provide *system name* ILS, and hardware maintenance and modification requirements similar to those described in the SOW. Include in this list the client name, nature of work, point of contact and phone number.
Resumes. Provide detailed resumes for all proposed non-administrative personnel.
Past Performance. Provide three (3) past performance references that reflect recent relevant experience performed within the past five-(5) years. Include contractor name, contract/delivery order number, contract type, program name, total contract cost, short description of work performed, and names and valid telephone numbers for the Procuring Contracting Officer (PCO), Contracting Officer's Representative (COR) and Program Manager. The Government may also use other information available from Government sources to evaluate an offeror's past performance. The Government reserves the right to limit or expand the number of references it decides to contact and to contact references other than those provided by the offeror.

L3 Guided Missile System ¾ Contract Type Unavailable (Production)

DMSMS/Obsolescence/Producibility: This part shall describe the offeror's approach, which details the methodology to be used in the identification and resolution of DMSMS/Obsolete parts/Producibility. The approach shall: (a) Outline the process to be used to identify and resolve DMSMS/Obsolete parts/Producibility. This process shall include all types of resolutions to be used by the offeror (i.e., substitutes/replacement parts, emulation, redesign, etc.) and his/her respective reasons for use (i.e., no replacement available, multiple component obsolete per board, etc.), (b) Outline the process to be used to identify new sources, (c) Include procurement/test lead times. (The offeror must take into account that there will be no change to the contract price or delivery schedule due to obsolescence.), (d) Describe specific analysis and testing to be performed to ensure that solutions to DMSMS/Obsolescence/Producibility will satisfy all component, subassembly, and system level form, fit, and function requirements, and (e) Describe available tools, equipment, and techniques to be used in the process. Technical: The adequacy of the offeror's approach and how the proposal demonstrates its understanding of the Government's requirement will be evaluated. The Technical Area is divided into four elements: Production Capability, DMSMS/Obsolescence/Producibility, Quality and Production, and Scheduling. Production Capability and DMSMS/Obsolescence/Producibility are equally weighted and each is slightly more important than quality, which is somewhat more important than production scheduling.

DMSMS/Obsolescence/Producibility: This element consists of the following five factors:

a. The proposed process the contractor will use to identify and resolve obsolete parts will be evaluated for adequacy. The evaluation will consider the specific procedures, criteria, and techniques the contractor proposes to use.
b. The adequacy of the proposed process the contractor will use to identify new sources will be evaluated.
c. The proposed procurement/test lead times will be evaluated to determine whether or not the proposed schedules will allow for completion of deliveries within the contract period of performance.
d. The adequacy of the offeror's proposed analysis and testing would be evaluated to ensure that it would satisfy all component, subassembly, and system level form, fit, and function requirements.
e. The availability of tools and equipment to be used in performance of the contract and the adequacy of the techniques to be employed will be evaluated.

The following Section L Clauses were obtained from the draft document *Contractual Considerations for DMSMS,* jointly published by US Army AMCOM and AFRL/MLME, June 29, 2000.

L4 DMSMS/Obsolescence ¾ CPIF (Sustainment)
This part shall describe the offeror's approach that details the methodology to be used in the identification and resolution of DMSMS/obsolete parts. The approach shall: (a) Outline the process to be used to identify and resolve DMSMS/obsolete parts. This process shall include all types of resolutions to be used by the offeror (i.e., substitutes/replacement parts, emulation, redesign, etc.) and his respective reasons for use (i.e., no replacements available, multiple components obsolete per board, etc.), (b) Outline the process to be used to identify new sources, (c) include procurement/test lead-times (The offeror must take into account that there will be no change to the contract price or delivery schedule due to obsolescence.), (d) Describe specific analysis and testing to be performed to ensure that solutions to DMSMS/obsolescence will satisfy all component, subassembly and system level performance requirements, and (e) describe available tools, equipment, and techniques to be used in the process.

Electronic Parts, Materials, and Processes (PMP) Control Program: The offeror shall describe in detail his Electronic PMP Control Program which includes, as a minimum, controls and policies on the following subjects: Government involvement, including Military Parts Control Advisory Groups (MPCAG); parts selection; approved parts list; supplier management; part quality; part derating/tolerance analysis; plastic encapsulated devices; testing/analysis required or performed to assure compliance for parts procured non-compliant to Government or DOD-adopted industry standards (including custom parts) printed wiring assembly (PWA) design and component mounting practices; materials and equipment used for electronic manufacturing processes; electrostatic discharge (ESD) control; maintenance of solderability of parts; printed boards and components; process controls/workmanship methodologies; training/proficiency of the workforce; rework and repair of PWAs and; rework and repair of cable assemblies.

NOTE: The offeror may submit DOD approval of his common process or single process initiative for his Electronic PMP Control Program as evidence of compliance to the basic Electronic PMP Control Program requirement. Aspects of the solicitation's Electronic PMP Control Program requirement not covered in the DOD-approved program must be addressed by the offeror in his proposal.

A.4 SECTION M EVALUATION CRITERIA CLAUSES

M.1 Use of COTS-COSSI ¾ Contract Type Unavailable (Production & Sustainment)

COMMERCIAL LEVERAGE (15%)
Proposals must demonstrate that a commercial item or items form the core of the prototype. In addition, proposals that use open commercial standards to avoid obsolescence will be viewed more favorably. Proposals that are based on widely used commercial items will fare better than those whose "commercial core" has fewer applications outside the defense realm. Proposal based on items that (1) are not currently available in the commercial marketplace and have neither clear plans nor pathways for sale to non-government customers, or (2) are or will be available for sale only to Government customers will generally score poorly.

Authors note: The remaining selection criteria is as follows:

O&S Savings (30%)
Military Customer Commitment (25%)
Technical and Management Approach (15%)
Military Department Share of Project Costs (15%)

M2 Air Force Air Vehicle (Proposal) ¾ Contract Type Unavailable (Development)

Air Vehicle Open Architecture. The proposal will be evaluated for the potential ability of the Air Vehicle to possess the attributes of an open architecture: 1) modular structure and partitioning; 2) well defined, preferably non-proprietary, internal and external interfaces; 3) use of standards adopted by standards bodies or the commercial marketplace; 4) controlled coupling among subsystem elements; 5)scalability and evolvability with minimal impact to the system; 6) ability of the Air Vehicle to function within the context of the Air System as a node in the C4I 2010 system of systems architecture; **7) technology independence and parts obsolescence risk mitigation;** 8) support for reliability and maintainability; 9) guaranteed timing and real-time execution; 10) information assurance and protection. This evaluation also includes the completeness of the architecture models, consistency of information mapped across the models, and the ability of the architecture to support the Source Selection Aspects of Interoperability, and Data Fusion and Information Management.

Software Development Plan. The proposal will be evaluated for the Offeror's potential ability to implement an effective software design, development and support process, as documented in the Offeror's Software Development Plan (SDP), for the Air System in accordance with SOO paragraphs 3.2, 3.4, and 3.6. The evaluation of this aspect will include review of the proposed processes and infrastructure for software development; integration of these processes with the overall systems engineering process and MS&A activities; design for re-use of software components for affordability; business, management and process control strategies with vendor subcontractors; the approach for phasing or blocking of the development, integration, test, and fielding of discrete software functions; the processes to accommodate unique requirements or implement tailoring of functional requirements; System/Software Engineering Environment (**tool-set, facilities, and processes for accommodating System/Software Engineering Environment component obsolescence);** assessment of the software development effort, including identification of cost, schedule and technical risk, risk management, and ability to achieve SEI software capability maturity model (CMM) or equivalent (e.g., SDCE) rating of Level 3 (minimum) across the JSF prime and vendor subcontractor team, including assessment criteria and processes employed to achieve the rating; application of software metrics; and the systems engineering processes that document the selection, implementation of, and conformance with selected technical standards.

M3 COTS Supportability

Each contractor shall be evaluated relative to the following:
Factor 1: Technical and Program Management Experience (a) Technical and Program Management Approach and Experience (b) Resumes Factor 2: Past Performance Factor 3: Evaluated Cost
Factor 1, Technical and Program Management Experience. The Government will evaluate each offeror's Technical and Program Management Experience to perform the requirements in the solicitation, considering the offeror's Technical and Program Management Approach and Experience and Resumes of proposed personnel.

Factor 2, Past Performance. Past Performance is a measure of the degree, to which an offeror satisfied its customers in the past and complied with Federal, state, and local laws and regulations. The Government will contact some of each offeror's customers to ask whether or not they believe: (1) that the offeror consistently met required time frames; (2) that the offeror maintained stable well-trained staffing under contractual arrangements similar to the order contemplated under this solicitation; (3) that the offeror was capable, efficient and effective; (4) that the offeror's performance conformed to the terms and conditions of its contract; (5) that the offeror was committed to customer satisfaction; and (6) if given a chance would they select the same or a different contractor. The Government may consider past performance information obtained from sources other than those identified by the offeror, including Federal, state and local government agencies, better business bureaus, published media and electronic data bases.

Factor 3, Evaluated Cost. The evaluation will be based on an analysis of the realism and completeness of the cost data, the traceability of the cost to the offeror's capability data and the proposed allocation of man-hours and labor

mix. Pertinent cost information, including but not limited to DCAA recommended rates for such costs as direct labor, overhead, G&A, etc., as necessary and appropriate, will be used to arrive at the Government determination of the most probable cost to be incurred in the performance of this contract. If proposed costs are considered to be unrealistic, including unrealistic labor and indirect rates, the offeror's proposed costs will be adjusted upward or downward to reflect more realistic costs. Based on such analysis, an evaluated cost for the offeror will be calculated to reflect the Government's estimate of the offeror's most probable costs. Evaluated cost to the Government is an offeror's evaluated cost (including proposed fee) for the base year and the evaluated cost for all option years. This evaluated cost will be used in making an award recommendation. Therefore, any inconsistency whether real or apparent, between promised performance and cost should be explained in the supporting cost data volume. The burden of proof for cost credibility rests with the offeror. Offerors are cautioned that to the extent proposed costs appear unrealistic, the Government may infer either a lack of understanding of the requirements, increased risk of performance, or lack of credibility on the part of the offeror.

M4 Guided Missile ¾ Contract Type Unavailable (Production)

The Government reserves the right to award the production quantity CLINs with or without their corresponding First Article CLINs and with or without the DMSMS/Obsolescence/Producibility CLINs.

M-TDP Obsolescence and Performance Risk are substantially more important than Price.

Evaluation of Use of Government-Owned Production and Research Property

If Government-Owned production and research property is proposed for use in performance of any contract resulting from this solicitation, each offer will be adjusted to include a rental equivalent evaluation factor for each item of such property calculated in accordance with FAR Clause 52.245-9. This adjustment will apply for the use of Government property by the offeror as well as any subcontractor thereto.

EVALUATION CRITERIA: The evaluation criteria are delineated in this section by areas, elements within an area, and factors within an element. Evaluation will include 3 areas: Technical, Performance Risk, and Price. Technical is somewhat more important than Performance Risk which is significantly more important than Price. The combined areas of Technical and Performance Risk are substantially more important than Price.

TECHNICAL: The adequacy of the offeror’s approach and how the proposal demonstrates its understanding of the Government’s requirement will be evaluated. The Technical Area is divided into four elements; Production Capability, Diminishing Manufacturing Sources and Material Shortages (DMSMS)/Obsolescence/Producibility, Quality, and Production Scheduling. Production Capability and DMSMS/Obsolescence/Producibility are equally weighted and each is slightly more important than quality, which is somewhat more important than production scheduling.

a. ELEMENTS:

(1) PRODUCTION CAPABILITY: The adequacy of production capability will be evaluated. This element consists of the following two (2) factors, which are of approximately equal weight:

(a) The adequacy of the offeror’s facility and equipment required to fabricate complex mechanical, electrical, and optical (both infrared and visual) assemblies in accordance with the requirements of the TDPs.

(b) The adequacy of the offeror’s equipment and approach to testing complex mechanical, electrical, and optical (both infrared and visual) assemblies and components in accordance with the requirements of the TDPs.

(2) DIMINISHING MANUFACTURING SOURCES AND MATERIAL SHORTAGES (DMSMS)/OBSOLESCENCE/PRODUCIBILITY: This element consists of the following five (5) factors, which are of approximately equal weight:

(a) The proposed process the contractor will use to identify and resolve obsolete parts will be evaluated for adequacy. The evaluation will consider the specific procedures, criteria, and techniques the contractor proposes to use.

(b) The adequacy of the proposed process the contractor will use to identify new sources will be evaluated.

(c) The proposed procurement/test lead-times will be evaluated to determine whether or not the proposed schedules will allow for completion of deliveries within the contract period of performance.

(d) The adequacy of the offeror's proposed analysis and testing will be evaluated to ensure that it will satisfy all component, subassembly, and system level form, fit and function requirements.

(e) The availability of tools and equipment to be used in performance of the contract, and the adequacy of the techniques to be employed will be evaluated.

PRICE:

Price will be evaluated using price analysis techniques. Each offeror's overall price will be determined by the aggregate price proposed for all first article CLINs, all production quantities with first article CLINs, all production quantities without first article CLINs, all production quantities with DMSMS/Obsolescence/Producibility CLINs, all production quantities without DMSMS/Obsolescence/
Producibility CLINs, and all option quantity CLINs.

A.5 MISCELLANEOUS PARAGRAPHS AND CLAUSES

MC1 Spares and Obsolescence (Proposal – Canada DND)

Spares Ownership and Supply Chain Management. At Reference A, the PMO indicated an approach wherein the ISSCs would have complete accountability for supply chain management and would also own all required spares until such time that they were installed on the aircraft (with the rotable returned to the ISSCs). Feedback was quite positive on this approach. Bidders are asked to address the following:

a. Given that DND also wishes to ensure a lowest life-cycle cost (LCC), is the proposed approach consistent with the lowest LCC goal? Are there other lower LCC approaches that should be considered?
b. What level of detail and visibility would bidders require into DND operational planning activities to ensure adequate Supply chain performance?
c. How would bidders suggest that ship-borne packups be managed/handled? Does the proposed approach work when industry effectively loses control of packups during deployments?
d. What measures would bidders take to ensure a guaranteed level of service or accessibility to spares to Canada during periods of tension, particularly when foreign governments restrict the movement/export of military spares across their national borders?
e. What innovative commercial practices in Supply Chain Management as well as obsolescence management would the bidder propose, and expect approval by DND, in order to lower the overall cost of ownership?

MC2 Mission Critical Computer Resources

DIRSP is excluded from the Brooks Bill under the Warner Amendment exemption for systems that are critical to the direct fulfillment of military missions. The system hardware will consist of multiple COTS processors, including microcomputers, single board computers, minicomputers, super minicomputers, central processing units, internal processing units, or special processing units such as array processors. Additionally, the hardware will consist of COTS peripherals, controllers, and cables. COTS interfaces will be maximized. Where developmental interfaces are required, such as between simulation equipment and GFE, COTS documentation will be augmented to reflect the interfaces to the first active circuits at the GFE and simulation interfaces. There are no identified performance

requirements that will preclude the use of COTS hardware. To minimize obsolescence problems during the development cycle, the targeted hardware platform will not be selected until late in the development cycle. Design requirements require a 50% spare margin for memory, 50% spare for processing time and 50% for input/output capacity at acceptance of the DIRSP system.

MC3 Obsolescence Warranty

Additionally included in this warranty is parts obsolescence (inability to repair a failed assembly because the parts are no longer available). The subcontractor will protect against parts obsolescence by taking necessary actions, including, but not limited to:

a. Stockpiling critical component
b. Implementing an open-architecture design
c. Identifying and securing multiple suppliers

The following Section I Clauses were obtained from the draft document *Contractual Considerations for DMSMS,* jointly published by US Army AMCOM and AFRL/MLME, June 29, 2000.

MC4 Section I. Clauses

52.216-10 Incentive Fee.

As prescribed in 16.307(d), insert the following clause:

Incentive Fee (Mar 1997)

(a) *General*. The Government shall pay the Contractor for performing this contract a fee determined as provided in this contract.

(b) *Target cost and target fee*. The target cost and target fee specified in the Schedule are subject to adjustment if the contract is modified in accordance with paragraph (d) of this clause.

(1) "Target cost," as used in this contract, means the estimated cost of this contract as initially negotiated, adjusted in accordance with paragraph (d) below.

(2) "Target fee," as used in this contract, means the fee initially negotiated on the assumption that this contract would be performed for a cost equal to the estimated cost initially negotiated, adjusted in accordance with paragraph (d) of this clause.

(c) *Withholding of payment.* Normally, the Government shall pay the fee to the Contractor as specified in the Schedule. However, when the Contracting Officer considers that performance or cost indicates that the Contractor will not achieve target, the Government shall pay on the basis of an appropriate lesser fee. When the Contractor demonstrates that performance or cost clearly indicates that the Contractor will earn a fee significantly above the target fee, the Government may, at the sole discretion of the Contracting Officer, pay on the basis of an appropriate higher fee. After payment of 85 percent of the applicable fee, the Contracting Officer may withhold further payment of fee until a reserve is set aside in an amount that the Contracting Officer considers necessary to protect the Government's interest. This reserve shall not exceed 15 percent of the applicable fee or $100,000, whichever is less. The Contracting Officer shall release 75 percent of all fee withholds under this contract after receipt of the certified final indirect cost rate proposal covering the year of physical completion of this contract, provided the Contractor has satisfied all other contract terms and conditions, including the submission of the final patent and royalty reports, and is not delinquent in submitting final vouchers on prior years' settlements. The Contracting Officer may release up to 90 percent of the fee withholds under this contract based on the Contractor's past performance related to the submission and settlement of final indirect cost rate proposals.

(d) *Equitable adjustments.* When the work under this contract is increased or decreased by a modification to this contract or when any equitable adjustment in the target cost is authorized under any other clause, equitable

adjustments in the target cost, target fee, minimum fee, and maximum fee, as appropriate, shall be stated in a supplemental agreement to this contract.

(e) *Fee payable*. (1) The fee payable under this contract shall be the target fee increased by _____ [*Contracting Officer insert Contractor's participation*] cents for every dollar that the total allowable cost is less than the target cost or decreased by _____ [*Contracting Officer insert Contractor's participation*] cents for every dollar that the total allowable cost exceeds the target cost. In no event shall the fee be greater than _____ [*Contracting Officer insert percentage*] percent or less than _____ [*Contracting Officer insert percentage*] percent of the target cost.

(2) The fee shall be subject to adjustment, to the extent provided in paragraph (d) of this clause, and within the minimum and maximum fee limitations in paragraph (e)(1) of this clause, when the total allowable cost is increased or decreased as a consequence of--

(i) Payments made under assignments; or

(ii) Claims excepted from the release as required by paragraph (h)(2) of the Allowable Cost and Payment clause.

(3) If this contract is terminated in its entirety, the portion of the target fee payable shall not be subject to an increase or decrease as provided in this paragraph. The termination shall be accomplished in accordance with other applicable clauses of this contract.

(4) For the purpose of fee adjustment, "total allowable cost" shall not include allowable costs arising out of--

(i) Any of the causes covered by the Excusable Delays clause to the extent that they are beyond the control and without the fault or negligence of the Contractor or any subcontractor;

(ii) The taking effect, after negotiating the target cost, of a statute, court decision, written ruling, or regulation that results in the Contractor's being required to pay or bear the burden of any tax or duty or rate increase in a tax or duty;

(iii) Any direct cost attributed to the Contractor's involvement in litigation as required by the Contracting Officer pursuant to a clause of this contract, including furnishing evidence and information requested pursuant to the Notice and Assistance Regarding Patent and Copyright Infringement clause;

(iv) The purchase and maintenance of additional insurance not in the target cost and required by the Contracting Officer, or claims for reimbursement for liabilities to third persons pursuant to the Insurance Liability to Third Persons clause;

(v) Any claim, loss, or damage resulting from a risk for which the Contractor has been relieved of liability by the Government Property clause; or

(vi) Any claim, loss, or damage resulting from a risk defined in the contract as unusually hazardous or as a nuclear risk and against which the Government has expressly agreed to indemnify the Contractor.

(5) All other allowable costs are included in "total allowable cost" for fee adjustment in accordance with this paragraph (e), unless otherwise specifically provided in this contract.

(f) *Contract modification*. The total allowable cost and the adjusted fee determined as provided in this clause shall be evidenced by a modification to this contract signed by the Contractor and Contracting Officer.

(g) *Inconsistencies.* In the event of any language inconsistencies between this clause and provisioning documents or Government options under this contract, compensation for spare parts or other supplies and services ordered under such documents shall be determined in accordance with this clause.

(End of clause)

Document Improvement Form

Complete the form and forward to:

Defense Microelectronics Activity (DMEA)
DMEA/MEAC
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95652-1521

Document Title: **DMSMS Acquisition Guidelines – Implementing Parts Obsolescence Management Contractual Requirements** **Document Revision: Rev – December 31, 2001**
Nature of Change or Addition: (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)
Reason for Recommended Change or Addition:
Submitters Name: **Address:** **Organization:** **Phone:** **Fax:** **Email:**