Diminishing Manufacturing Sources and Material Shortages

Guidance for Developing Contractual Requirements

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SES

Foreword

This document provides guidance for program managers developing contractual requirements supporting Diminishing Manufacturing Sources and Material Shortages (DMSMS) efforts. The tenets, provided in this document, apply to all contract types and are aligned with the Total Life Cycle Systems Management (TLCSM) support philosophy. Since each contract is unique and requires a thoughtful tailoring process, a template is not provided, rather a series of considerations are identified for inclusion into a contract that will help mitigate the risk of DMSMS.

This document complements previously published DMSMS guidance to include "*DMSMS Management Guidance*" dated 27 January 2005, approved by Assistant Secretary of the Navy (Research Development and Acquisition), and "*DMSMS Management Plan Guidance*" dated 12 April 2005, approved by Deputy Assistant Secretary of the Navy (Logistics) (DASN(L)). This document should be used to supplement NAVSO P-3692, "Independent Logistics Assessment (ILA) Handbook," when assessing a program's DMSMS planning during an ILA in accordance with SECNAV Instruction 4105.1A, "*ILA and Certification Criteria*" and DASN(L) Memo, "*Evaluation Criteria for DMSMS*," dated 20 August 2004.

As described in "DMSMS Program Management Plans and Metrics," DMSMS management requirements should be a part of any contracting approach including PBLs. Additionally, good summary of the contracting process is provided in NAVSO P-3689, "*Contracting for the Rest of Us*," which can be found at http://www.acquisition.navy.mil/navyaos/content/download/1544/7690/file/ctrrestofus.pdf.

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1.0 Objective

This document should be used to develop Diminishing Manufacturing Sources and Material Shortages (DMSMS) contractual requirements for both traditional and Performance Based Logistics (PBL) contracts. The information contained in this guide provides considerations for developing a Statement of Work (SOW) or Statement of Objectives (SOO). These considerations can be used as a basis to assess a contractor's proposal for managing DMSMS or when preparing the proposal evaluation criteria. The Program Office should tailor the SOW/SOO DMSMS considerations listed in this guide to the unique requirements of the program, considering the program's technology roadmap (to the component level) as well as the industry roadmap. Regardless of the contracting approach, the program manager must actively manage and provide oversight of DMSMS with the contractor to mitigate program risks, since DMSMS management:

- Is a DoN strategic management process;
- Ensures that selected components are appropriately matched to the environmental characteristics of the weapon system;
- Is a continuous and comprehensive process that facilitates decisions to influence Total Ownership Costs while meeting the warfighter's needs;
- Recognizes that limited resource availability drives solutions;
- Employs a hierarchy of cost reduction activities;
- Recognizes that carefully structured contracting incentives can offer great leverage in achieving DMSMS objectives;
- Includes a process to ensure configuration control of the system;
- Requires risk management; and
- Is a cradle-to-grave process.

The ASN(RD&A) and DASN(L) documents referenced in this guide can be accessed at http://www.acquisition.navy.mil, then click on *"Acquisition Topics,"* and *Life Cycle Logistics*."

2.0 DMSMS Contracting Top Ten List

A Program Manager's (PM's) "Contracting Top Ten List for DMSMS" is provided below to emphasize those items that a PM should incorporate into a contract vehicle to mitigate the risk of DMSMS. These items are not listed in an order of importance. Further amplification to this list is provided under the paragraph 4.0 SOW/SOO DMSMS Considerations.

Contracting Top Ten List for DMSMS

1. Incremental delivery of the source data or Bill of Material (BOM) (ref. DID DI-SESS-81656 (ref. Appendix A);
2. Identification and development of the program's technology roadmap;
3. Configuration management of the BOM to the piece part level unless otherwise supported by a Business Case Analysis (BCA);
4. Continuous monitoring of the BOM with feedback to the program office on an established periodic basis;
5. Continuous proactive identification and forecasting of DMSMS impacts and mitigations for all configurations;
6. Continual tracking and management of DMSMS cases;
7. Determination of cost-effective solutions based on the "Hierarchy of Cost Avoidance Methodology" identified in the DASN(L) DMSMS Management Plan Guidance, dated 12 April 2005, consistent with the technology roadmap;
8. Reporting and tracking of performance and cost metrics;
9. Insight into the prime contractor's management of its subcontractors' DMSMS programs; and
10. Exit clause that includes delivery of the above, as required.

3.0 Request for Proposal (RFP)

The objective for preparing and issuing a solicitation is to ensure all qualified offerors are afforded the opportunity to compete for the contract award to meet Government requirements. Section M of the RFP, "Evaluation Factors for Award," provides information to the offerors on how their proposals will be evaluated. Therefore, the appropriate SOW/SOO DMSMS Considerations should be used in developing evaluation criteria. For example, if a DMSMS

Management Program Plan is required, the SOW/SOO language used to develop the RFP source selection criteria might be written as follows:

> *"Proposals will be evaluated on the management approach and the adequacy of planning for mitigating DMSMS risks. Proposals including management plans defining a proactive approach to manage DMSMS will receive more favorable ratings than those without such an approach. A proactive approach will include predictive forecasting strategies, parts list screening to the piece parts level, parts list monitoring, matching of parts to the weapon system's environment across the vendor chain, methodologies for tracking, reporting and mitigating DMSMS cases to avoid costly solutions, and a process to manage subtier suppliers' DMSMS efforts."*

4.0 SOW/SOO DMSMS Considerations

The SOW/SOO specifies the statement of work requirements or objectives in the contract. MIL-HDBK-245D, paragraph 3.7.1, "Use of Contract Data Requirements List (CDRL) Data," states that the ordering and delivery of data that the Government requires are specified and scheduled through the use of the CDRL, in conjunction with the appropriate Data Item Description (DID). The CDRL is used to order the required data, specify delivery and access requirements, and to tailor the applicable DID. The DID describes the data's format and content requirements.

> ASN(RD&A) policy of 23 October 2004, DON Policy on Digital Product/Technical Data, requires data be provided in Extensible Markup Language (XML) formats.

The following should be considered for inclusion in the SOW/SOO when defining the contract requirements:

4.1 DMSMS Management

4.1.1 Development and implementation of a DMSMS Management Plan for managing the loss, or impending loss of manufacturers or suppliers of parts and/or material as required by DOD 4105.1-R, "DOD Supply Chain Material Management Regulation" and as described in DASN(L) DMSMS Management Plan Guidance, dated 12 April 2005.

4.1.2 Requirement to provide DMSMS case information to the Program Office for incorporation into a shared Government data repository. The contractor should also be encouraged to use GIDEP and the DoD DMSMS Center of Excellence Shared Data Warehouse for the purpose of exchanging obsolescence information across the DoD enterprise. More information on DMSMS data sharing is available at http://www.dmsms.org/.

4.1.3 Development and implementation, in conjunction with the Program Office, of a standard case resolution process to manage DMSMS cases.

4.1.4 Requirement to track and report DMSMS cost and performance metrics, developed by the Program Office that include those metrics identified in DASN(L) DMSMS Management Plan Guidance, dated 12 April 2005.

4.1.5 Development and maintenance of sources and source lists of all components, materials, assemblies, subassemblies and units throughout the system's life cycle that may be at risk for DMSMS.

4.1.6 Requirement to conduct a Total Life Cycle Systems Management (TLCSM) Business Case Analysis (BCA) for the "Hierarchy of Cost Solutions" identified in Table 1 of the DASN(L) DMSMS Management Plan Guidance, dated 12 April 2005 to determine the best value for the program. BCAs should be submitted to the Program Office for concurrence.

4.2 Parts Management

4.2.1 Identification and development of the program's technology roadmap that identifies the system's current planned technology (e.g., processor speed, size, capacity, performance, etc.) mapped against the industry technology roadmap and planned market over the proposed life of the system. This mapping should identify when significant changes to capacity, reliability and design for the system's technologies are forecasted to change so that informed decisions on potential upgrades and technology insertion can be made if appropriate.

4.2.2 Establishment and maintenance of a parts control program that accommodates vendor design data, and is in accordance with ANSI/AIAA-R-100 and MIL-HDBK-512 guidance.

4.2.3 Establishment of a process to monitor, plan and implement corrective action to mitigate DMSMS risk associated with environmental impacts such as Restriction on Hazardous Substances (RoHS) (which restricts the use of leaded solder, see http://leadfree.ipc.org/) to ensure system reliability, maintainability and supportability.

4.2.4 Requirement to develop an interchangeability parts list that contains the vendor name and vendor part number, and a comparison of the alternate part(s) versus the part it replaces, detailing any differences in the specifications, testing and manufacturing operations performed by the vendor.

4.3 Configuration Management/Control

4.3.1 Validation of the system's technical data to ensure all configuration changes are incorporated into the configuration management data base and drawings to ensure the system's most current configuration is documented, and

4.3.2 Configuration management of DMSMS addressed in the configuration management program plan using MIL-HDBK-61A guidance. Configuration of all parts and changes to the [appropriate] level are maintained in accordance with the approved configuration management plan.

4.4 Supplier and Subcontractor Management

4.4.1 Flow-down of DMSMS contract requirements to subcontractors.

4.4.2 Requirement for the prime contractor to manage and maintain visibility of its suppliers' DMSMS capabilities and efforts.

4.5 Bills of Material

4.5.1 Periodic delivery of updated BOMs to the Program Office in an indentured format (ref. DID **DI-SESS-81656)** as delineated in Appendix A.

4.5.2 Mitigation process or alternative methods of obtaining source data information needed to forecast DMSMS if the prime vendor or subtier suppliers will not provide a BOM. This could include third party agreements with other Government or commercial activities to which the prime vendor or subtier suppliers may provide or transfer data.

4.6 DMSMS Forecasting and Notifications

4.6.1 A process for identifying and notifying the Program Office of forecasted and identified DMSMS issues by requiring the following:

- Use of predictive tools and methods to proactively forecast and monitor parts for DMSMS, and provide the results to the Program Office on an established periodic basis. This is a continuous monitoring process that begins at initial design and proceeds throughout the life cycle.
- Access/insight into the contractor's DMSMS forecasting tool.
- Presentation of the program's DMSMS status at all design reviews and program reviews.

4.7 Open Systems Architecture for Software

4.7.1 The use of open systems architecture to enable employment of available technologies (such as 2-Level compilation, virtual machine layers, use of an operating system that has a standard interface layer, use of hardware reference lookup tables, etc.) to make the software as hardware independent as technically feasible.

5.0 Incentives

Contractor incentives or award fees for timely identification and resolution of DMSMS cases could be used to promote behaviors that will result in increased material availability and reduced life cycle support costs. For example, award fees can be used to incentivize the contractor to minimize the costs of DMSMS case resolution while maintaining system reliability and performance, which essentially will require the contractor to proactively manage DMSMS and limit redesigns when more cost effective alternatives mitigations can be used. Incentives can also be used to motivate a contractor to improve their DMSMS management program. If incentives are used, the Program Office must ensure that measurable criteria against which the contractor will be assessed are developed and specified in the contract. These criteria can be developed in part from the SOW/SOO DMSMS Considerations identified in paragraph 4.0 of

this guide. In addition, the contract should specify the evaluation periods and the corresponding amount of award fee available during each evaluation period.

6.0 Exit Clauses

Exit clauses provide a critical element in contracts, including PBL contracts. The primary purpose is to mitigate the risk of DMSMS at the end of the contract period of performance. The exit clause requires the contractor to ensure all known and forecasted DMSMS issues have been identified and have mitigation plans, so that the Program Office is not left with an unsupportable system due to DMSMS at the completion of contract performance. It ensures that the required information needed to manage DMSMS is provided to the Program Office. Exit clauses establish procedures and timeframes to ensure the orderly and efficient transfer of performance responsibility upon completion or termination of the Contract. The exit clauses should require delivery of those items identified under the SOW/SOO considerations within the negotiated contract price.

APPENDIX A
BILL OF MATERIAL DATA ELEMENTS

DATA ITEM DESCRIPTION

Title: SOURCE DATA FOR FORECASTING DIMINISHING MANUFACTURING SOURCES AND MATERIAL SHORTAGES (DMSMS)

Number: DI-SESS-81656
AMSC Number: N7558
DTIC Applicable: No
Office of Primary Responsibility: N/DASN-L
Applicable Forms: N/A

Approval Date: 05092005
Limitation: N/A
GIDEP Applicable: No

Use/relationship: The Diminishing Manufacturing Sources and Material Shortages (DMSMS) forecasting source data is essential information that will enable the identification, forecasting and management of piece part obsolescence impacts and mitigations as a part of the Department of Defense (DoD) Program Managers' Total System Life Cycle Management responsibilities. This data is planned for use in DMSMS forecasting tools using a common data standard that enhances efficiency across programs that may share the data on common items. The data may be obtained during any program life cycle phase using sources such as the preferred parts list, Bills-of Materials, vendor surveys, inspections, etc.

a. This Data Item Description (DID) contains the format, content, and intended use information for the data product resulting from the work task described by the contract.

Requirements:

1. Format. The DMSMS Forecasting Source Data shall be in an editable electronic format using Extensible Markup Language (XML) data standards.

2. Content. The DMSMS Forecasting Source Data shall include the following minimum information for the level specified by the contract:

E-BOM Data Fields for System Level
Original Equipment Manufacturer (OEM)
OEM CAGE
OEM Part Number
Revision Level
Firmware Version
Reference Designator or Next Higher Assembly
Nomenclature

Quantity on Platform
National Item Identification Number (NIIN)

E-BOM Data Fields for LRU Level

OEM
OEM CAGE
OEM Part Number
Known Alternate Part Numbers
Revision Level
Firmware Version
Reference Designator or Next Higher Assembly
Nomenclature
Quantity used in System
NIIN

E-BOM Data Fields for LRU Component Level

OEM
OEM CAGE
OEM/Source or Specification Control Drawing (SCD) Piece-Part Numbers
OEM/SCD Piece-Part Reference Designator or Next Higher Assembly
OEM/SCD Piece-Part Nomenclature
OEM/SCD Piece Part Quantity on LRU
OEM/SCD Piece Part Revision Level
OEM/SCD Piece Part Firmware Version
Actual Vendor Piece-Part Numbers
Actual Vendor Piece-Part Cage
Known Alternate Piece-Part Numbers & Cages
NIIN

END OF DI-SESS-81656.