



INSTITUTE FOR DEFENSE ANALYSES

**Diminishing Manufacturing Sources and
Material Shortages (DMSMS) Management Plan
(DMP) Preparation Training**

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October 2019
Approved for public release;
distribution is unlimited.
IDA Document NS D-10941
Log: H 19-000570



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About This Publication

This work was conducted by the Institute for Defense Analyses (IDA) under contract HQ0045-14-D-0001, project DE-6-3405, "Fostering Proactive Diminishing Manufacturing Sources and Material Shortages (DMSMS) and Parts Management," for the Defense Standardization Program Office (DSPO) through the Defense Logistics Agency (DLA). The views, opinions, and findings should not be construed as representing the official position of either the Department of Defense or the sponsoring organization.

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INSTITUTE FOR DEFENSE ANALYSES

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**Diminishing Manufacturing Sources and
Material Shortages (DMSMS) Management Plan
(DMP) Preparation Training**

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Executive Summary

This document provides training on the preparation of a diminishing manufacturing sources and material shortages (DMSMS) management plan (DMP). A DMP documents the strategic underpinnings of a DMSMS management approach established by program office leadership and identifies the risks associated with deviations from the standard DMSMS management processes. As such, the DMP establishes a robust DMSMS management framework for a program office. Without an adequate plan, a program office cannot have effective DMSMS management.

Developing a DMP requires detailed consideration of how DMSMS management principles should be integrated within the program office's mission. The DMP also describes the DMSMS management team (DMT) and its duties within a set of tailored DMSMS management processes ideally designed to avoid miscommunication. The tailoring is a function of each program office's specific infrastructure, resources, priorities, and constraints (e.g., the number of people, the amount of funding, access to bills of material/parts lists, and the ability to conduct vendor surveys on item availability).

The outline and format for the DMP are also not prescribed. When developing the DMP, the DMT should address a set of interrelated questions whose answers affect the near-term objectives of the DMP and the actions of the DMT in executing the DMSMS management process and its specific tasks. This document presents a preferred, best practice organization for the DMP. The major sections are as follows:

- Purpose/Scope/Applicability
- DMSMS Management Team
- DMSMS Analysis
- DMSMS Risk Management
- Funding
- Contract Requirements
- Metrics

For each major section, this document includes a set of tailorable questions that should be answered by the DMT in the development of a DMP and provides considerations for answering the questions.

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Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Plan (DMP) Preparation Training

date

Briefer 1
Briefer 2

What is a DMP?

- **A DMP documents the strategic underpinnings of a DMSMS management approach for a program office and identifies the risks associated with deviations from the standard DMSMS management processes described in the SD-22**
 - The strategic underpinnings represent the specific application of general DMSMS processes and objectives to the program office's mission
 - The DMP is prepared by the DMSMS Management Team (DMT) and approved by program management



Why is the DMP Important?

- Establishes a proactive, risk-based DMSMS management framework for a program office
- Establishes routine DMSMS procedures by documenting DMSMS-related processes and thereby avoiding miscommunication
- DMP review and approval demonstrate senior leadership support for DMSMS management
- Authorizes DMT members to carryout their DMSMS-related duties; overrides what could otherwise be conflicting duties



The DMP will be required in policy by a forthcoming Department of Defense Instruction (DODI)

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DMP Philosophy



- Not a checklist; there is no template
 - Cannot change the name on another DMP
 - No examples provided
- Intended to be something that requires thought
 - Requires integration of DMSMS principles with the program office mission
- Not meant to collect dust on a shelf
- No prescribed length; the DMP should be as long as it needs to be
- Do not parrot back the SD-22; it should not be a tutorial on DMSMS management
- Refer to other documents as much as possible to avoid duplication

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DMP Timing

- Initial plan developed early in the Technology Maturation Risk Reduction Phase of a program's life cycle
- Updated when key programmatic events occur. For example,
 - Preliminary Design Review
 - Milestone B
 - Critical Design Review
 - Low Rate Initial Production
 - Full Rate Production
- Updated when the scope of DMSMS activities change outside of programmatic events (e.g., more systems monitored)



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How Guidance is Formatted in This Training (and in the SD-22)

DMP Section Title

subsection title if applicable

Questions to be deliberated

Considerations for the deliberations in order to develop a DMP tailored to the program's specific circumstances

No policy-prescribed organization for the DMP sections; preferred organization from the SD-22 follows

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Preferred Organization of DMP Sections

- **Purpose/Scope/Applicability**

- DMSMS Management Team
- DMSMS Analysis
- DMSMS Risk Management
- Funding
- Contract Requirements
- Metrics



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Purpose/Scope/Applicability

To what programs/systems does the plan apply?



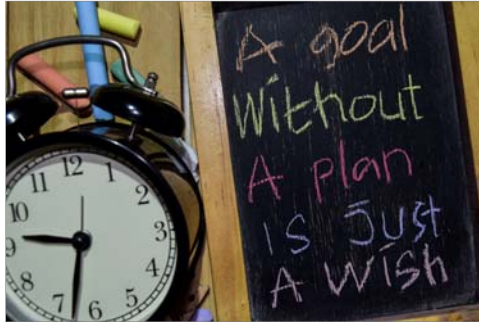
- Identify the systems/subsystems covered by the DMP (including foreign military sales (FMS), if applicable)
 - Number
 - Time frame for coverage
- If not every system/subsystem included, provide rationale for exclusions
- Choices ultimately require bills of material (BOMs) for surveillance and analysis

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Purpose/Scope/Applicability

What are the system's/program's near-term and long-term DMSMS management objectives?

- Example choices (as a function of life-cycle phase)
 - Resolve all issues before readiness or schedule impact
 - No reactive DMSMS cases except where planned
 - Keep annual resolution cost below \$X
 - Avoid out-of-cycle redesigns



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Purpose/Scope/Applicability

For each applicable system, what is the Acquisition Strategy (AS), where is the system in its life cycle, and what are the sustainment strategy, modification plans, and maintenance approach?



- Indicate, as a function of AS and life-cycle phase,
 - What is being supported (including FMS)
 - What is in production
 - What modifications are ongoing/ planned
 - What technology refreshment/ insertions are planned
- Indicate extent of sustainment support
 - What is organic
 - What is from contractors
 - Any planned changes

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Purpose/Scope/Applicability

For each applicable system and its DMT, what will be the primary DMSMS management roles of contractors, program office personnel, and independent subject matter experts, and how will the DMT and its DMP maintain a life-cycle perspective?

- While unnecessary overlap is not productive, a second opinion is valuable, and different organizations have different time horizons
- DMP should explain
 - Who is performing DMSMS management for which systems
 - Who is performing vendor surveys
 - Who is responsible for proposing/evaluating resolutions
 - The role of the program office in all these areas



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Preferred Organization of DMP Sections

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DMSMS Management Team

Who are the DMSMS management stakeholders for the program office (including other DMSMS management program offices that interact with the DMSMS management program office for the system in question)?

- The DMP should define DMT membership
- Regular members include
 - Engineering
 - Product support
 - Government subject matter expert
 - Representatives from prime and major suppliers
 - Government lead
- Other members needed at certain times
 - Contracting
 - Defense Logistics Agency (DLA)
 - Industrial base



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DMSMS Management Team

What are the roles of the DMT members, and who will fulfill those roles?



- The DMP should
 - Define the roles and responsibilities of DMT members
 - Define the priorities of these responsibilities vis-à-vis others
 - Determine the qualifications required to fulfill the roles and responsibilities (e.g., courses to take)

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DMSMS Management Team

What communication is required of the DMT internally and externally?



- DMP should include
 - DMT meeting frequency
 - DMT action item monitoring and follow-up
 - Interfaces with program office Integrated Process Teams
 - Process for sharing information external to the program office
 - Documentation of DMT activities
 - Frequencies of updates to assessments

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DMSMS Analysis

What types of processes should be developed, and what inputs are needed to successfully manage DMSMS issues?

- DMP should document data sources (e.g., BOMs obtained on contracts) and other inputs needed
- The DMP should also document where the program office's DMSMS management processes differ from the SD-22 standards (referencing external documentation where feasible)
 - Identify
 - Assess
 - Analyze
 - Implement
- Consider a self- assessment using DMSMS management intensity levels



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DMSMS Analysis

What mechanisms (i.e., product discontinuation notices (PDNs), predictive tools, vendor surveys, and DMSMS management information systems) will the program office use for monitoring, assessing, analyzing, and performing case management?



- DMP should identify
 - Monitoring tools to be used and frequency thereof
 - Case management systems
 - Access restrictions to data and tools

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DMSMS Analysis

What will be the priority for loading subsystem BOMs into predictive tools?

- Monitoring of systems will be time-phased
- DMP should state the priority order in which system/subsystem BOMs will be loaded into predictive tools and which items in those BOMs will be proactively monitored
- Prioritization of systems and items should be risk-based



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DMSMS Analysis

What types of deliverables will the program office expect as outputs of its DMSMS management implementation approach?



- Potential deliverables include
 - Sustainability analyses (Tombstone charts)
 - Notifications of obsolescence
 - Status of resolutions
 - Technology roadmaps that inform technology refreshments
- The DMP should provide a deliverables schedule

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DMSMS Analysis

How will the program office's DMSMS management efforts be integrated with other strategies, planning, and reviews (e.g., product support strategies and modification planning)?



- The DMP should describe the interface processes for the DMT with
 - Technology refreshment/insertion planning
 - Modification planning
 - Product support planning
 - The overall design process
- The DMP should also describe the processes that will be used to ensure that the program office strategists and planners reach out to the DMT

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DMSMS Analysis

How will the DMT be integrated into design reviews?

- Since DMSMS management could potentially be dropped from the agenda of a design review (whether for product development or modification), the DMP should clearly define
 - The DMT's preparation process
 - Who is responsible for ensuring DMSMS management is on the agenda
- Similarly, the DMT should be involved in the engineering change proposal approval process



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Preferred Organization of DMP Sections

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DMSMS Risk Management

Risk-based Decisions for Program Leadership to Make

Where should the program office be reactive, and where should the program office be proactive?



- DMP should use a risk- based perspective to prioritize
 - The systems/subsystems to be monitored over time
 - Which items in those systems will be proactively monitored
 - What classes of items (e.g., software, material) will be proactively monitored
 - What information is to be obtained for one-time manufactured items

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DMSMS Risk Management

Risk-based Decisions for Program Leadership to Make

How should cases be prioritized when the workload will not permit everything to be addressed at once?

- DMP should identify the characteristics of issues that should not be pursued immediately (or at all)
 - High-reliability, low-demand items
 - Items with sufficient on-hand inventory



- Prioritizing should consider the
 - Expected impact date
 - Near-term obsolescence risk of other parts within a higher level of assembly
 - Whether the item is repairable
 - Programmatic changes that could impact demand (e.g., near-term modification, change in optempo)

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DMSMS Risk Management

Other Risks to be Mitigated

What will the mechanism be for highlighting DMSMS issues and associated risk within the program?

- DMP should document the process for
 - Reporting DMSMS issues
 - Determining the potential risks
 - Highlighting the risks to program office management—whether internal or external to the program office’s risk management process



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DMSMS Risk Management

Other Risks to be Mitigated

Are there any programmatic risks that will or could impact DMSMS management?



- Programmatic risks include
 - Planned service life extension
 - Planned modifications
 - Planned technology refreshment
 - Shift in support providers (e.g., from contractor to organic)
- Identify the impact of these risks on the strategic underpinnings and the DMP

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DMSMS Risk Management

Other Risks to be Mitigated

Are there any desired DMSMS management requirements that were not incorporated into the final contract with the prime/original equipment manufacturers (OEMs)?

- All DMT-determined DMSMS management contract requirements are not always put on a contract; they may be negotiated away
- The DMP should
 - Identify what was not included
 - Assume the added risk
 - Identify how that risk will be mitigated to the extent possible



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Preferred Organization of DMP Sections

- Purpose/Scope/Applicability
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- Metrics



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Funding

How will the DMT assist in determining the DMSMS resource requirements (both DMSMS management operations and DMSMS resolution implementation)?



- Resource needs should be determined by the DMT without fiscal constraints, based on the strategic underpinnings
- If resource availability does not match the needs, the strategic underpinnings should be modified and the associated risks should be documented in the DMP

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Funding

What resources have been programmed and budgeted for DMT operations?

- The DMP should document resource needs and availability for DMT operations and how risks associated with mismatches will be mitigated
- Resource needs include
 - Subscriptions to DMSMS management tools
 - DMSMS management services
 - From prime, original component manufacturers (OCMs) and OEMs
 - From independent subject matter experts within the government or in commercial industry
- Resources for DMSMS management operations should be programmed and budgeted over the Program Objective Memorandum (POM) period



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Funding

What resources have been programmed and budgeted for resolutions for known and anticipated DMSMS issues?



- DMSMS issues should be projected over the POM period
- Resources needed and available to resolve those issues should be estimated
- The DMP should document resource needs and availability for resolving DMSMS issues and how risks associated with mismatches will be mitigated
- Resources to implement the resolutions should be programmed and budgeted over the POM period
 - Lack of precision is NOT a rationale for failing to program and budget adequately

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Preferred Organization of DMP Sections

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- **Contract Requirements**
- Metrics



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Contract Requirements

What DMSMS management operations and/or resolution implementation requirements will be imposed on the contractor and/or independent subject matter experts?

- **New DMSMS contracting guide made available in FY2020**
 - Provides sample contract language by life-cycle phase
 - Establishes criteria to determine the extent of external DMSMS management operations support needed from external sources
 - References associated Data Item Descriptions (DIDs) and Contract Data Requirements Lists (CDRLs)
- **Typically contracting requirements cover**
 - DMSMS responsibilities of the contractor
 - BOMs
 - DMSMS Alerts
 - Technical data
 - Exit strategies



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Preferred Organization of DMP Sections

- Purpose/Scope/Applicability
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- Contract Requirements
- **Metrics**



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Metrics

What data elements will the program office collect?

- The forthcoming DOD DMSMS Manual (DODM) requires two types of record keeping data to be collected
 - Cost-related. For example,
 - Resolution type and cost
 - Cost of DMSMS management operations
 - Efficiency-related (e.g., management operations). For example,
 - Case processing type
 - Cases opened reactively
 - Reactive resolutions avoided



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Metrics

How will the data elements be used?

- The DMP should document how the DMT will
 - Use Level 1 data elements to improve DMSMS management operations, reduce DMSMS-related costs, prevent DMSMS issues from impacting readiness or schedule, and be in a strong position to explain and prove the benefits of the program office's DMSMS management efforts
 - Use Level 2 data elements to enhance these benefits by enabling more complex analyses
 - Report metrics (which are the manipulations of the data elements) periodically
- Examples provided in the forthcoming FY2020 SD-22 update



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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188		
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1. REPORT DATE (DD-MM-YY) XX-10-2019		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Plan (DMP) Preparation Training			5a. CONTRACT NO. HQ0034-14-D-0001		
			5b. GRANT NO.		
			5c. PROGRAM ELEMENT NO(S).		
6. AUTHOR(S) Jay Mandelbaum Christina M. Patterson			5d. PROJECT NO.		
			5e. TASK NO. DE-6-3405		
			5f. WORK UNIT NO.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 4850 Mark Center Drive Alexandria, VA 22311-1882			8. PERFORMING ORGANIZATION REPORT NO. IDA Document NS D-10941 IDA Log H 19-000570		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) DLA Defense Standardization Program Office Suite 1742, Cubicle 17L-H2 8725 John J Kingman Rd, Stop 5100 Fort Belvoir, VA 22060-6220			10. SPONSOR'S / MONITOR'S ACRONYM(S) DLA-DSPO		
			11. SPONSOR'S / MONITOR'S REPORT NO(S).		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This document provides training on the preparation of a diminishing manufacturing sources and material shortages (DMSMS) management plan (DMP). A DMP documents the strategic underpinnings of a DMSMS management approach established by program office leadership and identifies the risks associated with deviations from the standard DMSMS management processes. This document presents a preferred, best practice organization for the DMP. For each major section, this document includes a set of tailorable questions that should be answered by the DMT in the development of a DMP and provides considerations for answering the questions.					
15. SUBJECT TERMS DMSMS, obsolescence, DMP, DMSMS Management Plan					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT U	18. NO. OF PAGES 28	19a. NAME OF RESPONSIBLE PERSON Robin Brown
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include Area Code) (571) 363-8630

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