

Diminishing Manufacturing Sources and Material Shortages



Certification Training



Knowledge Sharing



Continuous Learning



Mission Assistance

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Purpose and Background

- This webinar is intended to help you develop an understanding of best-practices for managing a successful DMSMS program.



Agenda / Pieces of the Puzzle



- Why is DMSMS Important
- Introduction NAVAIR DMSMS Branch and OMT
- DMSMS Management Plan
- Contractual Requirements
- Customer Oversight
- DMSMS Tools & Resources
- DMSMS Data Collection
- DMSMS throughout the Life Cycle
- Technology Roadmap Integration
- DMSMS Alert Notification
- DMSMS Watch List(s)
- Solution Options
- Cost Analyses
- Case Tracking and Prioritization
- Configuration Management
- DMSMS Metrics
- Funding
- Management Buy-In
- Sharing Information
- Questions?





Why DMSMS is Important?

- DMSMS issues are inevitable
- DMSMS issues can impact cost, schedule, and mission performance through degraded operational availability
- Eliminate or minimize DMSMS-related out-of-cycle redesigns
- Exclude all obsolete or soon-to-be obsolete parts from design
- Efforts to resolve DMSMS issues provide an opportunity for product improvement
- Eliminate DMSMS-related degradations to readiness

PMs need to Protect their Programs



Introduction

NAVAIR 6.7.2.5 DMSMS Branch

- **Mission** – Mitigate the impact on Readiness and Total Ownership Cost of Naval Aviation resulting from obsolescence and DMSMS
- **Goal** – Serve as the focal point for NAVAIR applying relevant subject matter expertise in obsolescence/DMSMS and function as an asset to our NAVAIR Program Offices
- Logistics Technical authority responsible for the **development**, **sustainment**, and **execution** of NAVAIR DMSMS policy and processes
- NAVAIR, DoN, and DoD DMSMS Working Groups



NAVAIR's DMSMS ONE-STOP SHOP Processes, Experts, Tools & SOLUTIONS!

- Buy In / Support
- PSM Engagement
- Integration into PMA
- IPT Lead and Engineering Participation
- Allow access to data
- Assign system priorities
- POM'ing and Budgeting
- Solution Implementation
- Feedback



- Acquire Data
- Processes
- Establish Team
- Load BOMs
- Identify Problems
- Research Solutions
- Health Analyses
- Sustainability Analyses
- Coordinate w/Upgrades
- Continuously Monitor

PRODUCTS



Exploring Partnerships & Connections

DEFENSE LOGISTICS AGENCY - NAVSUP WSS - NAVSEA – SPAWAR - USMC - ARMY - DOE KANSAS CITY PLANT - UNIVERSITIES - FLEET READINESS CENTERS - FLEET SUPPORT TEAMS - NAVAIR ENGINEERING - NAVAIR COST - USCG - INDUSTRY - DAU

Honeywell



BOEING

Raytheon

LOCKHEED MARTIN

Georgia Tech Research Institute



- INCREASE EFFICIENCY
- IDENTIFY COMMONALITY
- SEE ACTUAL DEMAND
- DETERMINE ACTUAL IMPACTS
- RATE SYSTEM RISK
- INCREASE COMMUNICATION
- PROVIDE MORE SOLUTIONS
- ESTIMATE SPARES NEEDED
- SHARE DATA
- LEVERAGE EXISTING EFFORTS



Examples of Success Stories

PMA was unable to locate a Tunnel Diode Detector. OEM provided price quote of \$2M for a redesign. N-OMT identified a logistics solution costing \$10K

\$1.9M Cost Avoidance

After assisting with contract negotiations the price of managing DMSMS for PMA by OEM decreased from \$6M to \$2M

\$4M Cost Avoidance

PMA was facing redesign of a Motion Transducer / Air Data Computer. N-OMT determined there were enough spares to last PMA until sundown

\$500K Cost Avoidance

PMA received a ROM for DMSMS management from OEM for 1 system of \$200K. N-OMT ROM is \$50K

\$150K Cost Avoidance

**In FY14 1898 DMSMS cases were closed;
\$664M Cost Avoidance**



NAVAIR Obsolescence – Way Forward

N-OMT Managing DMSMS for ALL NAVAIR PMAs:

- One Team
- Oversight
- One Tool Box
- Standardized Processes
- Sharing of Information
- Synergy Across NAVAIR
- ROI / Cost Avoidance

**Avoid Impacts to Cost,
Schedule, and Mission
Performance.**

**Eliminate or Minimize
DMSMS-related
out-of-cycle Redesigns and
Degradations to Readiness.**



DMSMS Management Plan



- ▶ Describes DMSMS management approach, strategy, and funding plans
- ▶ Establishes DMSMS case management and metrics collection process
- ▶ Incorporates DMSMS Technology Roadmaps into strategies and plans
- ▶ Identifies DMSMS tools used on the program
- ▶ Identifies process for obtaining accurate and complete configuration data
- ▶ Ensures the most cost-effective resolutions are chosen by using BCAs and/or AoA
- ▶ Is reviewed annually, updated as required

**Prove that your Team is managing DMSMS
PROACTIVELY**



Contractual Requirements



Define your DMSMS contractual requirements:

- ▶ DMSMS Management Plan
- ▶ Incremental delivery of source data / Bills of Materials (BOMs) - Ref DI-SESS-81656
- ▶ Configuration management of BOM to piece part level; unless BCA says otherwise
- ▶ Continuous BOM monitoring with regular feedback / visibility to the Program Office
- ▶ Continuous proactive identification / forecasting of DMSMS impacts and mitigations for all configurations
- ▶ Continuous DMSMS case tracking and management (include meetings, if any)
- ▶ Development of the program's technology roadmap (maybe required elsewhere)
- ▶ Determination of cost-effective solutions consistent with the technology roadmap
- ▶ Reporting of performance and cost metrics tracking (provide format)
- ▶ Visibility into the prime contractor's management of its subcontractors' DMSMS programs
- ▶ Exit clause that includes delivery of the above, as required

Contract type is immaterial; PM is still responsible for DMSMS



- ▶ A neutral third party that is proactive and looking out for the best interest of your Program; Someone who:
 - ▶ Is not an OEM or a BOM management/obsolescence tool provider
 - ▶ Will competently assess and validate obsolescence alerts and mitigation strategies (e.g., from OEM and Tools Providers, etc.)
 - ▶ Knows all pieces of the DMSMS puzzle (e.g., tools, data, technical, etc) and helps ensure no obsolescence issues and/or processes are missed

**DMSMS Tool is only a starting point;
Experienced Technical Staff is key!**



DMSMS Tools / Resources

– BOM Analysis

- Predictive Tools - Primarily electronic parts
- Market Research - Primarily mechanical parts / Commercial-Off-the-Shelf (COTS)
 - Contact vendors to ensure accurate data (points of contact, pricing, end of production, etc.)

– Research Sources

- Manufacturers Websites (OEM and Aftermarket)
- Federal Supply Sources
 - DSCC Standard Microcircuit Cross Reference, QML/QPL Data, GEM Program (Sarnoff)
- Commercial Parts Research Tools
 - IC Master Website (Semi, Passives, Power, etc)

– Case Management Tools

- Case / Metrics Tracking Database
- Use to Standardize, Categorize, and Prioritize cases





- Acquire an indentured BOM at the system piece part level that identifies vendor piece part numbers (not OEM specific part numbers)
 - Make sure the status of each of your parts have been identified
- Parts obsolescence data of systems incorporating COTS or mechanical products should be managed through Market Surveys
 - Group by assembly / manufacturer for efficiency
- Load BOMs (electronic parts) into BOM Management/predictive obsolescence management tool; continuously monitor for component obsolescence impacts
- Ensure BOMs are continuously updated as necessary
- What is your corrective plan of action for BOMs that are not available/obtainable?

Many unknown statuses may lead to false security; reactive



DMSMS throughout the Life Cycle

- DMSMS is not only a sustainment issue: 85% of cost and design decisions made prior to Concept Refinement impact 75% of Total Life Cycle Cost
- Military Microcircuit Market Share
 - 1975: 17%
 - 1985: 7%
 - 2002: ~0.1%
- Average Microcircuit Life Span
 - Military >12.5 years; Commercial < 8.5 years
- Perform an Obsolescence Health Assessment of your preferred parts list at Preliminary Design Review; well prior to Critical Design Review to minimize the impact of DMSMS
 - Treat redesigns as new acquisitions
- During DESIGN, evaluate:
 - Open System Architecture
 - Order of precedence for parts selection; use qualified/viable sources
 - Minimize use of custom parts; incorporate newer technology



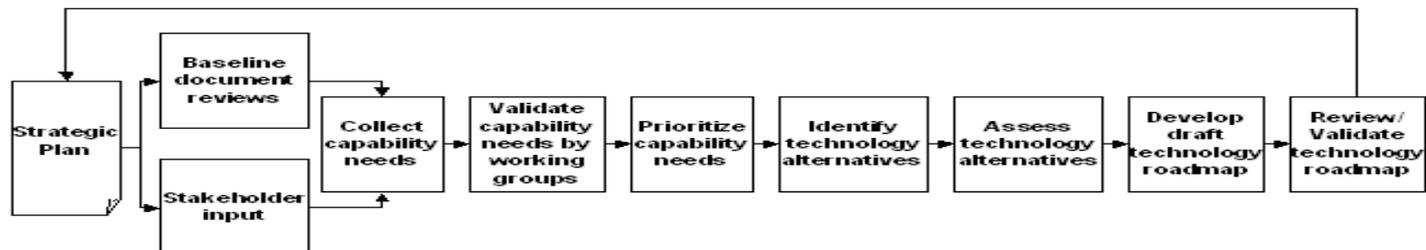
The moment you think about building something; start planning for DMSMS



Your DMSMS Strategy should be integrated with the Program's Technology Roadmap -

- ▶ Does the road mapping process include identification of critical items/technologies in your systems, and identification of emerging technologies?
 - DMSMS forecasts and impacts (i.e., Bridge Buys) are integrated into technology refresh/insertion planning
 - Obsolescence should not be dictating why changes are being made; Redesign for better performance, increased reliability, mission capability, etc
 - Design out obsolescence as you are doing this

- ▶ Make sure your technology roadmap is funded, not just a wish list



DMSMS Alert Notification

Receive automatic DMSMS alerts on a regular basis (i.e., Daily/Weekly)

- ▶ Time is of the essence when it comes to DMSMS
 - Monthly/quarterly may be too late
 - Schedule market survey refreshes
- Verify all alerts to ensure they are accurate
- Analyze the impact on your system
- Alerts don't automatically mean you have an issue, the part might be:
 - No longer in configuration; designed out
 - Existing stock
 - High reliability



DMSMS Watch List(s)



- List of parts that are predicted to go obsolete within 2-5 years
- Incorporate with your Operational Impact Analysis and/or Supportability Analyses for each System / Box / Circuit Card Level
 - What does my system look like now?
 - How is it going to look in 2-5 years?
 - When am I going to have a problem?
- Start planning now; some of your solution options may take 2-3 years to implement
- Facilitates identification of the most cost effective solution
 - Maybe there is a common solution across multiple platforms?

Plan Ahead ... Truly being Proactive



When mitigating DMSMS issues, are your Engineers/Logisticians looking at the wide range of solution options?

- Lifetime buy and redesign are not the only answers; Most of the time you can find a simple lower cost solution -

Logistics Solutions

- Existing Inventory/Stock On-hand
- Lifetime or Bridge Buy
- Aftermarket Manufacturer
- Alternate Source
- Incentivization
- Utilize Contractor-maintained Inventory
- Product Warranty
- Reclamation
- Develop New Source



Engineering Solutions

- Form, Fit, and Function Interface (F3I)
- Substitution
- Minor Redesign
- Emulation
- Reverse Engineering
- Redesign
- System Replacement
- Redefining Requirements to Accept NDI COTS/GOTS/MOTS
- Interchangeability



Analysis of Alternatives (AoA) and Business Case Analysis (BCA)

It's up to you to implement recommendations; As you resolve DMSMS cases, are you performing AoAs or BCAs to ensure you are getting the best bang for your buck?

- Full blown BCA not required for each obsolescence issue; but, at minimum, some form of AoA
- When doing this, look at the bigger picture:
 - Stop chasing piece parts and look at the card, box, system, and/or product line
 - Evaluate cost effectiveness of minor card redesign for multiple DMSMS issues vs. life time buy for each
 - Evaluate cost effectiveness of system redesign for multi card DMSMS issues vs. solving each individually
- Avoid the shortsighted view and maintain a broader view in terms of solutions
- Acquire funding for resolutions; Justification



Make sure solutions are funded and implemented; Parts are purchased and bonded

Track your DMSMS Cases

- Open / Closed (Who do you need concurrence from? Who closes a case?)
- Resolutions (Who decides what solution will be implemented and where does funding come from for resolutions?)
- Cost Savings Metrics
- Success stories
- Trends
- Justification of your existence (Funding for Program management)

Prioritization

- Which Systems do you status first?
 - Top 10/20 Degraders
 - Mission (Safety) Critical
- Which BOMs do you load first?
- Which Parts do you address first?



Make sure you maintain Configuration Management

- If any changes are made to the System you must update BOM(s) and DMSMS Tool(s)
 - Prevents monitoring of parts that are no longer in the system
 - Ensures continuously monitoring of new parts incorporated into the system

- Configuration Management
 - Multiple configurations
 - Identifiers
 - Keep track of your solutions / buys





What Metrics are you interested in tracking?

- Cost Savings; How does this cost savings factor into the O&S charts you are already being asked for?
- Other Metrics:
 - Key Metrics: Material Availability, Material Reliability, Ownership Cost, Mean Downtime
 - Operational Availability (Ao), System Readiness; Supply Chain Risk Management; Reliability Improvements
- Sharing Success Stories: Case studies are a tremendous help in proving Team's worth and justifying your DMSMS Programs / Program Effectiveness

What Metrics are important to you?

Funding

Have you established current and out-year DMSMS budgets?

- DMSMS Program Funding:

- Plan / Team / Tools / Data
- Other Needs



- Funding to implement your DMSMS Resolutions:

- Metrics: DMSMS budget projections based on historical data (case tracking, resolutions, cost savings)
- Operational Impact Analysis (OIA) / Supportability Analysis
- DMSMS Engineering Requirements Analysis

- Include in your Logistics Requirements Funding Summary (LRFS)

- Independent Logistics Assessment (ILA) requirement



Major challenge for a majority of Program Offices

Management Buy-In



Do you have Management Buy-In?

- Ensure Understanding and Awareness
 - Share mandates, instructions, guidance with them
 - Show them how being proactive is a win-win for all stakeholders involved
 - Walk them through your DMSMS Management Plan and strategy
 - Show them how it is integrated with your Technology Roadmap
- Provide Program Metrics
 - How many cases you have worked
 - Funds you saved with the Program you currently have in place
 - How you are helping to reduce Total Ownership Cost
- Share Success Stories
 - Tremendous help in proving your worth and justifying DMSMS programs

SUPPORT IS KEY!

Sharing Information

- Many programs trying to solve the same problems over and over again
- Synergy across NAVAIR Platforms continue to be a challenge; worse across DoD
- Common DMSMS Tool(s)
 - Load BOMs
 - Manage Cases
 - Share Resolutions
- DMSMS Working Groups
- Benefits
 - Take advantage of someone else's research created that meets your needs
 - Economies of scale purchasing
 - Power in numbers, gain synergy

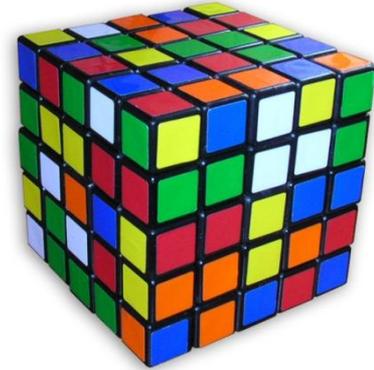


Save Time & Money \$\$\$\$!



Can't Find the Missing Piece to your Obsolescence Puzzle?

Don't Hesitate to Call:



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Questions?



Questions?



DMSMS References

- DoDM 4140.01-V3, DoD Supply Chain Materiel Management Procedures: Materiel Sourcing, 10 February 2014
 - DMSMS
 - Enclosure 3; Section 6
- SD-22, DoD Diminishing Manufacturing Sources and Material Shortages (DMSMS) Guidebook, February 2015
- NAVAIRINST 4790.35, Diminishing Manufacturing Sources and Material Shortages, 17 May 2010



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