Defense Standardization Program
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Diminishing Manufacturing Sources and Material Shortages

Organic DMSMS Support—the Total DMSMS Package

An Approach to Resolving DMSMS:
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DMSMS Management:
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Necessity Is the Mother of Invention:
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Cross-Service Collaboration Yields
Management Efficiencies for Diminishing Resources




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DMSMS: Facing the Challenge of Obsolescence

In an October 2017 memo to DoD personnel, the Secretary of Defense, Jim Mattis, outlined three lines of effort for DoD to enable our armed forces to remain the world's preeminent fighting force in pursuit of global security and stability. Standardization plays a critical role in each of these three lines of effort:

- *Restoring military readiness as we build a more lethal force.* Standardization improves operational effectiveness and readiness by defining performance criteria and common processes.
- *Strengthening alliances and attracting new partners.* Standardization enables interoperability and operations with our partners.
- *Bringing business reforms to DoD.* Standardization reduces costs by increasing suppliers, and it can be used to enable openness and innovation.

In the last issue of the *DSP Journal*, we took a broad look at the role of standardization in supporting the warfighter. In this issue, we narrow our focus on the efforts to address the enduring challenge of obsolescence, a key factor in maintaining a lethal and ready fighting force.

Gregory E. Saunders
Director
Defense Standardization Program Office

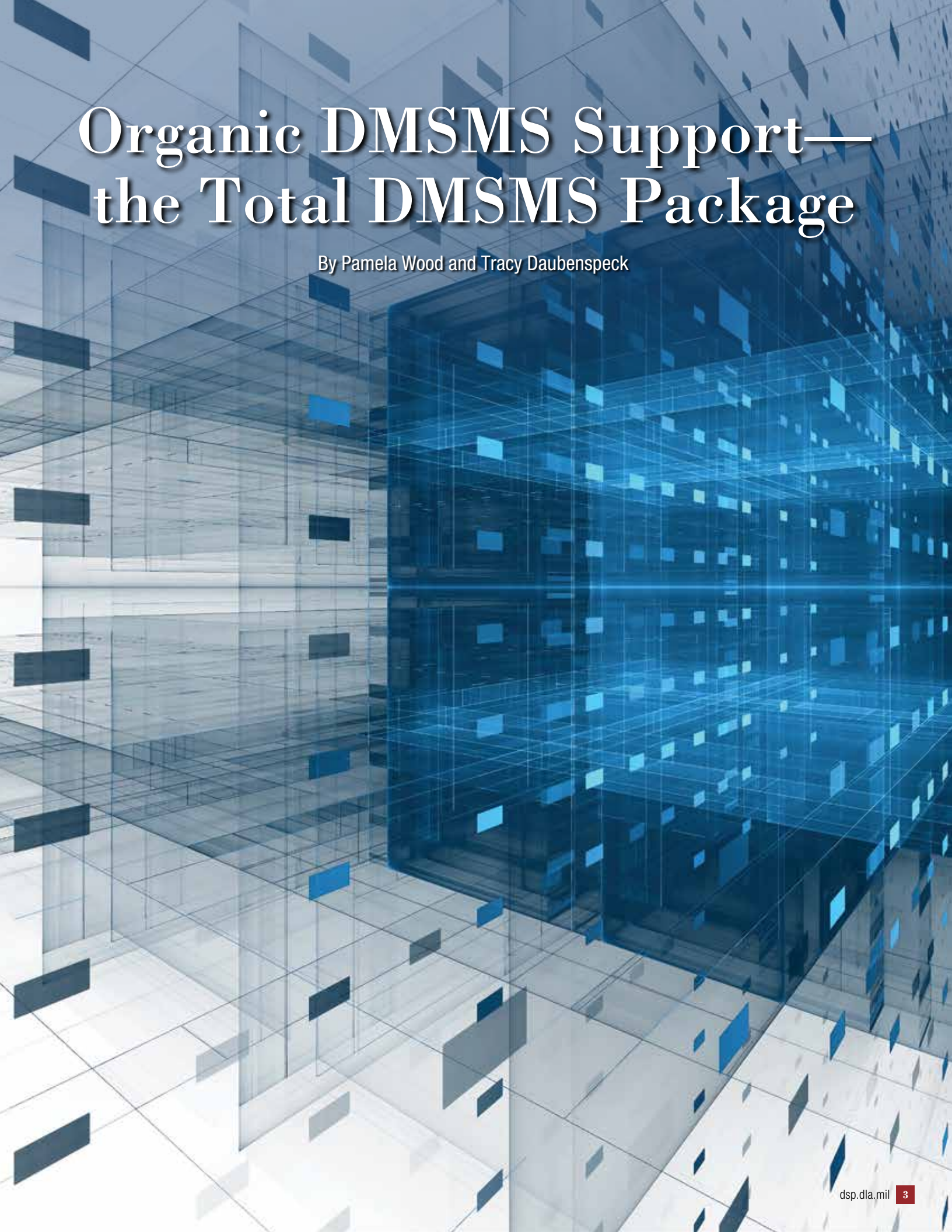
There is an inherent mismatch between the long lives of DoD weapons systems and the rapid evolution of commercial technology, parts, and suppliers. In an attempt to conceive of the impact that the evolution of technology and its obsolescence can have over the lifetime of a defense system, consider the B-52 strategic bomber program, which began in June 1946 and is expected to continue service into the 2040s. The B-52 was conceived before transistors were even invented, when computers consisted of whole rooms filled with vacuum tubes. Perhaps the B-52 is an extreme example, so consider the F-35, which has a projected lifespan roughly half the B-52's. DMSMS programs and professionals are currently implementing proactive, risk-based DMSMS management programs during sustainment that provide engineering and logistical solutions that have saved hundreds of millions of dollars.

The design, engineering, and acquisition of the next aircraft, ship, submarine, or any system whose lifetime spans decades clearly presents a significant challenge—how does one design a system that is sustainable, innovative, and relevant well into the future? DoD has increasingly relied on the use of commercial off-the-shelf (COTS) technology to successfully reduce acquisition program costs and schedules. Unfortunately, while the use of COTS technology provides an initial cost savings, it has led to a growing obsolescence problem. As weapons systems increasingly incorporate and are supported by commercial systems, it becomes increasingly important to proactively manage DMSMS. Modular open systems approaches and the use of widely supported, consensus-based standards promise improved upgradeability and openness to innovative and emerging technology. When paired with proactive, risk-based DMSMS programs, these practices present an opportunity to further reduce total life-cycle costs and improve sustainability, by incorporating DMSMS management earlier in the engineering and acquisition process.

As we approach the annual DMSMS Conference in December, DMSMS management programs continue to work tirelessly to provide cost-effective mitigations to ensure the sustainment of defense systems. For more information on DMSMS practices, visit the Defense Acquisition University DMSMS Knowledge Sharing Portal at https://www.dau.mil/cop/dmsms.

Organic DMSMS Support—the Total DMSMS Package

By Pamela Wood and Tracy Daubenspeck



While contractors building and delivering systems are typically under contract to manage obsolescence during the production cycle, they are not typically required to deliver an obsolescence-free design. The program office, and the taxpayer, can be left with a system with built-in obsolescence and an unsupportable design. This can lead to unplanned and unbudgeted redesigns in an environment of limited funding availability. This article offers an alternative: introducing an organic government Diminishing Manufacturing Sources and Material Shortages (DMSMS) support component in addition to the valuable contractor support provided.

The use of commercial off-the-shelf (COTS) technology in Department of Defense programs has certainly reduced costs and schedules in system acquisition. However, the use of COTS-based designs presents some problems with long life-cycle military platforms. Incorporating COTS components with perhaps an 18-month production cycle in a military system expected to have a life cycle of 30 years—or longer—can be a significant risk. DMSMS management and mitigation, often referred to as obsolescence management, is one way to reduce this risk.

Historically, many programs only looked to DMSMS management in the sustainment portion of the acquisition cycle. Acquisition reform has dramatically changed that perspective and most programs now understand the benefit of engaging early on in the cycle, preferably establishing and implementing a DMSMS management effort soon after Milestone A. To accomplish that, a program must develop a robust DMSMS Management Plan (DMP).

> A program cannot have effective DMSMS management without an adequate plan. The DMP is the key planning document that describes how the regulatory requirement for DMSMS management will be implemented within the LCSP for the program. Formulation of the DMP should begin early in the life cycle—preferably, immediately after Milestone A—because the DMP provides a robust DMSMS management framework for a program.[1]

The decision of *who* will manage the obsolescence issues is a critical part of the DMP. There are two main options for this:

- The prime contractor/system integrator
- An organic DMSMS management provider.

Each of these alone has strengths. However, using the prime contractor/integrator as the only management activity has inherent risk.

> The government must remain in a position to carefully oversee what the prime contractor and its subcontractors do with regard to DMSMS management, including the identification and resolution of current and near-term obsolescence issues. Simply receiving an item obsolescence report at a

[1] Standardization Document 22 (SD-22), *Diminishing Manufacturing Sources and Material Shortages: A Guidebook of Best Practices for Implementing a Robust DMSMS Management Program,* Section 3.2.1, Defense Standardization Program Office (2016). Retrieved from http://www.acq.osd.mil/se/docs/SD-22-DMSMS.pdf.

> design review is not sufficient oversight; the government should have a thorough understanding of and maintain visibility into the DMSMS management processes being used by the prime contractor and its subcontractors.[2]

The best solution for the program to obtain total DMSMS support is to add government oversight to the mix. While the program office can accomplish this oversight, often programs do not have subject matter experts in DMSMS management on their staff. Using an organic government DMSMS management provider allows for optimum support for obsolescence identification and mitigation during development, production, and sustainment. This strategy, which of course can increase cost to the program, provides the best overall return on investment!

The NAVSEA Naval Undersea Warfare Center (NUWC) Division, Keyport's Obsolescence Management Division, is a DoD-recognized Center of Excellence in DMSMS. The Obsolescence Management Information System (OMIS™), a proactive DMSMS management software tool developed and maintained by Keyport, is recognized by the Assistant Secretary of the Navy for Research, Development and Acquisition. OMIS is a web-based application available to DoD. NUWC Crane is also a recognized organic DMSMS provider through its software tool, Horizon Suites.

Following are two examples of this strategy, referencing the business practices used by NUWC Keyport.

Example A: A class-specific, mission-essential system was identified as experiencing significant obsolescence. The prime contractor quoted approximately $76 million in redesign to address obsolescence and testing. The DMSMS team at NUWC Keyport, tasked with providing government oversight, performed an impact analysis and identified the following:

- Form Fit Function alternates for the original parts and manufacturer, and broker market stock opportunities to mitigate current obsolescence
- Additional forecasted obsolescence in the near term (2 to 3 years) of a critical Field Programmable Gate Array that would also necessitate redesign.

The program office settled on conducting a series of life-of-need buys as well as simple substitutes to extend the supportability of the system until technology refresh could be budgeted for the system. The cost of the selected solutions is expected to be less than $500,000, providing significant cost avoidance to the program.

Example B: The proactive tracking and government oversight allowed for obsolescence projections for a major weapons system. These projections enabled the technical authority to update the drawing package with longer-lived alternates, significantly reducing the risk of critical component obsolescence impacts to the next production contract.

[2] SD-22, Section C.1.1.3 (2016).

Without the government oversight provided by NUWC Keyport, it is likely that both these program offices would have been looking at an unplanned and unbudgeted early redesign.

The prime contractor/system integrator should always be contracted to perform DMSMS management services during development and production. Government oversight of this task will ensure an obsolescence management professional review of any contractor proposals for redesign or other mitigation with cost, schedule, and performance for the program in mind.

> When a program decides to use a prime contractor and its subcontractors or an independent contractor for DMSMS management, contracts containing DMSMS-related requirements, including government access to sufficient DMSMS-related information, combined with government oversight provide the basis for ensuring that DMSMS management is effective.[3]

Adding organic DMSMS support provides the following:

- The contractor's choice of hardware during development. The organic provider can track and research potential parts and advise the contractor if any are already end-of-life or are at the tail end of their maturity and should not be considered for new design.
- An "honest broker" approach to mitigation decisions made by the contractor.
- An independent look at DMSMS issues as they are identified, either through the contractor or through the organic DMSMS provider's proactive obsolescence business model.
- A full life-cycle perspective on solutions. The contractor is typically only charged with managing DMSMS during development and production. Solving obsolescence during production only may resolve the contractor's responsibility but it could leave the platform or system unsupportable after delivery. The organic member of the team will look at total life-cycle support.

Ideally, all DMPs should identify the use of a DMSMS management team (DMT). The DMT should have members representing the program office, the prime contractor/integrator, the design agent (if not the contractor), the in-service engineering agent, a representative from the supply system, the organic DMSMS service provider, and others as needed. The DMT is typically led and/or facilitated by the organic DMSMS project lead.

> The DMT should not try to duplicate prime contractor activities; the DMP should be aligned with what the contractor is doing based on its own internal DMP. If the prime contractor is effectively managing DMSMS risk and similar requirements are being flowed down the supply chain, the DMT's role should be focused on oversight. The DMT should not make assumptions about what the prime contractor is or is not doing. The facts can be obtained only from a careful examination of contract language and actual contractor processes. Regardless of the relative roles of the government and the prime contractor in DMSMS management, the government is ultimately the responsible party.[4]

[3] SD-22, Appendix C: Contracting (2016).

[4] SD-22, Section 3.2.1 (2016).

The terms ***proactive*** and ***reactive*** are often used to define the level of obsolescence management provided. Based on contract language, many contractors are only required to use a reactive approach to resolving DMSMS issues. This may work in many cases but is not considered the best way to identify obsolescence problems. In some cases, contractors do not have the capability to perform effective proactive DMSMS monitoring and often may only find that production on a product they need is discontinued when they attempt to purchase an item. This could be too late in the production cycle to make the most cost-effective decision. These types of issues drive redesigns that could have been avoided if the discontinuance was found much earlier.

Organic DMSMS management providers use a mix of proactive and reactive strategies to manage their projects. Those items considered typically low risk, like easily produced mechanical parts, are typically placed in a reactive status. Electronics, down to the micro-circuit level if available, and specialty mechanical items are monitored proactively. NUWC Division Keyport conducts vendor surveys twice yearly for each COTS item it tracks for obsolescence. For circuit-level components, it uses two commercial predictive tools/services, monitoring production status on a weekly basis. If an item is discovered to be out, or nearing the end of production, the NUWC Keyport DMSMS project lead immediately opens a case and communicates the issue to the program via the DMT. This proactive approach can significantly reduce costs to a program by providing early notification and increased time to act. The goal of the organic provider is to assist with the most cost-effective and rational mitigation strategy to continue production and guarantee sustainment until a redesign is needed and budgeted.

Obsolescence management is the responsibility of the program's product support manager from "cradle to grave," and effective management is critical to the success of any program. The support provided by an organic DMSMS team can only enhance and improve a program's success. For further information on options available, contact omis.dmsms@navy.mil.

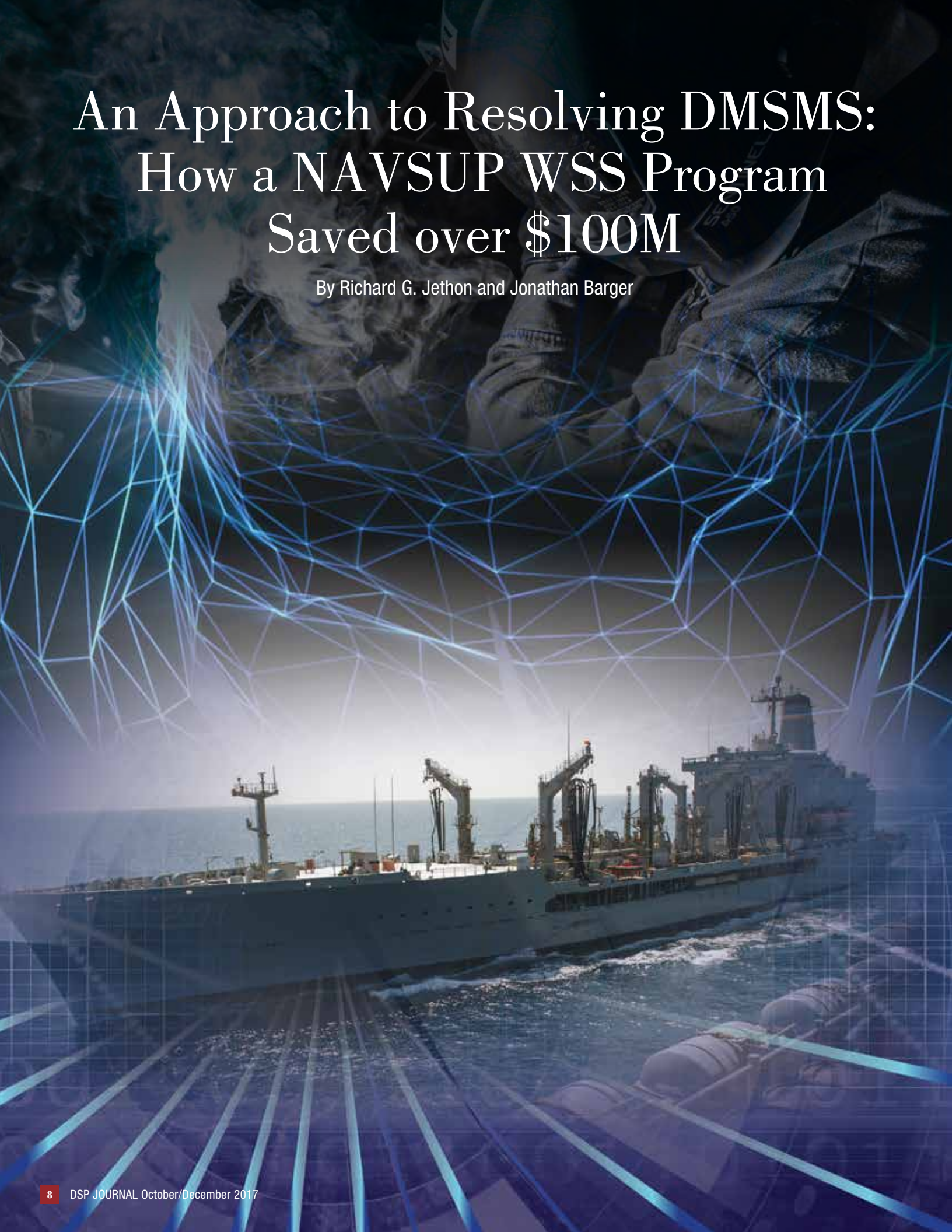
About the Authors

Pamela Wood is currently the head of the Obsolescence Management Division at the Naval Undersea Warfare Center in Keyport, WA. She provides leadership to the division's teams that support DMSMS tasking for customers across DoD and industry. Ms. Wood has been a federal employee at NUWC Keyport since 2000, working on a variety of projects in various roles, including program management, design, development, fielding of systems, and managing Keyport's industrial manufacturing, production, and advanced repair technologies capabilities, including additive manufacturing. Ms. Wood previously worked as a systems engineer in the computer manufacturing industry.

Tracy Daubenspeck is the operations lead for the Obsolescence Management Division at NUWC Keyport. In that capacity, he oversees the development and management of the team's operational processes, develops DMSMS management plans for supported programs, and provides operational support for the division's team leads. Mr. Daubenspeck works to develop DMSMS management best practices as an active participant in the DoD DMSMS Working Group where he is a member of the DMSMS Metrics committee and leads the DMSMS Contract Language committee. He is also an active member of the Navy DMSMS Working Group. Mr. Daubenspeck was a major contributor to the revised SD-22 DoD DMSMS guidebook that was published in 2012 and has contributed to the follow-on editions. He has 34 years of federal service, including 4 years as a Navy machinist's mate and the bulk of his federal career as a civilian electronic technician, management analyst, and technical specialist. He has worked in NAVSEA Keyport's DMSMS program since 2006.

An Approach to Resolving DMSMS: How a NAVSUP WSS Program Saved over $100M

By Richard G. Jethon and Jonathan Barger



Naval weapon systems inherently face Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on a daily basis. Obsolescence is debilitating to the warfighter, affecting mission readiness and the capacity for mission success. As systems age and populations decrease, companies are making business decisions to "walk away" from supporting Naval weapon systems. Without a proactive process to resolve DMSMS issues, mission readiness is severely degraded and the operations costs skyrocket.

The Navy continues to operate and the Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS) supports the H-53, H-1, P-3, EA-6B, E-2, C-2, and C-130 aircraft that were originally fielded up to 50 years ago. The AV-8 and H-60 have been operating since the 1970s, and the V-22, which is still in production, was designed 30 years ago. Newer aircraft are being fielded with known obsolescence while the aircraft is in production. For example, the V-22 Osprey, which is still in production, is facing multiple bit piece obsolescence issues concerning 19 aircraft weapons replaceable assemblies and supporting equipment.

The Naval fleet is getting older and its population is getter smaller. Long-term suppliers are making business decisions to discontinue product support and to "walk away" from Department of Defense contracts due to poor profitability. In many instances the Navy requires small-quantity buys which industry cannot justify from a business perspective. In addition, many components that fit this category are lacking government-owned data in order to qualify additional sources of manufacture and/or repair. For example, the F-18 Super Hornet, which is still in production, is facing 18 known DMSMS cases in the next 2 years.

NAVSUP WSS experiences frustrated parts such as unfilled customer orders, back orders, and no-bids on a daily basis. These issues affect readiness/availability, production lead time, administrative lead time, and overall cycle time to fill a requirement. Inefficient use of resources and a lack of communication within NAVSUP WSS and key external stakeholders have led to delays in resolving frustrated parts. Before the creation of the Item Improvement Program, there was no predefined WSS frustrated parts process, leading to ineffective utilization of resources and delayed response times to these readiness issues. Many of these cases were due to DMSMS and/or obsolescence.

To establish a DMSMS "best practice," team members collectively established the NAVSUP WSS Item Improvement Program in 2009 under the guidance of Matthew Meer. The program was created to take advantage of various funding sources to reduce the total life-cycle cost to NAVSUP WSS–managed items, but it has since evolved to address any technical problem across NAVSUP WSS's cognizance. The Item Improvement Process involves recognizing and identifying instances of items needing improvement, assessing the potential for negative impacts to readiness, analyzing potential mitigation strategies, and implementing cost-effective strategies to ameliorate negative outcomes.

A key tenet of the Item Improvement Program is to conduct a thorough investigation of the problem item and expedite it through the correct adjudication authority. Each thorough investigation relies heavily upon reaching across many DoD organizations and industry to resolve issues.
The team has had success teaming with both industry and DoD, including Keyport, the Avionics Rapid Action Team (ARAT), Concurrent Technologies Group Mantech Program, Avionics Component Improvement Program (AvCIP), Program Management Activities, Fleet Readiness Centers, American Competitiveness Institute, Office of Naval Research, logistics and engineering communities, Dayton T. Brown, original equipment manufacturers (OEMs), and Elbit Systems. Communication and follow-through are an important aspect of the team, as we strive to find the best solution possible for each individual DMSMS case.

The Item Improvement Program has faced several challenges in implementing solutions, including organizational visibility, buy-in from the technical authority, and funding. Before the Item Improvement Program was stood up, many logistics engineering change proposals and DMSMS issues were funded but unsuccessfully executed and were not supported by the warfighter. To resolve these issues, the team completed a continuous process improvement (CPI) project in March 2015 that resulted in a reduction of cycle time on the Item Improvement/DMSMS mitigation process from an average of 220 days to 80 days, which was a 60 percent reduction. The DMSMS team embraced the concepts of CPI and improved a number of internal processes, including mapping the Item Improvement notification and investigation process. Part of the process was to standardize work and eliminate waste.

The DMSMS team also established a tracking database to track Item Improvement/DMSMS progress, assign responsibilities, and close out action to produce results. Other improvements were to stand up an Item Improvement "mailbox" to record and expedite internal opportunities, create a desk guide for all NAVSUP WSS employees, and create an internal NAVSUP WSS Item Improvement Program Process Guide. Weekly meetings with team members were held to track ongoing projects and make progress on Item Improvement solutions. The Mechanicsburg DMSMS subject matter experts were also included on the team, which has led to the identification and resolution of NAVSUP WSS Mechanicsburg issues. The team performs extensive technical research to investigate the cause of the problem item, alert the correct engineering authority, and expedite a workable solution.

The DMSMS team took the initiative to visit and present our innovative and proactive approach to NAVSUP WSS logistics managers of legacy systems. The team is a key component in the Logistics Engineering Change Proposal (LECP) program and is always seeking new opportunities to address problem items. Other areas where the team is actively involved and integrated include a Naval Air Systems Command (NAVAIR) 6.7 sponsored project to map and standardized the life-of-type (LOT) buy process across the enterprise, coordinating projects through the NAVAIR PMA-209 AvCIP

program, conducting weekly meetings with the integrated weapon support teams within NAVSUP, and conducting officer wardroom training and instruction. The team is also part of the instruction for the NAVSUP academy conducted for new hires and has rewritten the NAVSUP DMSMS instruction, which was signed in July 2014.

These efforts have increased the success rate of the LECP process and have positively affected warfighter customer support. An additional benefit is that success breeds more opportunities. As DMSMS LECPs were successfully integrated, both government and our partners in industry developed more opportunities.

Based upon the type of problem, the team employed a specific solution from the variety of DMSMS solutions shown in Figure 1. In many cases, after a thorough investigation by the team, costly redesign efforts were avoided as captured within the "No Solution Required" categories. These solutions provide real-world examples that validate the guidance found within Standardization Document 22 (SD-22).

Although each solution set provided substantial improvements for the warfighter, the top five proactive solutions yielded substantial cost savings, as shown in Table 1. Since its inception in 2009, the Item Improvement Program has realized $127 million total cost avoidance, comprising $42 million in approved LECPs and $85 million in logistics/engineering solutions. When actual figures were not available, cost avoidance was estimated in accordance with the latest revision of SD-22.

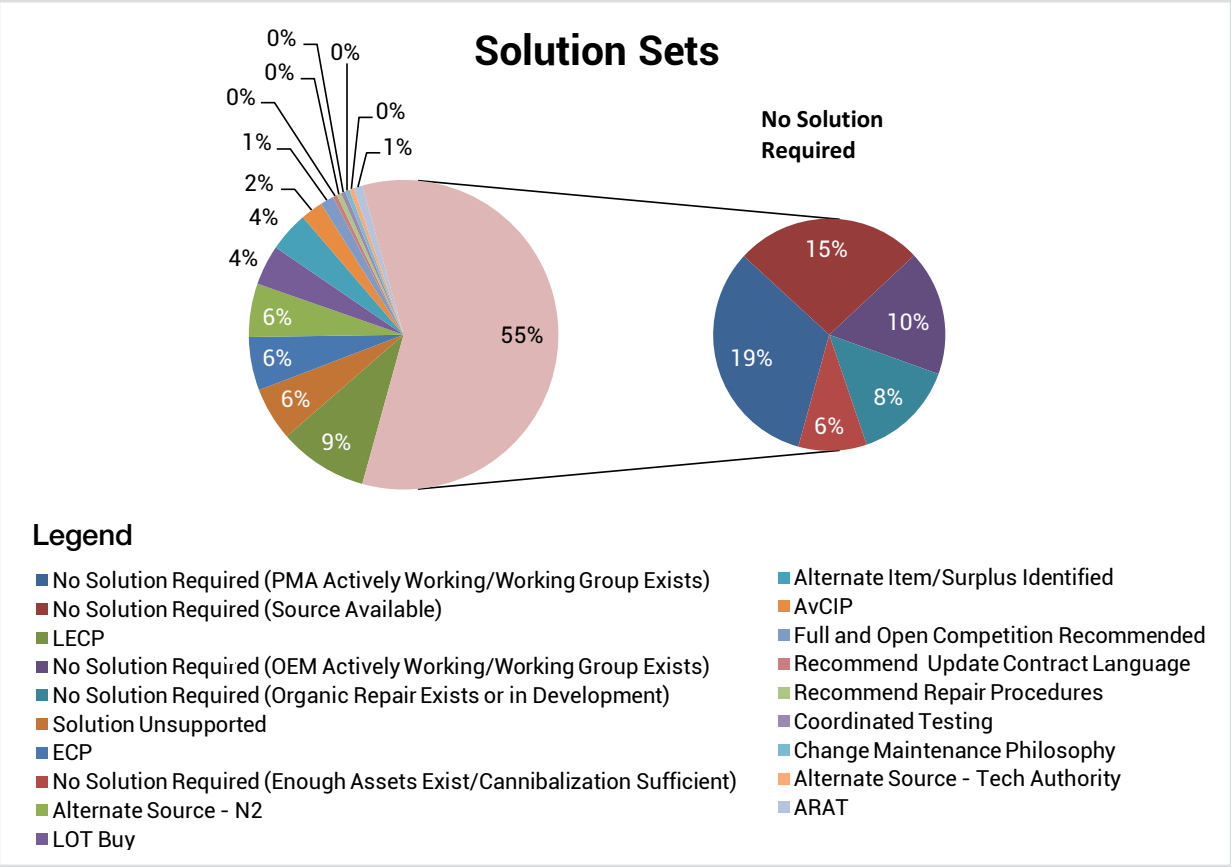
Table 1. Top Five Item Improvement Proactive Solutions and Cost Avoidance

Proactive solution	Cost avoidances to date	Estimated long-term savings
LECP	$42,000,000	$ 96,185,366
Alternate source—NAVSUP engineering	$17,781,550	
ECP	$9,073,440	
LOT buy	$1,469,788	
Enough assets exist/ cannibalization sufficient	$720,070	

The Item Improvement Program is an ongoing initiative that has reviewed more than 250 cases. The core team—consisting of Jonathan Barger, David Coyle, Richard Jethon, John Kosempel, Michael Kulas, Matthew Meer, Jeremy Messner, Jenna Mock, Ricky Neason, and Colin Shanta—continues to identify degrader and supply support issues for both Maritime and Aviation and coordinates with technical warrant holders to implement technical improvements while relying on various funding vehicles to move projects forward. Efforts performed by the team are a DMSMS

"best practice" that increases supportability and availability of systems to the warfighter and reduces life-cycle logistics costs by improving supply chain efficiencies with technical coordination and problem solving often coupled with improved reliability and supportability. The team was recognized by winning the 2016 DoD DMSMS Program Achievement Award in the lifetime category.

Figure 1. Item Improvement Solution Sets



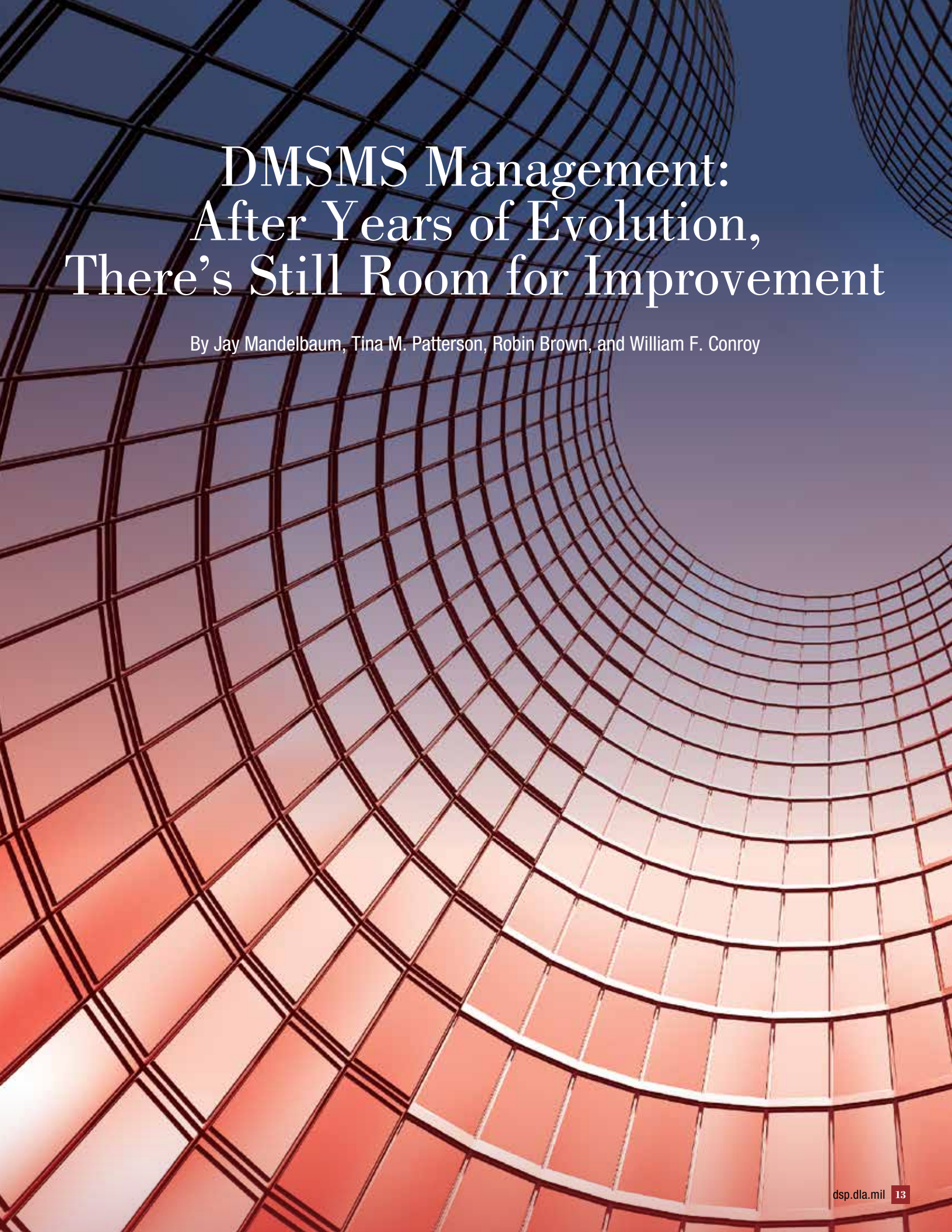
About the Authors

Richard Jethon, a Marine Corps major (retired), has 20 years of experience in the Fleet Marine Force in Marine Aviation, assigned as a helicopter pilot. He performed duties in Operations and Maintenance, both in CONUS and deployed. He also was assigned to an infantry regiment as a forward aircraft controller within the 2nd Marine Division. He was a presidential helicopter program integrator at DCMA Sikorsky Aircraft Corp., responsible for the overhaul of the presidential helicopter fleet. Mr. Jethon started with the U.S. Navy in October 2008 and was a management analyst and lead DMSMS integrator within NAVSUP WSS Philadelphia. He was responsible for integration and program management within the engineering department. He is a subject matter expert on DMSMS resolution, the engineering change process, criticality, commerciality, the LECP process, performance-based logistics contracts, and aviation maintenance operations.

Jonathan Barger is the Item Improvement program manager at the Naval Supply Systems Command Weapon Systems Support Philadelphia. He started working at NAVSUP WSS in 2008 through the Naval Acquisition Development Program. While program manager, Mr. Barger's Item Improvement team received a Silver Medal at the 2016 Federal Executive Board for Outstanding Technical Support and the 2016 Department of Defense Diminishing Sources and Material Shortages Lifetime Achievement Award.

DMSMS Management: After Years of Evolution, There's Still Room for Improvement

By Jay Mandelbaum, Tina M. Patterson, Robin Brown, and William F. Conroy



Which of the following two statements was made in the past 2 years, and which was articulated more than 25 years ago?

- A Department of Defense directive (DoDD) stated that "DoD Components shall assure that timely actions are initiated when a development program or an end item production or support capability is endangered by the lack, or impending lack, of manufacturing sources for items and material."
- A Deputy Assistant Secretary of Defense "expressed his concern over how Diminishing Manufacturing Sources and Material Shortages (DMSMS) were adversely affecting the readiness of weapon systems."

Actually, both quotes are more than 25 years old. The first is from 1976 and the second is from 1989. But both still apply today. Does this mean that DMSMS management practices have not changed for more than 40 years? No, it does not. This article provides a snapshot of what has changed.

Before discussing trends in DMSMS management, we must establish a common understanding of what it encompasses. Per DoD's DMSMS standardization document (SD) guidance, "DMSMS management is a multidisciplinary process to identify issues resulting from obsolescence, loss of manufacturing sources, or material shortages; to assess the potential for negative impacts on schedule and/or readiness; to analyze potential mitigation strategies; and then to implement the most cost-effective strategy" (SD-22).

DMSMS management should be carried out in a risk-based, proactive way. *Proactive* implies that efforts should be undertaken to identify issues as early as possible, thereby providing a longer window of opportunity to resolve them. This is important because the earlier an issue is identified, the greater the likelihood of a lower-cost resolution. *Risk-based* implies that monitoring activities to identify issues is not necessarily done everywhere. Monitoring should focus on the critical items most susceptible to obsolescence and that take more time to resolve.

There are multiple major contributing factors in the evolution of DMSMS management. The first two factors examined here primarily are related to the underlying forces driving the need for DMSMS management; the remaining factors mostly are associated with performing DMSMS management operations:

- Military acquisition and system sustainment
- DoD-level DMSMS policy and guidance
- Proactivity
- Items monitored

- Automation
- Centralization
- Research skills.

Changes to DMSMS Management Drivers

Two underlying trends in military acquisition and system sustainment had a significant impact on the extent to which DoD systems face DMSMS issues:

- *DoD's reduced ability to influence industry to resolve DMSMS issues.* The semiconductor industry is a good illustration of this constraint as electronics represent a substantial portion of difficult-to-resolve DMSMS issues. In 1960, DoD acquisitions accounted for roughly 50 percent of the global semiconductor market. Such a large share of market demand meant that DoD had considerable leverage to secure an industry response to obsolescence. By 1979, DoD's market share had declined to approximately 10 percent, and its influence on industry therefore decreased dramatically. Today, DoD accounts for only 1 percent of the market. This loss of influence is exacerbated by the low-volume quantities of many DoD procurements.
- *DoD's increasing emphasis on buying commercial components for military equipment to lower cost.* A 1986 Defense Science Board (DSB) summer study concluded that there already existed many examples of DoD systems using commercial products and that the time then was ideal for greater commercialization. That DSB study was not the first to reach this conclusion; many other studies dating back to 1972 support commercialization. There were also studies conducted after the 1986 DSB that reached the same conclusion, the most notable being the April 1994 President's Blue Ribbon Commission on Defense Management known as the Packard Commission. As a result, the Secretary of Defense established a policy in 1994 aimed at decreasing the reliance on military specifications and standards. From a DMSMS management perspective, the increased use of commercial products and processes in DoD systems has resulted in obsolescence posing a major problem because long life-cycle DoD systems include a great many short life-cycle commercial electronics.

DoD DMSMS policy and guidance are also important drivers of DMSMS management. The following is a condensed chronology of major DMSMS-related events.

DoDD 4005.16 was promulgated on DMSMS management in 1976. It is reasonable to assume that the timing was at least partially associated with DMSMS problems posed by electronics on military systems; at that time, the DoD share of the semiconductor market was only slightly greater than 10 percent. The directive assigned responsibility for DMSMS management policy and guidance to the then Assistant Secretary of Defense for Installations and Logistics. The directive was not explicit about proactivity. It emphasized resolving issues promptly, before impacts to readiness, and included approximately two pages of procedures.

The 1976 directive was revised in 1984. The responsibility for policy for DMSMS management was shifted to the Under Secretary of Defense for Research and Engineering. There also was a greater emphasis on proactivity—it included material about not designing with obsolete parts, it mentioned source availability research, and it emphasized data exchange along with the early issuance of discontinuation notices. The number of pages devoted to procedures expanded to nearly nine.

The 1984 directive was replaced in 1991 by a DoD instruction (DoDI) on acquisition procedures (DoDI 5000.1). However, that new 562-page acquisition instruction had minimal DMSMS management content. The standalone policy was eradicated ostensibly at a time of increasing DMSMS concern, as evidenced by the 1989 quotation at the beginning of this article. That quotation is from a report that developed an action plan for "both reactive and proactive steps to ameliorate the impact of DMSMS on DoD weapon systems." It should be noted that at the time of the 1989 report, the Under Secretary of Defense for Research and Engineering was no longer acting as the DoD DMSMS management focal point, as evidenced by the following statement by then Deputy Assistant Secretary of Defense for Logistics John Mittino: "I understand at your last symposium in Phoenix, Arizona, that there was a real concern about a lack of an Office of Assistant Secretary of Defense focal point for DMSMS. I want you to know that since that symposium I have volunteered to be that focal point."

All DMSMS management policy was not deleted with the cancellation of the 1984 directive. More than three pages of procedures have existed in a consolidated materiel management regulation since first published in 1993 (DoD 4140.1-R). Although the underlying documents have been renamed and updated along with some changes to the DMSMS management content, similar material remains in force today (DoD Manual 4140.01, Vol. 3). In January 2015, one sentence on DMSMS was added to the logistics enclosure of DoDI 5000.2 as a result of congressional language found in Section 803 of the Fiscal Year 2014 National Defense Authorization Act. The same sentence was revised in 2017 to change the emphasis of the 2015 insertion to reflect the relationship between the existence of DMSMS issues and the risk of encountering counterfeit parts. In addition, another reference to DMSMS and counterfeit was included in an enclosure on cybersecurity.

Supplemental guidance documents associated with various aspects of DMSMS management operations were published between 1999 and 2005. The first Defense Acquisition University continuous learning course on DMSMS management was released on May 10, 2005. The first of five DMSMS management standardization documents was issued in 2006. In 2017, the Life Cycle Sustainment Plan outline was modified to include a table on obsolescence management as one sustainment strategy consideration.

Trends in DMSMS Management

Proactive DMSMS management (identifying issues as early as possible) often leads to lower-cost resolutions. DMSMS management proactivity has increased with the coming of the information revolution to DoD. In the 1970s, DMSMS management primarily was reactive. When an item became obsolete, DMSMS management practitioners searched (often manually) through parts catalogs for alternatives. Although the idea of proactivity was implied, the word was not used within the 1984 directive. By the latter half of the 1980s, as evidenced by the aforementioned 1989 report, the need for proactive DMSMS management became part of the standard vocabulary of the DMSMS management community. It was enabled, to a significant degree, by automated tools and databases. Proactive behavior remains extremely important today; many (but not all) programs engage in robust, proactive DMSMS management practices.

The types of items being proactively monitored have also expanded over time, most extensively in the past decade. In the 1980s and 1990s, DMSMS management primarily focused on electronics; commercially available databases of electronic parts were an enabler in monitoring such items. This focus expanded in the mid-2000s to encompass commercial off-the-shelf (COTS) items and mechanical items, because the prevalence of COTS assemblies in DoD systems had been increasing and predominantly mechanical systems were experiencing increased obsolescence due to their long (and sometimes extended) service lives. Vendor surveys and internet research were the principal data sources for monitoring COTS and mechanical items. The 2015 version of the SD-22 also contains guidance on DMSMS management for materials and software. A few programs have initiated efforts in the software arena; proactive DMSMS management practices for raw materials are less mature.

Trends in automation have led to meaningful improvements in DMSMS management practices. Commercial electronics databases provide information about the status of parts (e.g., when they have been or are expected to be discontinued), and sources, specifications, and other details were added to this information in the early 1980s. Over time, these commercial databases have become more accurate: they include more parts and more information about those parts. In addition, the companies providing those databases have increased the DMSMS management services that they offer. These databases also were incorporated into larger DMSMS management information systems starting in the late 1980s, and these larger systems have themselves improved over time. For example, they have become more web based, their report generation capability has increased, they have incorporated data on non-electronic items as a result of vendor surveys, they have become more user friendly, and linkages have been established with logistics databases in order to estimate the date when an obsolete item will affect system availability.

The centralization of DMSMS management subject matter experts within large DMSMS management service providers has also changed the character of DMSMS management. With rising automation, program offices increasingly have turned to the large and ever more capable DMSMS management information systems or other centralized providers of DMSMS management services for subject matter expertise. In the 1970s and 1980s, individual program offices monitored their own items using their own staff subject matter experts. These experts were called upon to manually research resolutions once an item was no longer available—an entirely reactive approach. While a program office can still develop its own in-house expertise to perform DMSMS management functions by using the latest tools available, doing so is generally not a best practice. It will take time to train an in-house engineer on the tools and the intricacies of DMSMS management. People with great expertise, and many more years spent applying that expertise, can be easily sourced today from the organizations that provide the centralized DMSMS management information systems and/or centralized DMSMS management services.

Automation and centralization have yielded improved research capabilities to develop potential resolutions to DMSMS issues. Early DMSMS management practitioners in program offices and within the Defense Logistics Agency had substantial research skills. They were the first people called upon to verify whether an item could still be purchased and, if not, to suggest possible alternatives. Today, as a result of the expanded automated capabilities and experiences supporting multiple platforms, the subject matter experts using the DMSMS management information systems can quickly provide high-quality research results.

Summary

Since 2001, when the last DoD DMSMS management directive was canceled, the only official DoD DMSMS management *policy* has been a limited number of procedures included in material management/supply-chain issuances and one sentence in acquisition policy that appeared in 2015 and 2017.

Yet despite limited formal *policy*, there have been significant trends in DMSMS management capability over the years. To some degree, the capability has kept pace with the greater demands for robust, proactive DMSMS management resulting from the increased complexity of new weapon systems, the greater use of COTS assemblies, and the extension of the life cycle of older platforms.

DMSMS management *guidance* has similarly kept pace. The DMSMS community has demanded improved DoD guidance—and that demand has been met. The first SD-22 was published in 2006. The current SD-22, published in January 2016, was the fifth version issued in a 10-year span.

What's Next?

Even though there have been many advances, there always is room for further improvement. Additional benefits seem achievable because numerous interviews of DMSMS subject matter experts and DoD program management personnel revealed that a risk-based, proactive approach has not yet been adopted by all programs.

According to Eric Grothues, the DMSMS management lead for the Department of the Navy, "DMSMS has impacted virtually every weapons system throughout DoD. A DMSMS management policy requiring programs to develop and implement a process that is well grounded on proactive DMSMS management principles, tailored to mitigate the programs specific obsolescence risks, would provide program managers with the traction needed to get their weapons programs up to speed."

As more and more programs begin to pursue a risk-based, proactive approach to DMSMS management, there will be further cost reductions and fewer schedule slippages and readiness impacts due to DMSMS issues.

About the Authors

Jay Mandelbaum, while researching obsolescence policy, guidance, and training over the past 7 years, was instrumental in developing ways to use value engineering to resolve obsolescence issues.

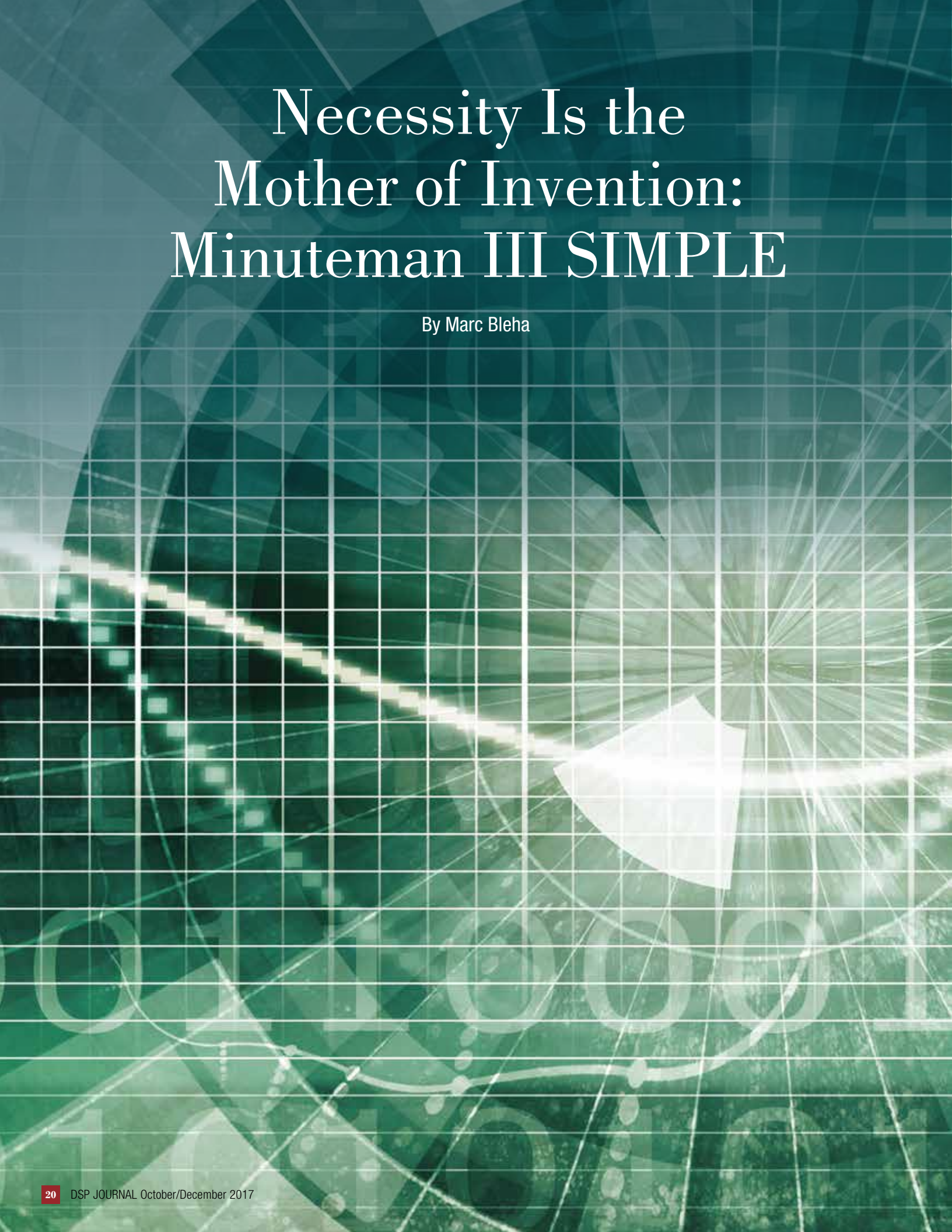
Tina M. Patterson has been researching and developing obsolescence policy, guidance, and training over the past 7 years. Before that, she was involved in similar activities for systems engineering.

Robin Brown is the DMSMS lead. Before that, she was the Naval Air Systems Command (NAVAIR) DMSMS lead, provided support to all NAVAIR program offices, served as co-chair of the Department of the Navy DMSMS Working Group, and participated as a member of the DoD DMSMS Working Group for the past 15 years.

William F. Conroy III has been assigned to Defense Acquisition University as a professor of life-cycle logistics management and production, quality, and manufacturing since 2005.

Necessity Is the Mother of Invention: Minuteman III SIMPLE

By Marc Bleha



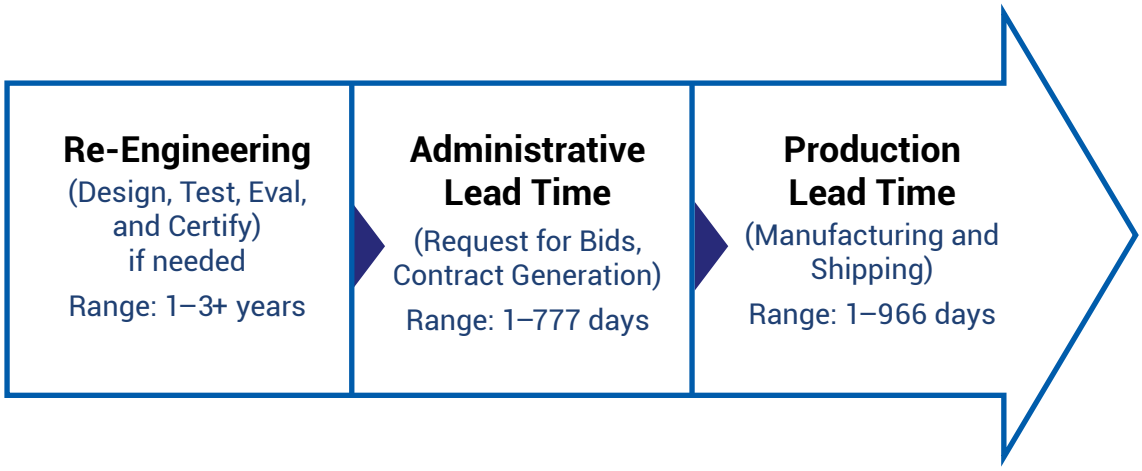
Last year, I was honored to receive the Department of Defense Diminishing Manufacturing Sources and Material Shortages (DMSMS) Individual Award for a networked database system named SIMPLE (Stock Inventory Maintenance Production Logistics Enterprise) that manages a 50,000+ line item inventory, which crosslinks and analyzes multiple data sources to identify "supportable at risk" components for the Minuteman III weapon system. With the modern computer age, industry and government have multiple information system platforms and hundreds of logistical decision support systems that have the capability of tracking inventory levels, locations, shipments, and even their subcomponents. So why is there a lagged response to DMSMS issues? Is the lag due to inability to forecast demand and changes in the commercial and governmental sectors, the lack of accurate consumption and production data, economic changes, or geopolitical climate change driving policy? From a data system perspective, is it possibly that too much data exists, or worse, incomplete data, which creates noise in the decision support systems that needs to be filtered out when compiling an effective sight picture? In many cases, "Yes"!

Imagine that you just bought the sweetest '65 Mustang convertible. Chrome rims, white leather seats with a matching white convertible top, and a beautiful cherry red paint job that looks like liquid glass. Under the hood is this clean, original, 289-cubic-inch 4.7L V-8 married up to an original four-speed manual transmission. Everything on this car is stock—almost as if it came out of a time capsule. You trailer it home (too nervous to drive it), and as it gets unloaded, the ramps shift and the car falls a short distance and catches the edge of the ramp and dents in the rocker under the car door. After a few choice words, maybe a tear or two, you inspect the damage. Luckily the door opens up and you inspect in, around, and under the panel. You Google the car panel to find the part number (remember, everything is on Google) and proceed to start looking for a matching part. The problem is that you want to maintain that original status, so knock-offs are out of the question—the search becomes a little more difficult. If you can't find the original part on a shelf somewhere, who can manufacture that part using the exact same material, shaped to the exact same specifications and then also painted to the exact same color of your sweet little ride? Then, if you find the specific part among the online world of warehouses, how can you verify authenticity? Are you going to want a sample tested? To add to the dilemma, you also need to find a garage or at least a mechanic or artisan, in this case who is skilled enough to remove the damaged part and install the new one. And on top of all that, you will also want the artisan to strip, repair, and paint the broken part to the engineer's requirements from the 1960s. Always need a spare, right? And I forgot cost, how much would that be again?

Sound strange? With the age of our weapon systems, the requirement to maintain engineering baselines, the challenges faced with counterfeit parts, and the required overhaul cycles to ensure the nation's investments operate as designed when needed—the Mustang parable is not too far from the truth. Compound that with a weapon system that needs near 100 percent functional capability 24 hours a day, 7 days a week, 365 days a year. You now have the Minuteman III intercontinental ballistic missile system. Phenomenal engineering feats were accomplished to build this national strategic deterrent, which was only supposed to be in service for 10 years, yet decade after decade the system's life was extended with very few system modifications. Walking into a current launch facility or launch control center is akin to walking into an interactive museum representative of the 1960s and '70s.

Now, let's multiply these issues with the lifetime buys of parts from contractors that went out of business decades ago, which are now depleted or depleting, the lack of component technical data rights, the lack of materials to build to original specification, and when you can actually find a manufacturer, what the cost is for a low-rate production run (hint, it is usually very high). To further muddy the waters, parts are acquired and managed by either the Defense Logistics Agency or the Air Force Materiel Command. In addition, the Minuteman III depot-repairable components are overhauled at the Ogden Air Logistics Complex and funneled back into the Air Force supply system based on demand and the availability of carcasses. Therefore, there are multiple additional information technology systems driving just-in-time buys, pushing carcasses in for repair based on repair cycle times plus logistic travel times, and maintaining inventory accountability and shifting inventory locations. Some systems even include historical acquisition and production lead times. (See Figure 1.)

Figure 1. Lead Time



What does SIMPLE do? SIMPLE takes all of these data exported from each independent system and combines the information to provide a logistical supply health and risk assessment for more than 50,000 parts for the Minuteman III weapon system. The system identifies critical current shortages based on the demand for immediate supply chain action, short-term high-priority

part actions, and long-term future planning requirements. In addition, if the part is having or will have DMSMS challenges, it is identified to the program manager as a possible candidate for reengineering or reverse engineering to baseline. The key to understanding is that just because a part is available for the next 6 months or even 2 years, the acquisition and production lead times may exceed that based on past history acquisition or future DMSMS constraints.

So SIMPLE goes one step further than just predicting a stock-out date, it also backs out to ensure that lead-time requirements are identified and met as well. In addition, if production lead times are extremely high as seen in Figure 2, the identified trend is that the part or subcomponents of the part may be experiencing early signs of DMSMS constraints, which would add another lead-time consideration—engineering. Based on current data available, government engineering solutions are a minimum of 1 year, averaging over 2 years for an approved and tested design package to approach industry with. Based on data from SIMPLE, and if the part required an engineering solution or upgrade, the part could take up to 5 years before it would be on the shelf. The average administrative acquisition lead time for DLA was 80 days plus contractor production, which averaged 140 days as seen in Figure 2 and Figure 3. Extended administrative lead times represented DMSMS constraints: vendor availability and willingness to bid on work, the lack of profitability, and possible material shortages. Additionally, SIMPLE calculates depot production rates and identifies lagging production lines and future stock-out or excess production impacts early, providing leadership the capability to readjust workloads. Finally, the system generates a multitude of reports from a 30,000-foot view of inventory health to detailed component and subcomponent viability.

But all of this analysis is completely dependent on the data accuracy from all agencies influencing the source data management systems. While I built SIMPLE to be an independent, standalone system, hundreds if not thousands of individuals directly affect the outputs provided to senior leaders and decision makers on the status and wholistic vision of the supply chain health for the Minuteman III weapon system. In the future, the Hill Air Force Base ICBM Systems Directorate Weapon System Supply Chain Management branch will lead the effort to analyze, improve, and

Figure 2. DLA Production Lead Times by Product (2016)

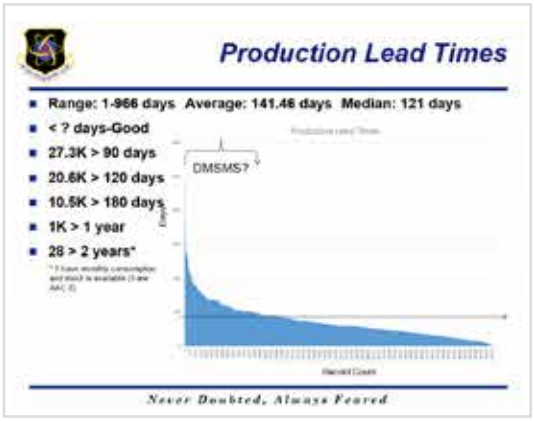


Figure 3. DLA Administrative Lead Times by Product (2016)

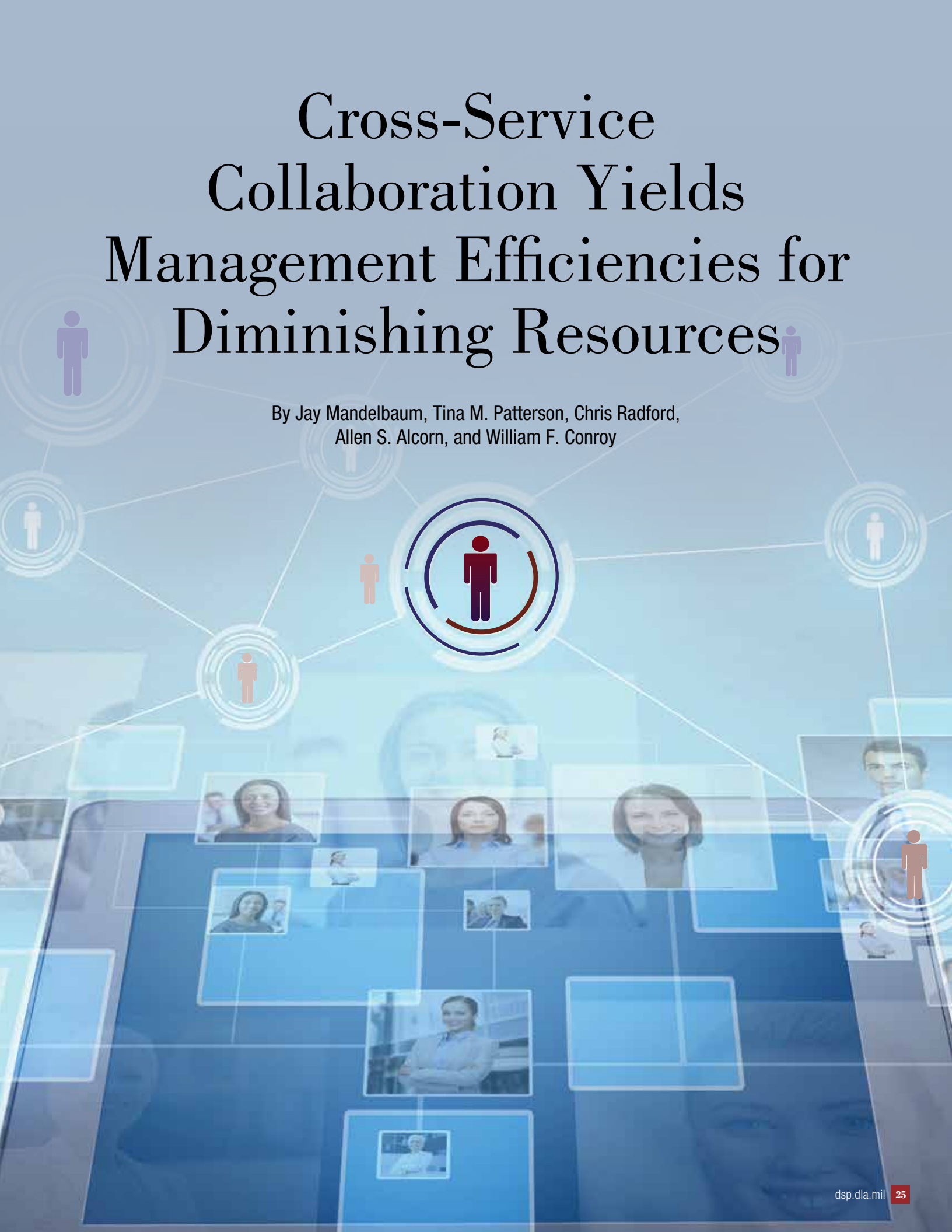
develop the accuracy of SIMPLE. Two future projects include incorporating AVCOM data (a DMSMS tracking system) and a web analysis presented at the last DMSMS conference from the University of Washington to identify reengineering projects at a system, subsystem, line replaceable unit, or subcomponent level for the most cost-effective return on investment. While SIMPLE has enabled leaders to act early enough to head off critical stock outages in some areas, coming into the inventory management and analysis game late with this model forces many supply agencies and program managers supporting the weapon system to decide what is necessary and where to assume risk. Government funding is not infinite and using the tool while continuing to validate the data generated is a key step to long-term planned sustainment of the supply chain. Necessity was the mother of this invention.

About the Author

Captain Marc P. Bleha is the Pacific Regional Support Center Detachment 1 commander at Wake Island Airfield, responsible for supporting all island operations including 400 aircraft annually as well as multiple exercises and Missile Defense Agency supported test and evaluation operations. Before that, he was a logistics readiness officer assigned to the U.S. Air Force (USAF) Logistics Career Broadening Program (LCBP) at Hill Air Force Base, Utah. LCBP is a USAF headquarters sponsored 2-year Air Force Materiel Command broadening program that specializes in acquisition logistics, life-cycle sustainment, and wholesale logistics support. Officers competitively selected by respective career field developmental teams gain valuable knowledge and experience in managing the acquisition and sustainment aspects of the Air Force logistics system through rotational assignments in various functional areas in the Air Force Sustainment Center, the Air Force Life Cycle Management Center, or a Defense Logistics Agency Inventory Control Point. His rotations included the 309th Electronics Maintenance Group assisting with depot-level maintenance management for the F-35, F-22, F16, F-15, C-17, MQ-1, and MQ-9 weapons platforms; the Air Force Nuclear Weapon Center System Directorate as the Weapon System Supply Chain Management Branch chief; and the 414 Supply Chain Management Squadron Programmed Depot maintenance integrator for the Minuteman III weapon system. Additional assignments include base-level deployment and distributions flight commander and fuels flight commander at Hill Air Force Base and air terminal operations flight commander and Air Mobility Operations Wing executive officer at Ramstein Air Base, Germany. Captain Bleha also deployed as the Class III combat advisor to the Afghan Nation Army while assigned to the Combined Security Transition Command–Afghanistan under International Security Assistance Force.

Cross-Service Collaboration Yields Management Efficiencies for Diminishing Resources

By Jay Mandelbaum, Tina M. Patterson, Chris Radford,
Allen S. Alcorn, and William F. Conroy



Diminishing manufacturing sources and material shortages (DMSMS) remain a very significant issue for the Department of Defense, with significant resources committed to limiting the problem. Given the long lives of DoD systems relative to the items and technologies used to build and support them, DMSMS problems are inevitable. There is good news, however: proactive DMSMS management can reduce the cost of resolving those problems.

How does proactive DMSMS management help? It's all about the window of opportunity to do something about emerging DMSMS issues. Proactive DMSMS management reduces cost by identifying issues as early as possible through a risk-based monitoring of items in the system. If a program does not discover a DMSMS issue until there is a failed attempt to buy an item, resolution options often are limited and usually only more expensive alternatives are feasible. Proactively identifying issues as soon as information about them becomes available usually increases the number of resolution options available and creates opportunities for an increased number of lower-cost alternatives because there is more time to fix the problem before an impact occurs.

This article illustrates DMSMS management efficiencies achieved via collaboration between the Naval Air Systems Command (NAVAIR) and the U.S. Army Aviation and Missile Research, Development, and Engineering Center (AMRDEC). These efficiencies lead to greater team proactivity and, ultimately, lower DMSMS resolution costs for the partnering organizations.

The DoD guidebook, SD-22, *Diminishing Manufacturing Sources and Material Shortages: A Guidebook of Best Practices for Implementing a Robust DMSMS Management Program*, provides comprehensive information for DoD components on mitigating the risks associated with DMSMS issues. It defines DMSMS as "the loss, or impending loss, of manufacturers or suppliers of items, raw materials, or software." The SD-22 also defines DMSMS management as "a multidisciplinary process to identify issues resulting from obsolescence, loss of manufacturing sources, or material shortages; to assess the potential for negative impacts on schedule and/or readiness; to analyze potential mitigation strategies; and then to implement the most cost-effective strategy." (http://www.acq.osd.mil/se/docs/SD-22-DMSMS.pdf)

Cross-Service Collaboration

NAVAIR's DMSMS management team is the logistics technical authority responsible for the development, sustainment, and execution of NAVAIR DMSMS and obsolescence management policy and processes. Its mission is to mitigate the impact of obsolescence and DMSMS issues on total ownership cost by providing relevant subject-matter expertise to NAVAIR program management offices. The AMRDEC Obsolescence Engineering team includes more than 40 engineers and researchers who develop obsolescence engineering strategies and constantly monitor products and parts availability issues. Since 1987, the team, located within AMRDEC's

Engineering Directorate, has supported aviation and missile programs combating the ever-present threat of obsolescence.

Both collaborating organizations previously performed similar functions independently—they both apply tools and resources as part of their support to programs. For example, the teams' research functions do the following:

- Facilitate the analysis of bills of materials (BOMs) using a suite of predictive tools primarily for monitoring electronic parts.
- Perform market research by contacting the applicable vendors to ensure that accurate data (e.g., points of contact, pricing, end of production) are obtained for mechanical and commercial off-the-shelf parts.
- Access the original equipment manufacturer and aftermarket manufacturer websites.
- Access federal supply sources such as the Defense Logistics Agency (DLA), Land and Maritime, Standard Microcircuit Cross Reference, and Qualified Products Database as well as additional commercial tools.

The need for a centralized database or tool to facilitate these research functions and disseminate the results became evident as the number of programs supported by the NAVAIR DMSMS team grew. After evaluating a range of potential options, NAVAIR selected the Multifunctional Obsolescence Resolution Environment (MORE) tool-database to meet its needs. MORE is a government-owned engineering analytical obsolescence and DMSMS management information system developed and maintained by AMRDEC. MORE centralizes workflow for researching the status of electronic parts; accessing availability data, analysis results, and discontinuance alerts; and compiling and disseminating information gleaned from subject matter experts.

While the possession of these capabilities influenced the selection of MORE, an even greater factor in favor of MORE was AMRDEC's willingness to truly partner with the NAVAIR team. Thus, cross-service DMSMS management collaboration was born! The following illustrates examples of the synergies that have already been gained via this real-world, joint, multi-service DMSMS–obsolescence partnership.

Benefits of the Collaboration

During the first year of partnering, the MORE parts library increased in size by approximately one third when the NAVAIR parts were included. Further increases are anticipated because only a small portion of the total NAVAIR BOMs was loaded initially. From the perspective of NAVAIR alone, when those initial BOMs were loaded, more than 15 percent of the parts were already common to the AMRDEC and had been researched and were in the MORE library. This 15 percent likely will increase because many of the NAVAIR parts must be researched before determining whether they are in the parts library.

With an expanded parts library, there is a greater likelihood that any parts investigated by new AMRDEC or NAVAIR customers will not only already be in the library, but can also be automatically researched. And this provides a significant time savings over a manual process. In fact, beyond the 15 percent commonality, many of the initial NAVAIR unique parts were automatically researched by MORE. Finally, the increase in the MORE parts library leads to an increased number of parts added to subscription tools that underlie MORE. Over time, this will increase the recognition rate of the parts libraries within the subscription tools.

According to Chris Radford, NAVAIR Obsolescence Management Team technical lead, "The MORE library when combined with the AMRDEC team provides a service and capability that no one else in the industry provides. It's a one-stop shop with a program designed around MORE that provides not only complete documented work instructions from part research to program management of DMSMS, but also a unique part auditing program that ensures that bad data and research are not added to the library, either willingly or unwillingly.

"This is the key to a successful DMSMS program," Radford added. "No matter what tools you use, there is a high percentage of false data that exists. The MORE process is constantly reducing this bad data to ensure that its contents are more accurate than any other tool because the data is validated. This proactive management process is the key to DMSMS cost avoidance based on program efficiency. Most programs are still searching for the individual part metrics, hoping to save big dollars, not realizing that the manpower costs they are spending to reactively solve these problems generally offset the costs saved. Good DMSMS programs don't save their customers money overnight—rather, they establish a consistent program that enables the customer to proactively manage all of their parts and systems and streamline future efforts."

Both NAVAIR's and AMRDEC's proficiencies have increased as a result of the collaboration. Although NAVAIR also uses other tools to facilitate the research and identification of alternate parts and part statuses, MORE leverages the information provided by those tools. It enhances and compares their outputs, thereby providing the user with more accurate parts availability statuses.

The AV-8B ground-attack aircraft program offers several examples of efficiencies already realized because of the partnership. The AV-8B leveraged AMRDEC DMSMS training documentation not only to train new staff on how to use MORE, but also on how the parts research process works. The MORE partnership allowed the AV-8B team to streamline its obsolescence team, process, and structure; it is now managed by a small core group, reducing costs from $633,000 in FY 2014 to $290,000 for FY 2017.

According to Jesse Powell, the AV-8B obsolescence manager, "Collaboration and leveraging existing processes and tools across the services should be our number 1 goal. We often spend too much time doing our job that we forget that there are other services within DoD that may have already solved the problem. The Army and NAVAIR collaboration through the MORE tool is just one example of how we (all DoD) can work together to reach a common goal. The AV-8B program at

NAVAIR has shown that collaboration can lead to saving for the program office, and I look forward to continuing this collaboration into the future."

AMRDEC's part research proficiency has also improved as a result of the NAVAIR addition of a large number of Military Specification (MILSPEC) items into the MORE database. In addition, NAVAIR input on AMRDEC processes helped to further refine and enhance MORE processes. Specifically, NAVAIR reviewed and provided comments on MORE's MILSPEC work instruction and is collaborating on requirements for a MORE sustainment module currently in development.

Michele Ozier, a team lead at AMRDEC and in particular the AMRDEC lead for the NAVAIR collaboration, spoke of the mutual benefits of the combined efforts: "We at AMRDEC are excited to collaborate with NAVAIR. We believe that the resulting identification of commonality, standardization of processes, shared ideas, and synergy will be a great benefit to both organizations, and most importantly, to our customers—the warfighter."

MORE can also facilitate determining resolution options to DMSMS problems through a capability to view all platforms that are using a given part. Consequently, when a program office is trying to determine the most cost-effective resolution to a common problem, it can easily identify what other platforms have done and take advantage of those efforts.

Taking Collaboration to the Next Level

The AMRDEC–NAVAIR collaboration in the use of the MORE tool represents just one of eight strategic objectives being pursued to expand collaboration across the whole DoD enterprise. Another of those objectives is commonality. The goal of this strategic objective is to demonstrate the value (including reduced costs, improved program schedule, and other efficiencies) of a proactive DMSMS program leveraging information sharing. This objective was created in recognition of lost opportunities for common resolutions. Data sharing previously occurred only within a service among the customers of the same independent DMSMS management provider, between the users of common tools, or as a result of periodic meetings of various working groups. Sharing also occurred across DoD where common resolutions were developed for DLA-managed electronic items or in rare instances, such as tungsten-rhenium wire, when it was determined that an enterprise resolution was preferred.

A third strategic objective deals with the establishment of DoD centers of excellence. When a DMSMS problem occurs, resolution options are analyzed to determine the most cost-effective approach. The comprehensiveness of the analysis depends primarily on a program office's experiences with the capabilities of resolution providers. This experience is typically limited because program offices often limit their choices to only the subset of potential service providers that they commonly work with. The goal of this strategic objective is to create an easy-to-use database of a large number of service provider capabilities that program offices can use to help determine the most cost-effective approach to resolving DMSMS issues.

These strategic objectives are only achievable through various forms of partnerships. The NAVAIR and AMRDEC partnership is not just one example, but a first step. Robin Brown, the DoD DMSMS/obsolescence lead, said, "I want to make the case for us to build on this partnership to include not only all DMSMS management across DoD but also the resources that DMSMS practitioners rely upon to resolve problems." Benefits are already being witnessed through the NAVAIR–AMRDEC partnership; therefore, it is credible that further benefits can be realized by expanding the collaboration further across the DoD enterprise.

Conclusion

While the services use numerous unique systems and platforms, it is important to understand that many common components exist on these systems, regardless of function, application, or the environments in which they perform. In the past, because of how programs are segregated and managed, these common parts were likely monitored and researched independently by multiple programs or not tracked at all. This has resulted in duplicated effort and inefficient use of resources. Collaboration, enabled by a centralized database, delivers benefits to all players involved in component research and mitigation by reducing time and cost and by using a team of subject matter experts (rather than a single person) to participate in reducing DMSMS risks. These efficiencies lead to improved proactive DMSMS management and thereby decreased DMSMS management and resolution costs.

About the Authors

Jay Mandelbaum has been instrumental in developing ways to use value engineering to resolve obsolescence issues in the course of researching obsolescence policy, guidance, and training for the past 7 years at the Institute for Defense Analysis (IDA).

Tina M. Patterson also has worked for 7 years on obsolescence policy at IDA and earlier was similarly involved in the systems engineering field.

Christopher Radford has more than 15 years of experience in engineering, logistics, and program management within industry and the government, supporting aviation and ground support platforms.

Allen S. Alcorn has worked for more than 26 years with the Army's Aviation and Missile Research, Development and Engineering Center as team lead and active chief of the Obsolescence Engineering Branch.

William F. Conroy III has been a professor of life-cycle logistics management and of production, quality, and engineering at the Defense Acquisition University's Mid-Atlantic campus in California, MD, since 2005.

Program News

Topical Information on Standardization Programs and People

Welcome

Michael Heaphy assumed the role of deputy director of DSPO on September 18, 2017, filling a significant gap left by Stephen Lowell, who retired in January 2017. Mr. Heaphy is a systems engineer and Navy reservist with experience in DoD engineering, acquisition, standardization, and policy analysis. He most recently supported the Defense Modeling and Simulation Coordination Office (DMSCO), Lead Standardization Activity for Modeling and Simulation Standards and Methodologies standardization area. He represented DMSCO in the Joint Enterprise Standards Committee (JESC) and managed modeling and simulation (M&S) standards in the DoD IT Standards Registry via the JESC M&S Technical Working Group. He also serves on the Standards Activity Committee of the Simulation Interoperability Standards Organization, an Institute of Electrical and Electronics Engineers–recognized committee for the development of computer-simulation interoperability standards.

Mr. Heaphy brings operational standardization and standards development experience and a fresh perspective to DSPO. He has conducted operations and maintenance on Navy warships, implementing critical parts management and quality programs; has supported exercise control for Strike Group training and certification exercises dependent on interoperability between coalition forces; and has participated in the development of voluntary, consensus-based standardization products as well as the implementation of the DSP for DoD adoption and management of standards. He brings a passion for process improvement, international and industry collaboration, and cultivating the next generation of standardization experts.

Farewell

Cheryl Turner retired in September 2017. She served as a yeoman in the U.S. Navy from 1968 to 1970; after basic training in Bainbridge, MD, she went to Balboa Naval Hospital (Naval Medical Center San Diego). She then earned a BS degree in business education and taught high school typing and shorthand for 1 year in Morehead City, NC, before accepting a job in Arlington, VA, and working in private industry for 2 years. During her tenure in private industry, Ms. Turner worked ship specifications for CG 47 and CG 49. She then applied for a position with the Naval Sea Systems Command (NAVSEA) Qualified Products List (QPL) Program. She spent the next 31 years managing the NAVSEA QPL Program before retiring this past September. Ms. Turner has left a lasting impact as a result of her support to the Navy Fleet and will be greatly missed.

2017 DMSMS Award Winners

Since 2007, the Defense Standardization Program Office and the DoD Diminishing Manufacturing Sources and Material Shortages (DMSMS) Working Group have recognized individuals and/or organizations of the military departments and defense agencies who have made significant accomplishments through robust DMSMS management. We are pleased to announce the 2017 award winners:

- Lifetime—Samuel Calloway, AFLCMC/WLME DMSMS Engineer
- Individual—Tabitha Horrocks, Army Materiel Command Obsolescence Program Manager
- Individual—Dennis Summers, Naval Undersea Warfare Center Division Keyport, Obsolescence Management Information System Software Development Lead
- Team—NAVAIR 6.7.2.5 Obsolescence Management Team
- Team—Terminal High Altitude Area Defense Seeker Obsolescence Team
- Team—Naval Undersea Warfare Center Division Keyport IWS 3L DMSMS Team.

Award winners were recognized at the annual awards ceremony held during the DMSMS Conference on December 7, 2017. Robert Gold, senior executive service member and director, Engineering Enterprise, from the Office of the Deputy Assistant Secretary of Defense for Systems Engineering, presented the awards.

Lifetime Achievement Award winner Mr. Sam Calloway proudly shows off his plaque with Senior Executive Service Robert Gold, director, Engineering Enterprise, from the Office of the Deputy Assistant Secretary of Defense for Systems Engineering, and Ms. Robin Brown, DMSMS program manager.

Robert Gold presents Ms. Tabitha Horrocks, Army Materiel Command Obsolescence program manager, with a DMSMS Individual Achievement Award during the conference in Tampa, FL.

The NAVAIR 6.7.2.5 Obsolescence Management Team is presented with a DMSMS Team Achievement Award during the 2017 DMSMS Conference.

Upcoming Issues

Call for Contributors

We are always seeking articles that relate to our themes or other standardization topics. We invite anyone involved in standardization—government employees, military personnel, industry leaders, members of academia, and others—to submit proposed articles for use in the ***DSP Journal***. Please let us know if you would like to contribute.

Following are our themes for upcoming issues:

Issue	Theme
January–March 2018	Modeling and Simulation
April–June 2018	Standardization Stars
July–September 2018	Standardization Program Tools and Programs

Events

Upcoming Events and Information

DMSMS Conference

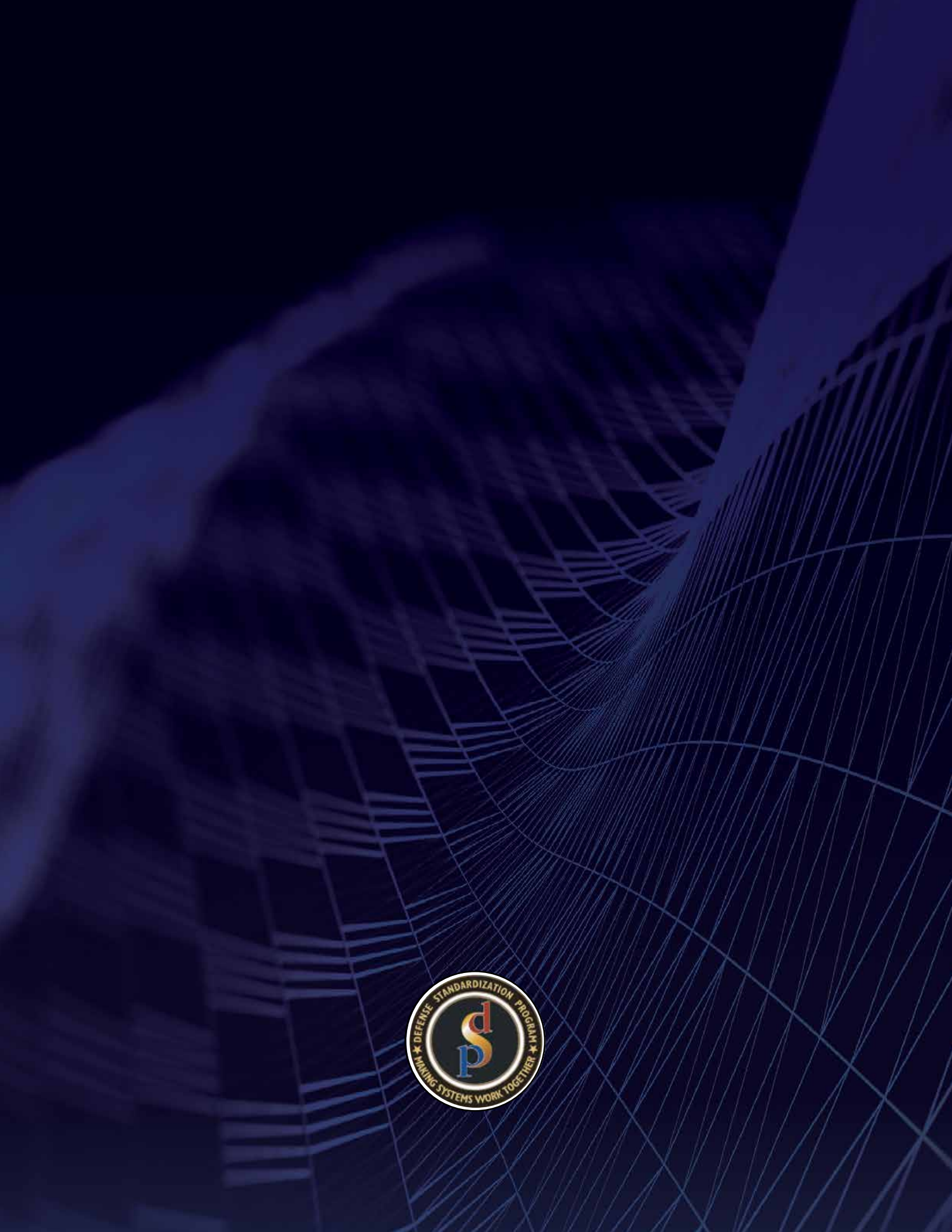
The Diminishing Manufacturing Sources and Material Shortages (DMSMS) Conference, "Managing Obsolescence Risk—How to Optimize Budget, Schedule, and Readiness," was held on December 4–7, 2017, in Tampa, FL. The next DMSMS Conference will be held in Nashville, TN, on December 3–6, 2018. For more information, please visit http://www.dmsmsmeeting.com.

2018 DSP Workshop

The Defense Standardization Program Office will be hosting a Defense Standardization Program (DSP) Workshop at LMI in Tysons Corner, VA, on July 9–12, 2018. The Workshop will be open to federal employees and immediate support contractors, but space will be limited. Attendees will benefit from the opportunity to interact with standardization executives, participate in standardization training and tutorials, and collaborate in working groups to develop new approaches to outstanding issues. For more information, please visit http://www.dsp.dla.mil.

If you have ideas for articles or want more information, contact Nicole Dumm, Editor, ***DSP Journal***, Defense Standardization Program Office, 8725 John J. Kingman Road, STOP 5100, Fort Belvoir, VA 22060-6220 or e-mail DSP-Editor@dla.mil.

Our office reserves the right to modify or reject any submission as deemed appropriate. We will be glad to send out our editorial guidelines and work with any author to get his or her material shaped into an article.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