DEPOT MAINTENANCE RESTRUCTURING AND WEAPON SYSTEM SUPPORT

The Essential Role of Program Management Teams

Capt. Michael C. Bachmann, USN

The link between program managers and depot maintenance is crucial. Over the past several years, program management teams have increasingly recognized the importance of the weapon system life cycle support phase associated with their programs. Enumerated in countless articles, clearly the operational support phase costs for most weapon systems will exceed that of the combined design, development and production life-cycle stages. For this reason, ensuring program management personnel are cognizant of current policies is essential. Knowledge of the posture of both the commercial and organic depot maintenance industrial base that will eventually provide the associated support for their Weapon Systems is also essential. Of additional importance is awareness of their critical role in accomplishing depot source of repair decisions during the early phases of their program in order to ensure continuing support of their particular weapon system throughout its life. What is the current status of the industrial sector?

U.S. Air Force photo by Ed Hawkins

Managers at the Technology and Industrial Support Directorate, Air Logistics Center, Warner Robins Air Logistics Center, Robins Air Force Base, Ga., escort visiting dignitaries as they view a fluid cell press forming sheet metal parts. Second from left: Former Assistant Secretary of the Air Force for Acquisition, Honorable Clark Fiester.

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Downsizing and Consolidation

On 15 March 1995, the Pentagon hailed the $10 billion merger of Martin Marietta and Lockheed as a master stroke for the nation's security.[1] Major defense firm mergers have been the norm for the past several years, and will most likely continue as the commercial sector continues to size itself to accommodate the forecasts of a declining workload. In the past 3 years

alone, the defense industry has shed at least 700,000 jobs.

The downsizing initiatives being initiated by industry are not unusual and were expected. The 31 March 1994 Report of the Defense Science Board Task Force on Depot Maintenance Management included the results of a survey of 62 companies that was undertaken in order to collect capacity and utilization data from those industries involved in depot-level maintenance. The results illustrated that there was only a 46-percent capacity utilization across the sectors of Fixed Wing, Ground, Electronics/Missiles, and Sea Systems.

U.S. Army photo

DoD Workload Consolidation is a reality at the Cherry Point, N.C., Naval Aviation Depot (NADEP). Propeller Shop supervisor, Connie Gonzales, observes removal of a coverstock from an E-2 propeller blade with aerospace engineer Tom Bly (left) and aircraft propeller mechanic Chris Rusich (right). Mr. Bly and Mr. Rusich transitioned to NADEP from Alameda, Calif., along with transfer of the workload.

As excess capacity and pricing competition depress their financial performance, overhaul and maintenance companies within the commercial sector are being forced to consolidate. As an example, this was typified by the shutdown of the Page Avjet's maintenance operation in Orlando, Florida, during 1994. Consolidation of the powerplant overhaul and maintenance market is also underway as illustrated by Greenwich Air Services' acquisition of Pratt & Whitney JT8D maintenance assets from AAR, and Aviall's paring of its business jet powerplant assets by selling Dallas Airmotive.[2] These actions illustrate that the industrial sector will have to continue to shed its excess capacity in the future in order to remain profitable.

Another interesting trend evidenced among major industrial corporations is their drive to lower operating costs through reductions in overhead, inventory and other maintenance expenses. Continental Airline's contracts to Greenwich and Aero Corporation illustrate their strategy to distribute their maintenance operations to "third-party" Operation and Maintenance (O&M) shops. At the same time, O&M companies are being forced to revamp their internal operations through promises of shorter repair times and reliable delivery dates, in order to stay competitive since they are unable to cut prices much further.[3]

DoD Organic Depot Infrastructure

Consolidation initiatives, organizational personnel reductions, efforts to shed excess capacity, redistribution of workloads, and a renewed focus on maintenance repair and resource processes, are practices that are not constrained solely to the commercial industrial base. The Department of Defense (DoD) organic depot infrastructure has additionally been undergoing a profound transition over the past several years that mirrors the changes that are currently occurring in the private sector.

The DoD organic depot infrastructure is a big business. Performed in both the public and private sectors, DoD expends approximately $12 billion annually for depot maintenance work. Typically, about 70 percent of the work is accomplished in DoD organic depots, and 30 percent is contracted out for performance by commercial sources.

Guidance issued by the Office of the Secretary of Defense (OSD) in the 30 June 1990 memorandum, "Strengthening Depot Maintenance Activities," directed the Services to achieve increased efficiencies and savings in depot maintenance. The issuance of Defense Management Report Decision (DMRD) 908 on 17 November 1990 further established a savings target of $3.9 billion to be achieved by FY 95 through increased efficiencies in depot maintenance near-term and long-range operations. The Defense Depot Maintenance Council (DDMC) Corporate Business Plan for FY 91-95, dated December 1991, catalogued those actions planned by the Services for achieving these savings. Included in those actions was the increased use of competitions, depot closures, workload realignments, and interservicing transfers. Clearly, the era of DMRD 908 essentially commenced the realignment of depot maintenance management within DoD. The organizational sizing initiatives that are currently occurring in

the commercial sector mirror those actions that the public sector has already initiated.

Current policies continue to stress the need for improved depot efficiency while sizing the organic infrastructure to accommodate "Core requirements." The Services continue to emphasize increasing depot efficiency in order to reduce costs and to enable them to be more responsive to their customers. As a result of this restructuring, DoD is essentially moving from a competitive relationship with private industry to a partnership, especially as illustrated in DoD's current discontinuance of public-private competitions as a means of reducing the organic depot infrastructure. This trend is further illustrated in the DDMC Business Plan for FY 95-99, dated 30 January 1995. Organic workload projections show a downward trend from a FY 94 level of 121.1 million direct labor hours to a FY 99 level of 96.3 million direct labor hours, or approximately 20 percent. Likewise, the level of contract workload reflects increases from FY 94 through FY 99 from a level of $3.1 billion to $3.9 billion, or approximately 25 percent. Depot maintenance personnel levels are additionally projected to fall from a FY 94 level of 103,087 people to a FY 99 level of 81,262 people, or approximately 21 percent during this period. It should be recognized that all projections will be impacted by the final recommendations of the 1995 Base Realignment and Closure Commission.

As DoD's depots are restructuring to become more efficient, they are additionally enhancing their business processes through various initiatives in order to reduce their cost of doing business. One such initiative is their adoption of current information system technologies. The Services, working with the Joint Logistics Systems Center, Directorate for Depot Maintenance, selected a suite of eight applications that constitute the Depot Maintenance Standard System (DMSS). Each of the DMSS applications supports one or more of the functions of project management, reparables management, financial management, shop floor manufacturing, and specialized support. Modernized information system platforms, in consonance with tools to facilitate improved repair and resource planning, will provide DoD's depots with the tools necessary to support Program Management teams in their sustainment of DoD Core requirements throughout the next decade.

Implementation of the Core Concept

Currently, the Services are restricted in the amount of depot-level workload that can be pushed to industry. Under section 2466 of Title 10 of the United States Code (U.S.C.), 60 percent of all depot-level work must be accomplished by government personnel. Part of DoD's industrial base strategy for the depot maintenance community, however, is the achievement of an acceptable balance between the public and private sectors. Implementation of the Core concept supports this objective. It will also enable effective use of the strengths of the public and private industrial bases.

An employee at Letterkenny Army Depot, Chambersburg, Penn., converts a self-propelled howitzer chassis to an M109A6 configuration.

U.S. Navy photo by Jacquelyn Randall

What is Core? In 1993, the DoD implemented the Bottom-Up Review to select the right strategy, force structure, modernization programs, and supporting industrial base infrastructure to provide for America's defense in the post-Cold War era. It was accomplished as a highly collaborative effort composed of a steering group, chaired by the Under Secretary of Defense for Acquisition, and included representatives of the offices within the OSD, the Joint Staff and the Services. Its scope encompassed all major elements of defense planning, from the formulation of strategy, to construction of force structure, to weapon system modernization, and finally reconfiguration of the DoD infrastructure. The Bottom-Up Review ultimately recommended establishment of a force structure to support an initial response to a single Major Regional Conflict (MRC) as follows: four to five Army divisions; four to five Marine expeditionary brigades; 10 Air Force fighter wings; 100 Air Force heavy bombers; four to five Navy aircraft carrier battle groups; and Special Operations forces. The Bottom-Up Review concluded that the United States must field forces sufficient to fight and win two nearly simultaneous MRCs; which for the bulk of ground, naval and air forces would require duplicating the MRC building block described previously. The Bottom-Up Review also

noted that a prudent level of peacetime forces should be planned for major intervention or peace enforcement operations.

The essence of the need for a ready and controlled source of depot maintenance capability is embodied in the term "depot maintenance Core." Depot maintenance Core is the minimum capability maintained within organic Defense depots to meet readiness and sustainability requirements of the weapon systems that support the Joint Chiefs of Staff contingency scenario(s). The requirement to retain organic depot maintenance Core is based in U.S.C., Title 10, Section 2464, which mandates that DoD maintain a logistics capability (including personnel, equipment and facilities) to ensure effective and timely response to a mobilization, contingency or other emergency requirements.

The DoD's Core Policy, as set forth in the Deputy Under Secretary of Defense for Logistics memorandum of 15 November 1993, states that Core depot maintenance capabilities will comprise only the minimum facilities, equipment, and skilled personnel necessary to ensure a ready and controlled source of technical competence. Organic Core resources provide a capability that can be quickly mobilized when needed to support a military contingency and a base from which commercial capability can be reconstituted in the event of an unplanned lapse in commercial support. The nature of organic depot resources enhances the depots' ability to provide a flexible, effective Core capability. The depots possess a wide variety of skills, facilities and equipment. Diverse depot workloads enable cross training of personnel. This broad spectrum of depot assets constitutes a solid foundation on which Core capability is based.

With completion of the Bottom-Up Review in September 1993, a planning baseline was established for the proper size of organic depot operations. Actions to streamline our depots to accommodate Core requirements will, by necessity, result in the redistribution of workload to industry. Actions to shift non-Core workload to the commercial sector, when ample market forces exist to repair these assets, can be evidenced at this time. As an example, AeroThrust Corporation, a Miami-based company, has demonstrated over the past 12 years its capability to repair U.S. C-9 aircraft fleet engines. The company's pursuit of JT8D repair work was boosted early this year when it won a 5-year, $70 million contract to provide depot maintenance for all U.S. military JT8D engines. This includes power plants for all U.S. Air Force C-9As and T-42s, U.S. Navy C-9Bs and Air National Guard C-22s.[4]

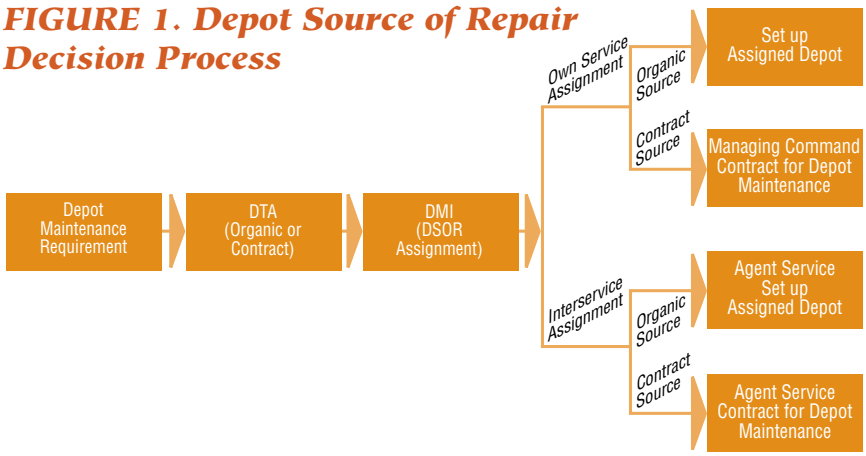
Acknowledgment is widespread that the public and private sectors must complement one another. The private sector is an integral partner in both accomplishing depot maintenance and in providing goods and services to support organic depot maintenance. Program Management teams play a crucial role in the early stages of their programs in determining the optimum depot options that should be employed for supporting their weapon systems.

Depot Source of Repair (DSOR) Process

The Program Management team is a key player in the Depot Source of Repair (DSOR) process that begins when depot maintenance support requirements are initially identified during an acquisition (Figure 1). The Secretary of Defense mandated the DSOR process as an activity of Integrated Logistics Support in DODI 5000.2, "Defense Acquisition Management, Policies and Procedures." The DODI 5000.2 requires that the acquiring DoD Component initiate the DSOR assignment process (Figure 2) within 90 days of engineering and manufacturing development contract award, and that the Services use the Joint Depot Maintenance (JDM) Program regulations: OPNAVINST 4790.14; AMC-R 750-10; AFMCR 800-30; and MCO P4790.10A, Logistics Depot Maintenance Interservice.

All programs that meet the following criteria are required to be included in the DSOR process: (1) all new weapon systems, sub-systems, major end items, components, support equipment acquisitions, or modification programs requiring depot maintenance support; (2) all depot repair programs transitioning from contract to organic or from organic to contract depot maintenance; and (3) any depot repair programs for which a change in support will require an additional capital investment of $100,000 or more for depot equipment or facilities. The Services must make these decisions jointly in accordance with the JDM Program regulation.

FIGURE 1. Depot Source of Repair Decision Process



In planning for a DSOR, Program Management teams should use their Service's decision tree analysis (DTA) process for determining whether organic or contractor repair is preferable for the support of their weapon system. Figure 3 illustrates a generic DTA logic chart that addresses such issues as wartime surge, workload mission essential status, availability of commercial repair sources, and costs associated with establishing the repair source. These issues, as an example, would be appropriately analyzed in order to determine the optimum depot maintenance support approach for their weapon system.

U.S. Army photo

M109 self-propelled howitzers like these at Letterkenny Army Depot, Chambersburg, Penn., await conversion to an M109A6 configuration in a training relationship with FMC Corporation.

The DoD originally instituted the DSOR process to ensure that an economic evaluation of potential depot repair alternative actions was accomplished early in the life cycle. Alternative DSOR options include contract maintenance, intraservice organic depot repair and interservice organic depot repair. The DSOR process is still valid and significantly contributes to the avoidance of those costs associated with duplicating facilities, test equipment and training for the same or similar items being introduced by the Services. The process focuses on identifying potential depot repair sources, both organic and commercial, with available resources that should reduce costs for depot activation and interim contractor support. Further, the process seeks sources that can provide cost-effective, long-term support.

Privatization

This article previously illustrated that the commercial and organic depot maintenance support structures are currently undergoing major changes that include consolidation initiatives, organizational personnel reductions, efforts to shed excess capacity, redistribution of workloads, and a renewed focus on maintenance repair and resource processes. These changes can be expected to continue in the future. As an example, more ambitious changes to the DoD logistical support structure are currently being examined by the congressionally convened independent Commission on Roles and Missions (CORM) of the Armed Forces. Tasked with recommending ways to streamline the military, the Commission is steadily moving toward advancing a proposal for large-scale privatization of defense support activities, including depot maintenance and supply logistical services. Although several commissioners recognize that roughly one-third of depot-level maintenance in DoD is already being farmed out to private firms, they have stated that more could be done.[5]

Any efforts to pursue wholesale privatization will have to be scruti-

FIGURE 2. Depot Source of Repair Decision and Acquisition Milestones

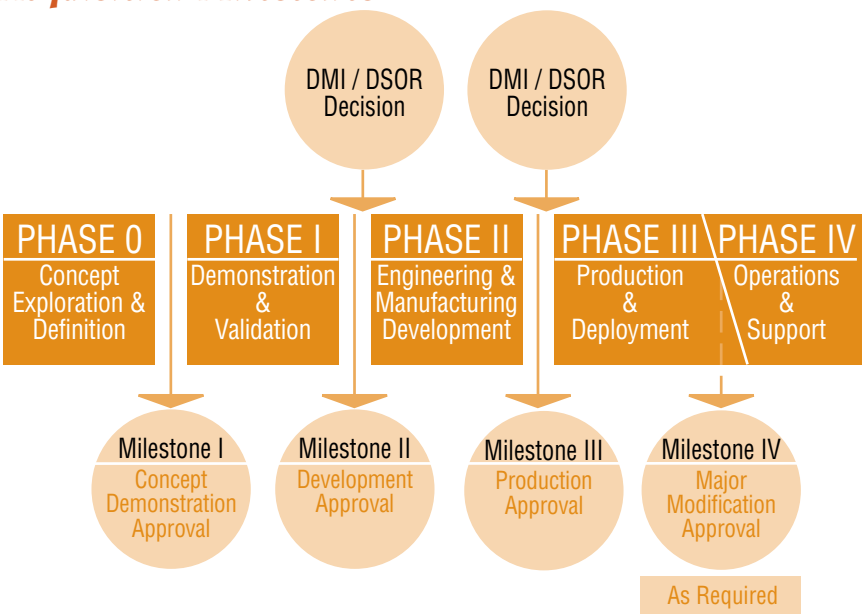
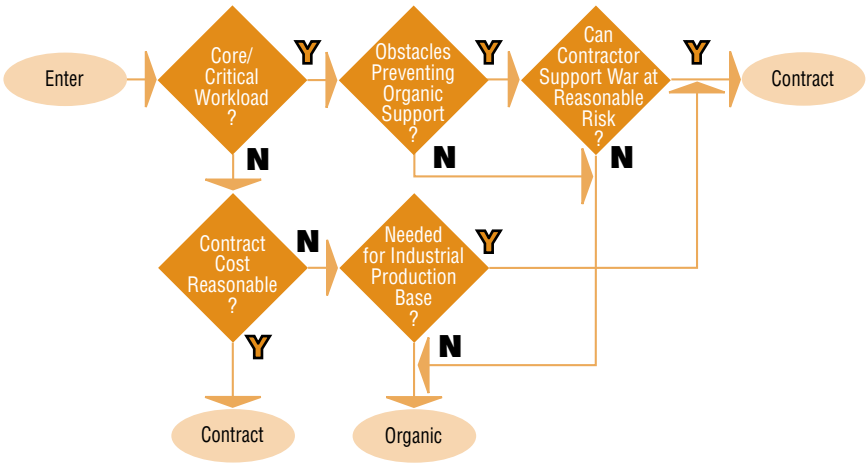


FIGURE 3. Generic Decision Tree Analysis



nized very closely. As an example, BRAC 93 resulted in the recommendation that the Air Force privatize the Aerospace Guidance and Metrology Center (AGMC) operation at Newark Air Force Base, Ohio. The General Accounting Office (GAO) initially estimated that the AGMC/Newark Air Force Base closure costs would be $38.29 million, with a 13-year payback period. Subsequently, GAO reported that one-time closure costs had doubled in the past year and may still be underestimated, resulting in a payback period that has increased at least 17 years to as much as over 100 years. In addition, GAO has stated that projected costs of conducting post-privatization operations could exceed the cost of current Air Force operations and reduce or eliminate projected savings.[6]

The DoD's current strategy continues to be a policy committed to sizing the infrastructure to support Core requirements. Wholesale privatization proposals, as advocated by groups such as the CORM, however, pose potential support issues for program management teams that are left unanswered. Nevertheless, the mere existence of such groups highlights the fact that program management teams must be cognizant of the continuing impetus to further streamline DoD's support structure. The role of program management teams in providing depot maintenance support planning over the life of their program may become more difficult in the future, but it will certainly not be relinquished.

MAJOR RECEIVES LAST PMC DIPLOMA

A name ending in "Z" usually means that Maj. Stephen Zaat, USA, will be last in virtually any alphabetical ranking. However, in the case of the PMC 95-1 graduation at Fort Belvoir's Wallace Theater on 9 June 1995, Maj. Zaat enjoyed the distinction of receiving a very special diploma — the last diploma awarded to a graduate of DSMC's 20-week Program Management Course. The College recently replaced the 20-week Program Management Course with the 14-week Advanced Program Management Course (APMC). From left: Capt. Daniel Brown, USN, Dean, School of Program Management; Maj. Gen. Lynn Stevens, USA (Ret.), Vice President and Manager, Precision Weapons Department, Northrop-Grumman Corporation, and former Commandant, DSMC; Maj. Stephen Zaat, USA, PMC 95-1; Brig. Gen. Claude M. Bolton, Jr., USAF, Commandant, DSMC; Mr. George Merchant, Director, PMC.

Summary

In summary, program management teams play a crucial role in conducting depot maintenance planning for their associated weapon systems in the early stages of their programs. Responsible for determining the optimum depot options that should be employed for supporting their weapon systems, their cognizance of current policies and the posture of both the commercial and organic industrial base that will eventually provide the associated support for their Weapon Systems, is essential.

Editor's Note: A working-level correspondence training course that teaches the entire depot maintenance interservicing process is available. Interested individuals should contact the Joint Depot Maintenance Analysis Group (JDMAG), Attn: Training Administrator, 1080 Hamilton St., Dayton, Ohio 45444-5370, or by telephone at (513) 296-8290 or DSN 986-8290. Reference the Depot Maintenance Interservice Support Agreement (DMISA) Training Course.

Endnotes

1. "Defense Giants to Merge Today Amid Heartache," *Washington Post*, March 15, 1995, p. C-1.
2. McKenna, James T., "Overhaul Firms Fight Excess Capacity," *Aviation Week & Space Technology*, March 13, 1995, p. 75.
3. Ibid.
4. Ibid.
5. Graham, Bradley, "Effort Building to Privatize at Defense," *Washington Post*, March 20, 1995, p. 1.
6. Aerospace Guidance and Metrology Center: Cost Growth and Other Factors Affect Closure and Privatization (GAO/NSIAD-95-60, December 9, 1994).