

Product Support for the 21st Century: A Program Manager's Guide to Buying Performance

November 2001

Executive Summary

This guide presents a performance-based logistics (PBL) strategy for product support of weapon systems. The guide is a tool for program managers as they design product support strategies for new programs or major modifications, or as they reengineer product support strategies for legacy weapon systems. PBL delineates outcome performance goals of weapon systems, ensures that responsibilities are assigned, provides incentives for attaining these goals, and facilitates the overall life-cycle management of system reliability, supportability, and total ownership costs. It is an integrated acquisition and logistics process for buying weapon system capability.

Program managers strive to achieve two primary objectives. First, the weapon system as designed, maintained, and modified must continuously reduce the demand for logistics. Second, logistics support must be effective and efficient, and the resources required to fulfill logistics requirements, including time, must be minimized. As a product support strategy, PBL serves to balance and integrate the support activities necessary to meet these two objectives.

The establishment of a product support integrator will facilitate the transition to PBL. This guide provides a methodology that can be applied to new, legacy, or modified systems. Program managers must ensure that both DoD and industry investments for change are effectively targeted to program priorities. This guide also includes a methodology that support providers can use to pursue PBL applications.

The transition to PBL as a product support strategy will evolve as managers of legacy systems transform their existing support structures. Source-of-support decisions for PBL do not favor either organic or commercial providers. The decision is based upon a best-value determination of the provider's product support capability to meet set performance objectives. *The major shift from the traditional approach to product support emphasizes what program managers buy, not who they buy it from.* Instead of buying set levels of spares, repairs, tools, and data, the new focus is on buying a predetermined level of availability to meet the warfighter's objectives.

Contents

1 New Direction in Product Support.....	1-1
1.1 PRODUCT SUPPORT—DELIVERING A CAPABILITY TO THE WARFIGHTER	1-1
1.1.1 The Program Manager’s Responsibility for Product Support.....	1-1
1.1.2 Product Support Characteristics	1-3
1.2 THE PRODUCT SUPPORT FOCUS.....	1-3
1.3 PERFORMANCE-BASED LOGISTICS	1-4
2 Implementing PBL	2-1
2.1 THE PBL METHODOLOGY.....	2-1
2.2 MAKING THE TRANSITION	2-1
2.3 ESTABLISHING THE TEAM	2-3
2.4 DETERMINING THE WARFIGHTER’S REQUIREMENTS	2-4
2.5 DEVELOPING THE PBL STRATEGY	2-4
2.6 FORMALIZING A PERFORMANCE AGREEMENT WITH THE WARFIGHTER.....	2-6
2.7 DEVELOPING PROGRAM BASELINE PERFORMANCE AND COST.....	2-6
2.8 DEVELOPING PERFORMANCE MEASURES AND MONITORING PERFORMANCE.....	2-7
2.9 ESTABLISHING A PRODUCT SUPPORT INTEGRATION FUNCTION.....	2-7
3 Buying Performance	3-1
3.1 PBL BUSINESS RELATIONSHIPS	3-1
3.2 ESTABLISHING INCENTIVES	3-2
3.3 MANAGING AND SHARING RISKS	3-3
3.4 ADDRESSING LEGISLATIVE AND STATUTORY ISSUES	3-4
3.5 FINANCIAL MANAGEMENT ISSUES	3-5
3.6 IMPLEMENTATION ASSISTANCE.....	3-5

Appendix A Pilot Programs for Reduction in Total Ownership Cost

Appendix B Tools and Databases

Appendix C DoD and Service Guidance

Appendix D Statutory Requirements

Appendix E Abbreviations

FIGURES

Figure 1-1. System Operational Effectiveness.....	1-2
Figure 1-2. DoD 5000 Acquisition Model—Traditional Versus New Focus in Acquisition.....	1-4
Figure 2-1. PBL Methodology.....	2-1
Figure 2-2. Transition to PBL.....	2-2
Figure 2-3. Spectrum of PBL Strategies.....	2-5

1 New Direction in Product Support

Section Highlights:

- ◆ The DoD 5000 series of acquisition policy documents promotes an integrated acquisition and logistics process.
- ◆ The DoD 5000.2-R acquisition regulation requires program managers to develop, document, and update a product support strategy for the life cycle of a weapon system. Product support is part of the acquisition strategy.
- ◆ Performance-based logistics (PBL) is the preferred approach to implement product support.

1.1 PRODUCT SUPPORT—DELIVERING A CAPABILITY TO THE WARFIGHTER

The DoD 5000 series of acquisition policy regulations¹ calls for the integration of acquisition and logistics to form a product support process that gives warfighters the capability to carry out their mission. DoD has elevated priority on the performance for weapon system life cycle support to bring higher levels of system readiness through integrated system management and direct accountability.

To achieve logistics excellence, DoD is streamlining the infrastructure. It is reducing customer wait times by integrating weapon system supply chains internally in the Department and externally with commercial logistics systems. The emphasis is shifting from the performance of individual stovepipe functions (e.g., procurement; supply; transportation) to harmonizing the functions to improve weapon system readiness. Competitive sourcing is being applied to select the best-value providers from government, industry, or public-private partnerships. Product support is the major acquisition logistics strategy for delivering a performance capability to the joint warfighter.

1.1.1 The Program Manager's Responsibility for Product Support

Product support is defined as a package of logistics support functions necessary to maintain the readiness and operational capability of a system or subsystem. It is an integral part of the weapon system support strategy that program managers

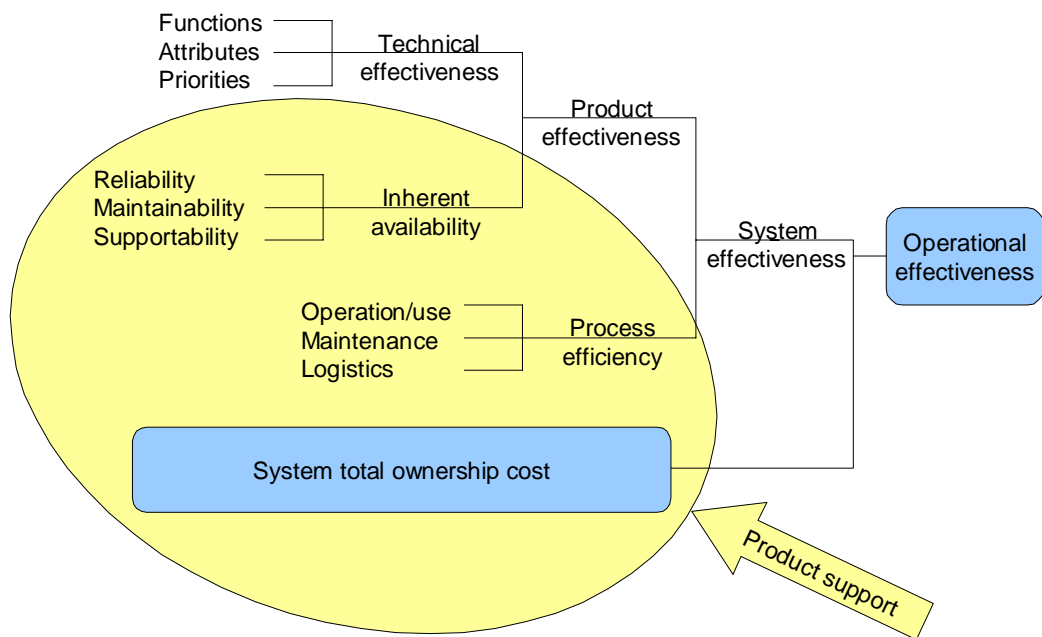
¹ DoD Directive 5000.1, "The Defense Acquisition System," October 23, 2000; DoD Instruction 5000.2, "Operation of the Defense Acquisition System," January 4, 2001; and DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs," June 2001.

(PMs) are required to develop and document as part of their acquisition strategy.² (Note that throughout this guide, the term “program manager” means the entire team composed of government and industry personnel.) The “package of logistics support functions” includes functions such as materiel management, distribution, technical data management, maintenance, training, cataloging, configuration management, engineering support, repair parts management, failure reporting and analysis, and reliability growth.

Simply put, PMs are responsible for laying out and executing a strategic blueprint for the logistics process so that every part of the package is connected and contributing to the warfighter’s mission capability. Moreover, DoD policy requires that the product support strategy be updated at least every five years during the product’s life cycle, or with greater frequency depending on the pace of technology.³

Program managers balance multiple objectives in designing the strategy to achieve operational effectiveness while maintaining affordability. Figure 1-1 shows the major role of product support factors in delivering warfighter operational effectiveness.

Figure 1-1. System Operational Effectiveness



Source: The System Design and Operational Effectiveness Program, Stevens Institute of Technology.

² DoD 5000.2-R, June 2001, Section C2.8.1, p. 35.

³ DoD 5000.2-R, June 2001, Section C2.8.3.1, p. 36.

1.1.2 Product Support Characteristics

The product support environment envisioned in the DoD 5000-series regulations is characterized by the following attributes:

- ◆ Warfighter relationships that are based on performance outcomes (such as flying hours or the mission availability of equipment)
- ◆ Integrated supply chains across government and industry that focus on system readiness and warfighter support and are responsive to the unique requirements of the military services
- ◆ Best-value providers selected from government, industry, or government/industry partnerships
- ◆ A support environment that maintains long-term competitive pressures on government and industry providers
- ◆ Secure, integrated information systems across industry and government that enable comprehensive supply chain integration and full asset visibility
- ◆ Continuous improvement of weapon system supportability and reduction in operating costs by dedicated investments
- ◆ Effective integration of weapon system support that is transparent to the warfighter and provides total combat logistics capability.

An overarching approach to delivering the attributes above is to select a product support integrator. An integrator serves to manage the product support of a weapon system or subsystem. DoD 5000.2-R states,

The PM may select a product support integrator from the DoD or private sector. Activities coordinated by support integrators can include, as appropriate, functions provided by organic organizations, private sector providers, or a partnership between organic and private sector providers.

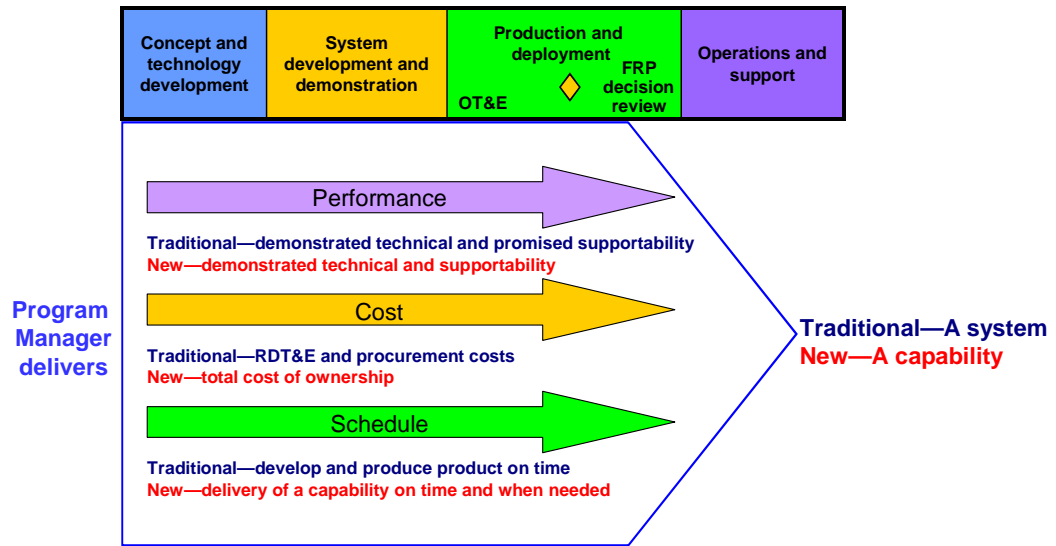
1.2 THE PRODUCT SUPPORT FOCUS

The DoD 5000 series emphasis on product performance has led to a redefinition of the traditional program factors of performance, cost, and schedule, as illustrated in Figure 1-2. In the past, meeting these three criteria was centered on developing, producing, and delivering a weapon system. Responsibility for delivering the capability did not rest solely with the PM. The new approach reflects the PM's responsibility to deliver a capability to the warfighter, not just a system.

Performance involves demonstrated technical capability and supportability for the life of the system. Cost involves the total cost of ownership throughout the life cycle. Schedule involves meeting the development and production time frames

required by the warfighter. PMs seek to develop innovative product support strategies that are tailored to the needs of the warfighter and the unique features of each weapon system.

*Figure 1-2. DoD 5000 Acquisition Model—
Traditional Versus New Focus in Acquisition*



1.3 PERFORMANCE-BASED LOGISTICS

Performance-based logistics (PBL) is DoD’s preferred approach for implementing product support. PBL is a strategy for weapon system life cycle support that brings higher levels of system readiness through efficient management and direct accountability. It describes performance goals for a weapon system’s readiness, and encourages the creation of incentives for attaining the goals through clear lines of authority and responsibility.

The 2001 Quadrennial Defense Review (QDR) advocates implementation of PBL to attain warfighter-focused sustainment of weapon systems. The QDR emphasis on PBL is consistent with top-level government policy, which emphasizes performance-based contracting for products and services.⁴ The QDR notes that PBL and modern business systems with appropriate metrics can eliminate non-value-added steps in the supply chain. DoD will implement PBL to compress the supply chain and improve readiness for major weapon systems and commodities.

To carry out new operational and transformation strategies, the warfighter requires weapon systems that are responsive, ready, and reliable. As a type of performance-based contracting, PBL places full accountability for readiness on the program manager, who may contract for weapon system sustainment from

⁴ Office of Management and Budget, Circular No. A-11, 2001, p.516.

organic providers, the industrial sector, or a partnership between organic and commercial providers.

PMs will implement PBL on all new systems and on Acquisition Category I and II fielded systems selected on the basis of a sound business case. In parallel with PBL, the Department is increasing the use of depot maintenance partnering between organic providers and the private sector, compliant with all laws.⁵ The benefits of partnering include leveraging efficient public facilities, maintaining DoD's core capability, and encouraging industrial investment and technology infusion.

⁵ "Public-Private Partnerships for Depot-Level Maintenance," Office of the Secretary of Defense, July 2001, <http://www.jdmag.wpafb.af.mil/2001%20partnering%20report.pdf>.

2 Implementing PBL

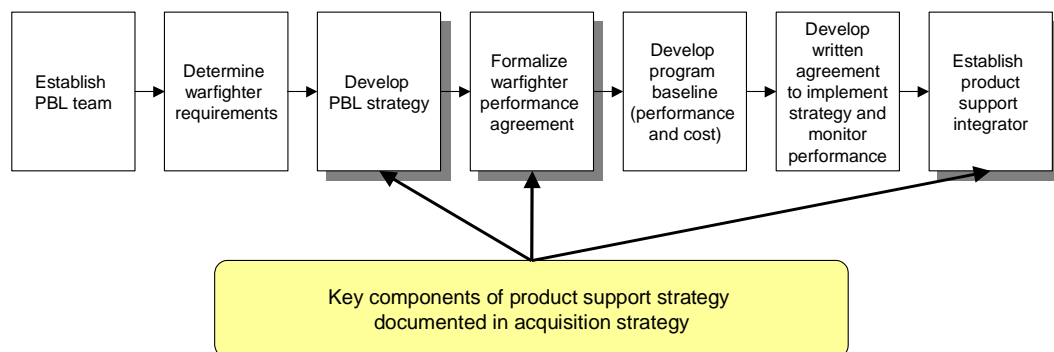
Section Highlights:

- ◆ The PM establishes a PBL team able to integrate across traditional stovepipe organizational boundaries.
- ◆ PMs consult with warfighters to determine requirements.
- ◆ Many PBL strategy options exist, ranging from work done entirely by the government, entirely by the private sector, or jointly in public-private partnerships.
- ◆ Performance agreements with warfighters are put into writing.
- ◆ Performance metrics are a key element in PBL.
- ◆ A product support integrator may be selected from the public or private sector.

2.1 THE PBL METHODOLOGY

The PBL methodology is presented in the flow diagram in Figure 2-1. The methodology can be applied to new, modified, or legacy systems.

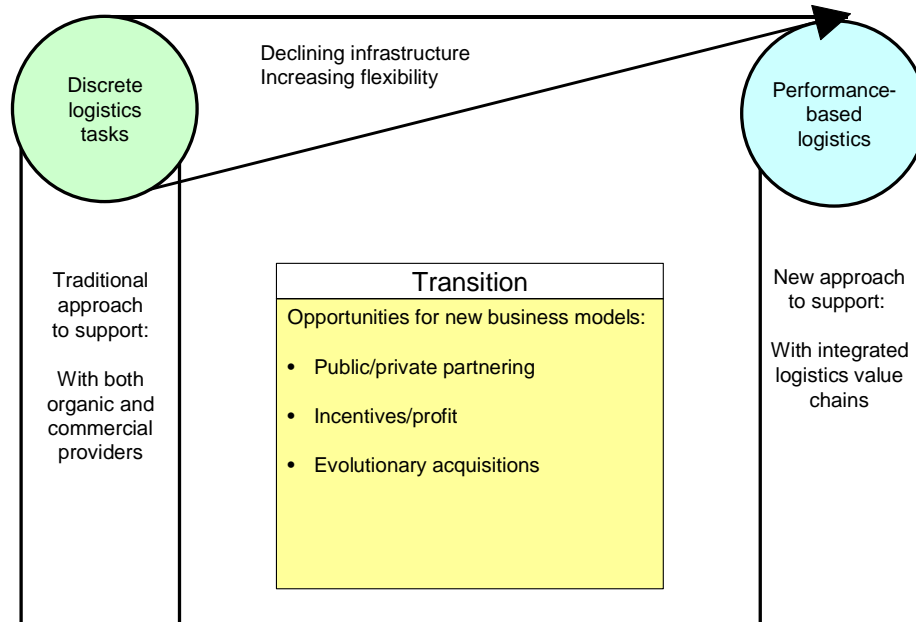
Figure 2-1. PBL Methodology



2.2 MAKING THE TRANSITION

Figure 2-2 illustrates the factors affecting the transition of a weapon system or an entire mission area to PBL. The transition does not necessarily mean logistics support moves from organic DoD providers to industry providers. However, it does mean business relationships that are structured to meet the warfighter's performance requirements may be different from relationships of the past.

Figure 2-2. Transition to PBL



There is no one-size-fits-all approach to PBL. Several programs have started the move to PBL under initiatives designed to meet the programs' specific requirements. Each program has tailored the PBL application to its unique circumstances taking into account cost, schedule, or product integrity to meet warfighter capability.

For example, the Joint Surveillance Target Attack Radar System program has several innovative actions under way. It has awarded a Total System Support Responsibility (TSSR) contract to a commercial firm. The contractor has assigned all TSSR personnel to the Robins Air Force Base area and is building an integrated government/contractor system support manager organization. The program also has contracted for a Flight Crew Weapon System Trainer; management of the Trainer will be performed on behalf of the PM by the Air Force Aeronautical Systems Center. Another action being taken by the PM is to expand a leasing arrangement beyond the core engine to the entire propulsion system.

The PM of the Army's Improved Target Acquisition System has chosen to utilize contractor logistics support where the soldier at organizational and direct support levels does field repair, while the contractor does higher level repair. The contractor is responsible for inventory management (provisions, owns, and maintains inventory; determines requirements; captures demand history) and for ensuring a fully functioning interface with the Army's standard supply system. A tight set of metrics for measuring the contractor's performance has been established, and the contractor's fees are tied to meeting the success criteria.

In June of 2000, the Naval Inventory Control Point (NAVICP) contracted with Honeywell International Inc. for an auxiliary power unit (APU) PBL effort. Less

than a week later, Honeywell entered into a partnership with the Naval Aviation Depot Cherry Point through a commercial services agreement. Honeywell is responsible for delivering P-3, S-3, F-18, and C-2 APUs and weapons replaceable assemblies to Navy worldwide customers with a minimum of 90 percent fill rate and guaranteed reliability improvements. The delivery requirements include 7-days continental United States (CONUS) routine delivery; 48-hour CONUS Issue Priority Group 1 delivery; and 96-hour delivery for all out-of-CONUS areas.

The NAVICP awarded a five-year, \$18.7 million contract to Rockwell Collins Inc. in support of the ARC-210 radio set. The ARC-210 is a UHF/VHF Electronic Protection Radio supporting multiple aircraft platforms. This PBL initiative includes an availability guarantee of 85 percent that requires the contractor to deliver replacement assets to fleet customers within two to five days, depending upon the priority. Measurement of this time begins with receipt of an electronic requisition at the contractor's facility and ends with the receipt of the asset at a predetermined customer location. This initiative also includes a requirement for a reliability guarantee, along with gain-sharing provisions if the contractor can obtain significantly higher reliability levels. In order to manage risk of non-performance, the contract also included a Loaner Spares provision. In the event that availability and reliability objectives are not met, the contractor is required to provide temporary loaner spares at no cost to the government.

2.3 ESTABLISHING THE TEAM

One of the first things a PM does is establish a team to develop and manage the implementation of a PBL weapon system strategy. The team may consist of government and private-sector functional experts; however, it is important that they are able to work across organizational boundaries. Establishing the team is a cultural change, as it will sometimes be difficult to find people who are comfortable with sharing information and working outside of the functional stovepipe organizations. This team-building part of PBL is similar to traditional integrated logistics support management, except the focus on individual support elements is diminished and replaced by a system orientation focused on performance outcome.

There are no "must-do" rules on how many people should be on the team or what organizations they should represent. A team could include representatives from a component command headquarters and logistics representatives from supply, maintenance, and transportation staffs. It could also include representatives from operational commands, engineering, technical, procurement, comptroller, information technology organizations, and contract support. After the team is organized, the members establish their goals, develop plans of action and milestones, and obtain adequate resources.

2.4 DETERMINING THE WARFIGHTER'S REQUIREMENTS

The goal of PBL is to make sure the weapon system provides a capability that meets the warfighter's requirements. PMs and warfighters work together to determine what is reasonable and attainable given the state of technology and resources.

Reaching an understanding of what the warfighter wants in terms of performance is essential to the PM's ability to develop a meaningful support strategy. The PM consults with the operational commands and organizations that support the warfighting commanders-in-chief. The operational commands are generally the weapon system customers. For newer systems, supportability requirements, including goals for weapon system availability and total ownership cost, are specified in the operational requirements document and the acquisition program baseline. For legacy systems, there may not be a clear link from earlier program documentation. The PM works with the warfighter to identify and define the support requirements that are most relevant.

Understanding the warfighter's requirements is not a one-time event. As scenarios change and the operational environment evolves, performance requirements may change. Thus, understanding the requirements is a continual management process for the PM.

2.5 DEVELOPING THE PBL STRATEGY

The next step is to develop a strategy for supporting the weapon system. This is a key component of the product support strategy documented in the acquisition strategy. A PBL strategy is designed to balance two major objectives throughout the life cycle of the weapon system. The requirement for logistics support must be minimized through technology insertion and refreshment, and the cost-effectiveness of logistics products and services must be continually improved. There needs to be a careful balancing of investments in logistics and technology to leverage technological advances through the insertion of mature technology. As the Secretary of the Navy recently stated,

In my judgment, the greatest inhibitor to technology insertion is our support system and related support cost. As long as we continue to support technology systems with antiquated support processes, we will not succeed in timely insertion. The cost of technology insertion is not prohibitive; the cost of technology insertion while dragging along with our direct support costs is prohibitive.¹

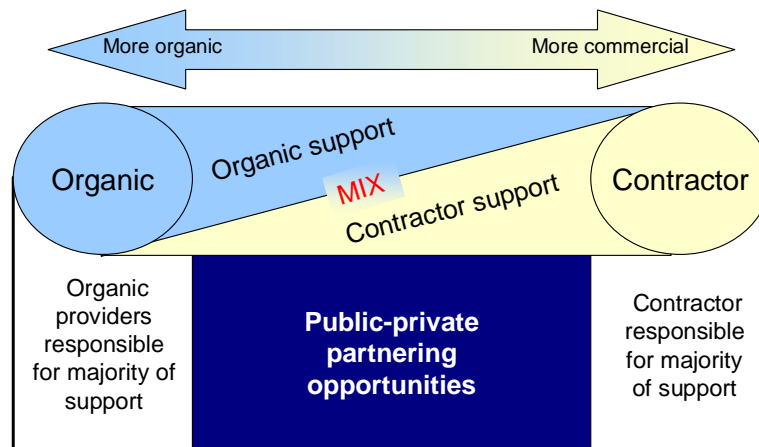
¹ Remarks to Naval Industry R&D Partnership Conference, Washington, D.C., August 13, 2000.

A PBL strategy seeks to maintain the appropriate level of flexibility and agility to evolve with technological advances and warfighter requirements.

The configuration management and control of the weapon system is an important factor to consider when designing the PBL strategy. In order to create the appropriate support environment, and to be responsive to evolving technology and warfighter requirements, the providers assigned the responsibility for delivering the weapon system capability must have the appropriate level of configuration management and control. As DoD 5000.1 states in reference to performance-based strategies, “Configuration management decisions shall be based on factors that best support implementation of performance-based strategies throughout the product life cycle.”

The strategy range of alternatives extends from the organic providers being responsible for meeting the outcome performance objectives to the private sector accepting this responsibility. In between these two options is public-private partnering, which represents a shared responsibility. Further, there are many gradients of PBL strategies across this spectrum, each strategy being unique for each weapon system. Figure 2-3 reflects a sample of the range of PBL strategies.

Figure 2-3. Spectrum of PBL Strategies



PBL strategies driven by MOUs with the warfighters will vary along this spectrum depending on:

- Age of system (phase in life cycle)
- Existing support infrastructure
- Organic and commercial capabilities
- Legislative and regulatory constraints

Examples of partnering agreements:

- Total system performance responsibility
- Government/industry partnering
- Service level agreements
- Performance-based agile logistics support
- Prime vendor support
- Contractor delivery system

Developing a strategy is a complex undertaking. It includes considering the needs of the warfighter, the cost of the weapon system both in its development and during its operational life cycle, the state of technology, and the capability of industry to produce the system. The PM considers the performance of the system in meeting the requirements of the warfighter, its supportability, and its logistics footprint

and agility. The PM is also careful that all initiatives comply with existing statutes and regulations. Finally, the PM coordinates with the warfighter and component subject matter experts before committing to a PBL initiative.

2.6 FORMALIZING A PERFORMANCE AGREEMENT WITH THE WARFIGHTER

A written performance agreement between the PM and the warfighter is the centerpiece of the PM's overall PBL support strategy. Typically, the agreement identifies outcome performance thresholds and objectives, and the target price for the set level of PBL capability. The agreement also delineates any constraints or boundary conditions. It may include specific terms and conditions related to warfighter-provided items (such as physical space for maintenance and information about the quality of the weapon system) and the system's operational availability or operational effectiveness.

For example, the Army's GUARDRAIL/Common Sensor (GR/CS) Product Support Pilot Program established a formal performance agreement between the GR/CS major commands and the PM, Aerial Common Sensor/Communications-Electronics Command. This agreement, in the form of a memorandum of agreement, identifies the subsystems or functions measured and the metrics used to measure performance. (See Appendix A for information on this and other systems.)

2.7 DEVELOPING PROGRAM BASELINE PERFORMANCE AND COST

Once PMs gain an understanding of warfighter performance requirements, it is important to baseline the current performance and cost levels. The life cycle stage of a program determines the scope of a baselining effort. For new programs with no existing logistics structure, the baseline includes an examination of the cost to support the replaced systems. For new systems, the business model for supporting the product demonstrates its risks and benefits as part of the systems engineering process. This "proof of concept" for the support solution is part of the system development and demonstration phase.

For legacy systems, the baseline assessments form the basis for business case analysis of PBL approaches being considered. In conducting the business case analysis, alternative solutions are assessed in terms of their ability to meet the logistics performance objectives of the warfighters compared particularly to existing support strategies. At this point, the business case analysis is a rough order of magnitude that provides an overall sense of the planned change, benefits, and costs. Each military service has guidelines for the analysis methodology used to

make business trade-off decisions. (Appendixes B and C provide references to the guidelines.)

2.8 DEVELOPING PERFORMANCE MEASURES AND MONITORING PERFORMANCE

The formalized performance agreement with the warfighter provides the objectives that form the basis of the PBL effort. A focus on a few outcomes measures—such as weapon system availability, mission reliability, logistics footprint, and overall system readiness levels—will lead to more effective solutions. The next task for the PM is to measure how well the objectives are being achieved. The PM develops measures of readiness and supportability performance that are balanced against costs and schedules.

Linking metrics to existing warfighter measures of performance and reporting systems is preferable. Many existing logistics and financial metrics can be related to top-level warfighter performance outcomes. These include requisition fulfillment rate, customer wait time, ratio of supply chain costs to sales, maintenance repair turnaround time, and so on. In structuring the metrics and evaluating performance, it is important to clearly delineate any factors that could affect performance but are outside the control of the PBL providers.

While objective metrics should form the bulk of the evaluation of a PBL provider's performance, some elements of product support requirements might be more appropriately evaluated subjectively by the warfighter and the PM team. This approach allows some flexibility for adjusting to potential support contingencies. For example, there may be different customer priorities that must be balanced with overall objective measures of performance.

2.9 ESTABLISHING A PRODUCT SUPPORT INTEGRATION FUNCTION

A concluding step in developing a product support strategy is establishing a product support integrator function. As with the PBL strategy and the agreement with the warfighter, the product support integration function is a key component of the

product support strategy documented in the acquisition strategy. DoD Regulation 5000.2-R allows the integrator to be selected from DoD or the private sector. The regulation states:

The PM may select a product support integrator from the DoD or private sector. Activities coordinated by support integrators can include, as appropriate, functions provided by organic organizations, private sector providers, or a partnership between organic and private sector providers. The PM shall ensure that the product support concept is integrated with other logistics support and combat support functions to provide agile and robust combat capability. The PM shall invite Military Service and Defense Logistics Agency (DLA) logistics activities to participate in the product support strategy development and integrated product teams (IPTs). These participants shall help ensure effective integration of system-oriented approaches with commodity-oriented approaches (common support approaches), optimize support to users and maximize total logistics value.²

While product support execution is accomplished by numerous organizational entities, the product support integrator is the single point of contact. The most likely candidates for the integrator role include:

- ◆ The system's original equipment manufacturer or prime contractor
- ◆ A military service product or logistics command
- ◆ A third-party logistics integrator from the private sector
- ◆ The PM's own logistics organization.

² DoD 5000.2-R, June 2001, Chapter 2, Section C2.8.3.2, p. 37.

3 Buying Performance

Section Highlights:

- ◆ Government policy is to use performance-based strategies for the acquisition of services wherever possible.
- ◆ Incentives can be monetary or non-monetary.
- ◆ Business arrangements can be structured so that the support providers are incentivized to perform and share risk with the PM.
- ◆ Statutory and financial management issues must be carefully addressed.

3.1 PBL BUSINESS RELATIONSHIPS

The focus in the previous section was on the PBL arrangements between the PM and the warfighter. This section covers the relationship between the PM and the provider of support. Remember that the provider can be organic, commercial, or a public-private partnership.

In a PBL arrangement, the contract with the provider describes the level of performance the provider must deliver to meet the warfighter's requirement. (The term "contract" is used here in a generic sense. It may be a traditional contract, a performance work statement, a statement of objectives, or a similar document.) The description of the level of performance is expressed in terms of measurable outcomes rather than prescriptive methods. The contract also describes how the outcome will be measured and evaluated, and the payment that will be linked to successful performance. The provider has considerable leeway to determine how to meet the performance objectives and quality levels spelled out by the PM. In other words, the PM focuses on "what," and the provider focuses on "how."

The Office of Federal Procurement Policy (OFPP) publishes *A Guide to Best Practices for Performance-Based Service Contracting*, which discusses best practices for drafting statements of work, solicitations, and quality assurance plans, and awarding and administering performance-based contracts.¹ OFPP has also produced a checklist of elements that must be present for an acquisition to be considered performance-based:² Those elements are:

- ◆ Performance requirements that define the work in measurable, mission-related terms

¹ Available at <<http://www.arnet.gov/BestP/PPBSC/BestPPBSC.html>>.

² Available at <http://www.arnet.gov/References/Policy_Letters/pbsckls.html>.

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- ◆ Performance standards (i.e., quality, quantity, timeliness) tied to performance requirements
 - ◆ A quality assurance plan that describes how the contractor's performance will be measured against the performance standards
 - ◆ If the acquisition is either critical to mission accomplishment or requires relatively large expenditures of funds, positive and negative incentives tied to the quality assurance plan measurements.

DoD's guidebook, *Performance-Based Services Acquisition* (PBSA), dated December 2000, requires that 50 percent of all service acquisitions must meet the PBSA guidelines by 2005. The following are among the top-level principles in the guidebook:

- ◆ Strive to define requirements in clear, concise language. Focus on specific work outcomes and ensure that they are measurable to the greatest extent practicable.
- ◆ Contractor performance assessments (the process known as quality assurance) should focus on outcomes rather than on contractor processes. Focus on insight of contractor performance, not oversight.
- ◆ Incentives should motivate the contractor to achieve performance levels of the highest quality consistent with economic efficiency. Ensure that incentives are effective and that they reflect value both to the government and to the contractor.³

It is important to recognize that PBL is a form of performance-based acquisition. However, while the PBSA guidebook is directed at contracting with industry, the principles and mechanisms of PBSAs can also be applied to business relationships between PMs and internal (organic) DoD PBL providers.

3.2 ESTABLISHING INCENTIVES

In a policy memorandum dated January 5, 2001, the Under Secretary of Defense for Acquisition, Technology and Logistics stated that "incentives can be monetary or non-monetary, and should be positive but balanced, when necessary, with remedies for missing specific program targets or objectives."⁴ The memorandum also noted that cost-based incentives sometimes result in unintended consequences and that non-cost-based incentives more closely approximate commercial agreements.

³ Under Secretary of Defense for Acquisition, Technology, and Logistics, *Guidebook for Performance-Based Services Acquisition in the Department of Defense*, December 2000.

⁴ Under Secretary of Defense for Acquisition, Technology and Logistics, *Incentive Strategies for Defense Acquisitions*, policy memorandum, January 5, 2001.

A relatively new incentive approach is award-term contracts. Here, the government establishes objective outcomes that it wants the provider to deliver. Successful performance leads to a longer-term contract; unsuccessful performance means a shorter contract period. This approach enables providers to make investments to improve performance and reduce costs that they might not otherwise make when facing uncertainty or short-term periods of performance.

An example of an award-term contract is the Air Force's Propulsion Business Area contract, which includes maintenance of aircraft engines and modules. This contract was awarded to the Oklahoma Air Logistics Center, which teamed with a contractor. The contract contains an initial ordering period of 7 years. This period may be reduced to a minimum of 5 years or extended to a maximum of 15 years, based on contract performance.

The DoD *Guide to Incentive Strategies for Defense Acquisitions* contains information useful to DoD and industry acquisition personnel about establishing incentives.⁵ It provides "the necessary framework and tools with which to effectively structure contractual incentives to achieve overall best value as part of a successful business relationship." Through a series of pertinent questions and links to websites, it presents multiple steps and considerations that lead to a satisfactory incentive arrangement.

Another publication on incentives is the *Flexible Sustainment Guide*⁶, published by the Joint Aeronautical Commanders Group. Whereas the DoD incentives guidebook focuses on trust- and information-based business relationships, the *Flexible Sustainment Guide* focuses on the different types of contracts that can be employed, and the advantages and disadvantages of each type.

Also, there are incentives for DoD organic providers to partner with industry PBL providers. Some of those incentives can include workload stabilization, insertion of commercial practices, capital investment, and commercial workload opportunities.

3.3 MANAGING AND SHARING RISKS

A PBL business relationship entails the effective identification and sharing of risks. Unpredictable factors can affect the support requirements for a weapon system, especially with aging legacy weapon platforms. As such, it is important that these risk factors be identified and carefully managed by the PM and the PBL provider.

⁵ USD for Acquisition, Technology, and Logistics, *Guide to Incentive Strategies for Defense Acquisitions*, January 2001. Available at <<http://www.acq.osd.mil/ar/resources.htm>>.

⁶ Available at <<http://lrc3.monmouth.army.mil/cecom/lrc/leo/eladiv/logistics/flexguide/flexguide-e.html>>.

The *Risk Management Guide for DoD Acquisitions* states that risk management “is concerned with the identification of uncertainties that threaten cost, schedule, and performance objectives, and the development and implementation of actions to best deal with those uncertainties within established limits.”⁷ The guide identifies external risks, such as changes in threat, funding changes, contractor problems, political decisions, and acts of nature. Among the internal risks are poorly defined manufacturing, support reliability and availability, cost and schedule estimates, and modeling and simulation capabilities.

3.4 ADDRESSING LEGISLATIVE AND STATUTORY ISSUES

The PBL approach must ensure compliance with all statutory and regulatory requirements, and in particular the statutory limitations of Title 10 USC, Sections 2464, 2466, and 2469. (See Appendix D for further details.)

Congress has enacted a number of statutes that place controls on what actions the Department can take in using commercial sector maintenance capabilities. These legislative and statutory issues must be considered as an integral and evolving aspect of product support acquisition decisions. For example, Section 2464 requires DoD to maintain a core logistics capability in order to perform maintenance and support of mission essential equipment.

Section 2466 also requires DoD to ensure that not more than 50 percent of the funds available to a military department or defense agency in a fiscal year for depot-level maintenance and repair workload be used to contract for the performance of this workload by non-federal-government personnel.

In addition, Section 2469 stipulates that existing depot-level maintenance or repair workload valued at \$3 million or more and identified for outsourcing must first be the subject of a public-private competition.

Section 346 of the National Defense Authorization Act for FY 1999—as amended by Section 336 of the Act for FY 2000—prohibits the Secretary of Defense or the head of a military department from entering into a prime vendor contract for depot-level maintenance, repair of a weapon system, or other military equipment before the end of a 30-day waiting period after submission to Congress of a report describing the nature, cost, impact, and competition procedures used to award the prime vendor support contract.

⁷ Defense Systems Management College, *Risk Management Guide for DoD Acquisitions*, January 2001.

3.5 FINANCIAL MANAGEMENT ISSUES

The program manager faces three financial management issues when transitioning to product support for a legacy weapon system or establishing product support for a new weapon system or for a major modification to a legacy weapon system. These financial issues are restrictions on the use of operations and maintenance funds (“color of money”), the expiration of funds, and the flow of funding to the program manager.

Color of money issues restrict the types of services that the program manager can buy. This restriction often results in less than optimal allocation of funding for high-priority requirements not anticipated in the budgeting process.

Time restrictions on when funds can be spent vary by appropriation. Often, modifying a component or a support system requires multiple appropriations (e.g., for research and development, procurement, and operations and maintenance funding). Having funding available when it is needed within its expiration limits is a difficult balancing act.

The third financial issue occurs when the program manager becomes the buyer of support services for a major modification or a weapon system. Traditional organic support uses the working capital fund as the funding mechanism for depot maintenance and supply support. Operational commands receive operations and maintenance funding to buy support on a transaction basis from working capital fund activities. When the program manager becomes the buyer of support services, funds must flow directly to the program manager and not to the operational commands. This reduction in budget authority is a great concern to the operational commands because it reduces their funding flexibility.

Working capital may be used to solve these problems by creating a product support activity group. Within each component, the Defense Working Capital Fund (DWCF) is divided into activity groups (for example, depot maintenance and supply management within the DWCF). The product support activity group could be created by weapon system or several weapon systems managed within a single product support activity group. Testing the working capital fund mechanism is under way on four legacy weapon systems, but it is too soon to render a judgment on the utility of this approach.

3.6 IMPLEMENTATION ASSISTANCE

The Office of the Deputy Under Secretary of Defense (Logistics and Materiel Readiness), the military services, and Defense Logistics Agency are committed to helping PMs implement PBL. To request implementation assistance, PMs are encouraged to contact the Under Secretary’s Office via the Web at http://www.acq.osd.mil/log/new_lpp/ps/prod_suprt.htm.

Appendix A

Pilot Programs for Reduction in Total Ownership Cost

DoD’s implementation of PBL is directed toward infusing greater accountability into the weapon system support process. PMs are developing a variety of alternative support strategies that employ PBL concepts tailored to unique program and service circumstances. Programs that are pursuing a reduction in total ownership cost (RTOC) are listed in the following table, and selected examples are explained in the subsequent text.

Table A-1. RTOC Pilot Programs

Army	Navy	Air Force
Abrams M-1 Tank	Advanced Amphibious Assault Vehicle	Airborne Warning and Control System
Advanced Field Artillery Tactical Data System	AEGIS Cruiser	B-1B Lancer
Apache AH-64	Aviation Support Equipment/Consolidated Automated Support System	C-17 Globemaster
Chinook CH-47	Common Ship	C-5 Galaxy
Comanche RAH-66	CVN-68	Cheyenne Mountain Complex
Crusader	EA-6B Prowler	F-117 Nighthawk
Guardrail/Common Sensor	H-60 Helicopter	F-16 Falcon
Heavy Expanded Mobility Tactical Trucks	LPD-17	Joint Surveillance Target Attack Radar
High Mobility Artillery Rocket System	Medium Tactical Vehicle Replacement	KC-135 Stratotanker
Tube-launched, Optically-tracked, Wire-guided Improved Target Acquisition System	Standoff Land Attack Missile—Expanded Response	Space-Based Infrared Systems

ARMY

Abrams Tank System

The Abrams Tank provides heavy armor superiority on the battlefield, confronting enemy forces with mobility, firepower, and shock effect. The program manager is carrying out four product support strategies: a public-private partnership to overhaul engine components; a public-private partnership to overhaul the M1A1 fleet; a technical support program to identify and replace obsolete parts; and a DLA direct vendor delivery program for consumable parts.

The Abrams is one of four weapon systems experimenting with performance agreements with users and support providers, and program-specific working capital funds.

Guardrail/Common Sensor

The Guardrail/Common Sensor system is a corps-level, fixed-wing, airborne signals intelligence collection and target system. The PM is planning to generate formal performance agreements between the major using commands (INSCOM, USAREUR, and FORSCOM) and the product manager, ACS/CECOM, which will define the operational availability commitments for Guardrail/Common Sensor equipment and the metrics that will be used to determine success. The program will review all current contracts with support providers, including contractors, DLA inventory control points, and depots, to determine performance type and identify which ones are appropriate for performance-based contracting.

The PM will also explore establishment of a GR/CS-specific life cycle management fund to combine all Guardrail funds (including O&M, Army Working Capital Fund, sustaining engineering, etc.) into a single managed fund. The user, sustainment, and modernization community would determine management program requirements, and the entire Guardrail community would develop the transition plan.

Guardrail/Common Sensor is one of four weapon systems experimenting with performance agreements with users and support providers, and program-specific working capital funds.

Heavy Expanded Mobility Tactical Truck

The heavy expanded mobility tactical truck (HEMTT) consists of a family of 10-ton trucks, including cargo, tanker, tractor, wrecker, and a new load handling system. The PM is applying an extended service program using commercial technologies to improve vehicle performance and reduce costs through replacement of high-failure-rate items. An award fee contract is being arranged with the contractor covering operations and support performance. New interactive electronic technical manuals are being developed, and direct vendor delivery arrangements are being made with DLA to reduce inventories, achieve price reductions, and improve cycle times.

NAVY

Advanced Amphibious Assault Vehicle

The advanced amphibious assault vehicle (AAAV) is a self-deploying, high water speed, fully tracked, NBC-protected, armored amphibious personnel carrier. The PM is conducting design trade studies and producibility assessment trades, as well

as supportability trade studies on the source of supply, source of support, and contractor logistics support. The PM plans to compete whatever support arrangement is decided upon. The PM is also working with DLA to reduce the range and depth of inventory.

H-60 Series Helicopters

The H-60 series is a multi-mission helicopter providing anti-ship targeting, quick-reaction defense, medical evacuation, logistics, and other capabilities. The PM is implementing an overarching master plan, which includes competitive sourcing of long-term product support to reduce spares and the system footprint. Consideration is being given to having a contractor manage unique spare parts and accomplish configuration management; maintenance would be performed at a DoD depot.

EA-6B Prowler

The EA-6B Prowler is a modified A-6 Intruder aircraft with significant capability for electronic warfare and electronic countermeasures. The PM is exploring a memorandum of understanding with fleet customers to identify responsibilities and agree upon aircraft inventory and readiness metrics. This MOU would provide increased visibility into the root cause of readiness degraders, which will be used to focus process and system improvements and provide the detailed basis for future budget support. The program office is also considering establishing MOUs with support providers covering the airframe and engine, the tactical jamming system, and the Naval Inventory Control Point and DLA for supply support of the aircraft.

The EA-6B has been selected by the Navy and OSD to experiment with performance agreements with users and support providers, and program-specific working capital funds.

AIR FORCE

F-16 Fighting Falcon

The F-16 Fighting Falcon is a multi-role fighter aircraft for air-to-air and air-to-surface missions. The PM has established a Combined Life-Time Support Program, which is a prototype partnering strategy for product support. The program office also has a firm fixed-price contract that incentivizes manufacturers to build more reliable components.

The F-16 has been selected by the Air Force and OSD to experiment with performance agreements with users and support providers, and program-specific working capital funds. The F-16 program office is developing a draft MOU with Air Combat Command (ACC). The expected outcomes are a stronger

commitment from ACC to fund requirements addressed in the program management directive, and an elevated cause-and-effect relationship between funding and missions availability. The program office is also reviewing existing service level agreements (SLAs) with organic providers to identify necessary changes.

F-117 Nighthawk

The F-117 Nighthawk is a low-observable stealth aircraft that employs a variety of weapons and is equipped with sophisticated navigation and attack systems integrated into a state-of-the-art digital avionics suite. The support arrangement is a Total System Performance Responsibility (TSPR) contract for sustainment. The contract is cost plus incentive fee and award fee. There is a cost incentive provision within the contract to share all cost reductions from contractor-initiated reduction actions. It is a five-year contract, with a three-year extension option. It has a simplified contract line item number structure, with only 4 line items for total support and 11 contract data requirements lists. It has provisions for technical performance, competition in small business contracting, customer satisfaction, and is evaluated semi-annually.

The core retained government functions are overall program direction, requirements determination, budgeting and financial execution, contract management, product/service acceptance, and security. Contractor functions include system engineering, subcontractor management, system/subsystem integration, configuration management, item/materiel management, warehousing/transportation, and direct supply support.

In addition to O&S cost savings, the TSPR contract has resulted in improved mission performance and a concurrent manpower reduction in the program office.

C-17 Globemaster

The C-17 Globemaster aircraft is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases in the deployment area. The PM is pursuing a flexible sustainment strategy contract on a trial basis. The flexible sustainment is an interim support strategy utilizing a performance-based contract, measuring key system-level metrics. The long-term depot support strategy will evaluate flexible sustainment performance against an organic option in an FY03 cost-benefit analysis for the final depot support decision.

Appendix B

Tools and Databases

METHODOLOGIES

Each of the military services has developed methodologies and approaches for conducting program baseline assessments. The Army has also established a handbook for initiatives seeking a reduction in total ownership costs. The Navy has an “affordable readiness” template and methodology for program managers to use to assess potential alternative logistics approaches that improve performance and reduce cost. The Air Force has also developed a guidebook as part of its Reduction in Total Ownership Cost initiative. The web sites for the service initiatives are:

Army: <http://www.saalt.army.mil/armytoc>

Navy: <http://www.nalda.navy.mil/3.6/coo>

Air Force: <http://www.safaq.rtoc.hq.af.mil/tools.cfm>

DATABASES

The Army, Navy, and Air Force have all established Web-based logistics databases that are accessible with authorized passwords. The Army has a database link called WEBLOG, which provides a wide range of logistics data and information. The Navy has established a Naval Aviation Logistics Data Analysis (NALDA) database/repository, which provides various information sources on not only cost but also performance. The Air Force has on-line access to cost data. The web sites are provided below:

Army: <http://weblog.army.mil>

Navy: <http://www.nalda.navy.mil>

Air Force: <http://www.saffm.hq.af.mil>

Appendix C

DoD and Service Guidance

DoD GUIDANCE

DoDD 5000.1; The Defense Acquisition System, 23 October 2000

http://web1.deskbook.osd.mil/htmlfiles/DBY_dod.asp

DoDI 5000.2; Operation of the Defense Acquisition System,
4 January 2001

http://web1.deskbook.osd.mil/htmlfiles/DBY_dod.asp

DoD 5000.2-R (Interim); Mandatory Procedures for Major Defense
Acquisition Programs (MDAPs) and Major Automated Information System
(MAIS) Acquisition Programs; 4 January 2001

http://web1.deskbook.osd.mil/htmlfiles/DBY_dod.asp

FY2001 DoD Logistics Strategic Plan, August 1999

<http://www.acq.osd.mil/log/lsp/lsp.htm>

ARMY GUIDANCE RELATED TO PRODUCT SUPPORT

Army Regulation 70-1—Research, Development, and Acquisition, Army
Acquisition Policy

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

Army 700-127, Integrated Logistics Support

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

FM-100-10-2 Contracting Support on the Battlefield

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

Army Policy Memo—Supportability Co-equal with Cost, Schedule
and Performance

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

Army Policy Memo—Life Cycle Management

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

Army Policy Memo—Management of the Total Life Cycle for Acquisition Category (ACAT) Systems

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

Army Policy Memo—Total Ownership Cost Reduction

http://web1.deskbook.osd.mil/htmlfiles/DBY_army-1-Department.asp

NAVY GUIDANCE RELATED TO PRODUCT SUPPORT

SECNAVINST 5000.2B Implementation of Mandatory Procedures for Major and Non-Major Defense Acquisition Programs

http://web1.deskbook.osd.mil/htmlfiles/DBY_don-3-Department.asp

SECNAVINST 4105.1 N432 Integrated Logistics Support: Assessment and Certification Requirements

http://web1.deskbook.osd.mil/htmlfiles/DBY_don-3-Department.asp

NAVAIR—Maintenance Trade Cost Guide

<http://www.nalda.navy.mil/3.6/coo/>

NAVAIR—Contracting for Supportability Guide

<http://www.nalda.navy.mil/3.6.1/contract.html>

NAVAIRINST 4081.2 Policy Guidance for Alternative Logistics Support Candidates

<https://directives.navair.navy.mil>

AIR FORCE GUIDANCE RELATED TO PRODUCT SUPPORT

Air Force Instruction 63-107, Integrated Weapon System Management Program Planning and Assessment

<http://afpubs.hq.af.mil/pubs/publist.asp?puborg=AF&series=63>

Air Force Instruction 63-111, Contract Support for Systems and Equipment

<http://afpubs.hq.af.mil/pubs/publist.asp?puborg=AF&series=63>

Air Force Instruction 63-124, Performance-Based Service Contracts

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_154-2-4-Department.asp

Air Force Instruction 63-1201 Assurance of Operational Safety, Suitability and Effectiveness

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_154-2-4-Department.asp

Air Force Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_175-2-4-Department.asp

Air Force Instruction 10-602, Determining Logistics Support and Readiness Requirements

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_175-2-4-Department.asp

Air Force Instruction 25-201, Support Agreement Procedures

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_130-2-4-Department.asp

Air Force Instruction 21-101, Maintenance Management of Aircraft

http://web1.deskbook.osd.mil/htmlfiles/DBY_af_122-2-4-Department.asp

Appendix D

Statutory Requirements

U.S. Code: Title 10, Chapter 146

http://uscode.house.gov/title_10.htm

Section 2460

Definition of depot-level maintenance and repair

Section 2461

Commercial or industrial type functions: required studies and reports before conversion to contractor performance

Section 2462

Contracting for certain supplies and services required when cost is lower

Section 2463

Collection and retention of cost information data on converted services and functions

Section 2464

Core logistics capabilities

Section 2465

Prohibition on contracts for performance of firefighting or security-guard functions

Section 2466

Limitations on the performance of depot-level maintenance of materiel

Section 2467

Cost comparisons: inclusion of retirement costs; consultation with employees; waiver of comparison

Section 2468

Military installations: authority of base commanders over contracting for commercial activities

Section 2469

Contracts to perform workloads previously performed by depot-level activities of the Department of Defense: requirement of competition

Section 2469a

Use of competitive procedures in contracting for performance of depot-level maintenance and repair workloads formerly performed at certain military installations

Section 2470

Depot-level activities of the Department of Defense: authority to compete for maintenance and repair workloads of other federal agencies

Section 2472

Management of depot employees

Section 2473

Procurements from the small arms production industrial base

Section 2474

Centers of Industrial and Technical Excellence: designation; public-private partnerships

Appendix E

Abbreviations

APU	auxiliary power unit
CDRL	contract data requirements list
CLIN	contract line item number
CONUS	continental United States
DLA	Defense Logistics Agency
DWCF	Defense Working Capital Fund
GR/CS	Guardrail/Common Sensor
IPT	integrated product team
NAVICP	Naval Inventory Control Point
OFPP	Office of Federal Procurement Policy
PBL	performance-based logistics
PBSA	Performance-Based Services Acquisition
PM	Program Manager
QDR	Quadrennial Defense Review
RTOC	Reduction in Total Ownership Cost
TSSR	Total System Support Responsibility