THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

NOV 10 2004

MEMORANDUM FOR ASSISTANT SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTOR, DEFENSE LOGISTICS AGENCY
PRESIDENT, DEFENSE ACQUISITION UNIVERSITY

SUBJECT: Performance-Based Logistics Product Support Guide

Performance-Based Logistics (PBL) is the Department of Defense strategy to improve weapon system readiness and support. Over the past three years, PBL has been implemented throughout the Department of Defense and is generating significant cost savings and improved capability. Systems using PBL support strategies have made significant contributions to ongoing operations in Afghanistan and Iraq. I applaud your efforts and encourage you to press on.

The attached guidebook, "Performance-Based Logistics: A Program Manager's Product Support Guide," provides updated guidance for implementing PBL throughout the Department, superseding the previous PBL Guide. This guide incorporates lessons learned from the successful application of PBL support strategies to programs throughout the Armed Services. It presents a basic methodology for implementing PBL and addresses key issues in the implementation process.

Program and Product Support Managers should use this guide in conjunction with "Designing and Assessing Supportability in DoD Weapons Systems" and "Product Support Boundaries" to implement Total Life Cycle Systems Management (TLCSM) and PBL as directed in the System Planning Guidance, DoD Directive 5000.1, and recent OSD memoranda.

This Guidebook is available on the Defense Acquisition University (DAU) Logistics Community of Practice (LogCoP) web at: http://acc.dau.mil/log. Questions or suggestions regarding this Guide should be directed to Mr. Jerry Beck, OADUSD(Logistics Plans and Programs), 703-614-4859, jerry.beck@osd.mil.

Michael W. Wynne
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Performance Based Logistics:
A Program Manager's Product Support Guide

FOREWORD

This document supersedes Product Support: A Program Manager's Guide to Buying Performance, published in November 2001, which has been commonly known as "The PBL Guide." Performance-Based Logistics: A Program Manager's Product Support Guide captures the progress that has been made in implementing PBL over the past three years and presents up-to-date guidance based on the lessons learned from the application of PBL to support activities throughout the Armed Services.

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Executive Summary

Performance-Based Logistics (PBL) is the preferred Department of Defense product support strategy to improve weapon system readiness by procuring performance, which capitalizes on integrated logistics chains and public/private partnerships. The cornerstone of PBL is the purchase of weapon system sustainment as an affordable, integrated package, based on output measures such as weapon system availability, rather than input measures, such as parts and technical services. The Quadrennial Defense Review (QDR) and the Defense Planning Guidance (DPG) directed the application of PBL to new and legacy weapon systems. PBL Implementation is also mandated by DoD Directive 5000.1.

This guide is a tool for program managers (PMs) and Product Support Managers (PSM) as they design product support strategies for new programs or major modifications, or as they reengineer product support strategies for existing, fielded systems. It presents a methodology for implementing a PBL product support strategy. PBL delineates outcome performance goals of 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 providing weapon system capability.

Designing and Assessing Supportability In DoD Weapon Systems: A Guide to Increased Reliability and Reduced Logistics Footprint (The Supportability Guide) is the DoD document that defines a framework for determining and continuously assessing system product support throughout the lifecycle. It uses the Defense Acquisition Management Framework (See the DoD 5000 series) and systems engineering processes to define appropriate activities and required outputs throughout a system's life cycle to include those related to sustainment of fielded systems. A System Operational Effectiveness (SOE) framework is included that shows the linkage between overall operational effectiveness and system and product support performance. This is accomplished through the application of a robust, life cycle systems engineering process to identify and continuously assess supportability requirements for the system.

The Supportability Guide provides a template for the PM when assigned, or responsible activities, to use in defining and assessing their program activities to meet QDR and DPG objectives and DoD policy requirements throughout the system life cycle. The term PM, as used here, refers to the entire, integrated program office team, including program office personnel, other government personnel, and industry. This guide emphasizes designing for increased reliability and reduced logistics footprint, and providing effective, affordable product support through performance-based logistics (PBL) strategies.

Implementation of this disciplined approach, including systems engineering analysis tools such as Requirements Definition, Architecture Development, Failure Mode Effects and Criticality Analysis (FMECA), Fault Tree Analysis (FTA), and Reliability Centered Maintenance (RCM), will produce a Maintenance Task Analysis (MTA) directly linked to a system's Reliability, Maintainability, and Supportability (RMS) attributes. The MTA is based upon detailed technical tasks including those determined by application of an RCM assessment of the design of the system. Close collaboration between engineers

and logisticians is critically important during system design and development and throughout the life cycle. These tasks are further refined through PBL Business Case Analysis to determine a cost effective, sustainable product support solution to meet the user's needs in an operational environment.

A Total System Product Support Package, which identifies support requirements based upon the reliability and maintainability of the system in order to meet top-level operational and support metrics (see section 2.3, PBL Metrics), is defined in conjunction with the user. The PM and the user then document these support requirements in a performance-based agreement. Continuous assessment of in-service system performance will identify needs for system improvements to enhance safety, reliability, maintainability, affordability, obsolescence, corrosion, and other Life Cycle Logistics (LCL) attributes.

The transition to PBL as a product support strategy will evolve based on determination of the provider's product support capability to meet set performance objectives. The major shift from the traditional approach to PBL product support emphasizes what program managers provide to the user. 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.

1.0 Introduction

The Department of Defense (DoD) is emphasizing weapons system performance throughout the life cycle to provide assured levels of system readiness with a focus on integrated system management and direct accountability. The DoD 5000 acquisition regulations direct the integration of acquisition and logistics to enhance the warfighters' capability to carry out their mission. DoD's strategic goals for acquisition logistics, as stated in the most recent Quadrennial Defense Review (QDR), Joint Vision 2020, and the Focused Logistics Campaign Plan (FLCP), include:

- Project and sustain the force with minimal footprint.
- Reduce cycle times to industry standards.
- Implement Performance-Based Logistics.

The Joint Capabilities Integration and Development System (JCIDS) translates those strategic acquisition logistics goals into capabilities needs that define systems. Supportability should be a Key Performance Parameter (KPP) consideration defined by JCIDS and fulfilled through performance-based logistics.

Performance-Based Logistics (PBL) is the purchase of support as an integrated, affordable, performance package designed to optimize system readiness and meet performance goals for a weapon system through long-term support arrangements with clear lines of authority and responsibility. Simply put, performance-based strategies buy outcomes, not products or services.

PBL is DoD's preferred product support method. DoD policy states that: "PMs shall develop and implement Performance-Based Logistics (PBL) strategies that optimize total system availability while minimizing cost and logistics footprint." "Sustainment strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements." (DoDD 5000.1, E1.17)

In the PBL environment, a Government/Industry Team is a key long-term relationship that is developed among public and private stakeholders contractually and/or with performance agreements. The team is based upon a foundation of building trust whereby there is mutual accountability for achieving the outcome performance goals in managing reliability, supportability and total ownership cost over the life cycle of a weapon system.

This guide, **Performance Based Logistics: A Program Manager's Product Support Guide,** provides a PBL implementation tool for the PM, Product Support Manager and the product support team. After an initial overview of Total Life Cycle Systems Management (TLCSM) and PBL, it presents a 12-step PBL implementation process and further discussion of Key Elements in that process. It concludes with a selection of real-world PBL examples. References and additional information are provided in Section 6.

The term PM, as used here, refers to the entire, integrated program office team, including program office personnel, other government personnel, and industry; or to the sponsor if no PM has been assigned.

Acquisition logistics professionals should apply the information in this guidebook in context with two other key documents: The Supportability Guide (see 1.1 below), which lays a foundation for PBL by emphasizing supportability in systems engineering, and the Product Support Boundaries (see 1.2 below), which establishes the boundaries within which PBL should be implemented.

1.1 Designing and Assessing Supportability in DoD Weapons Systems: A guide to Increased Reliability and Reduced Logistics Footprint (The Supportability Guide)

The Supportability Guide provides a template for PMs or responsible activities to use in defining and assessing their program activities to meet QDR objectives and DoD policy requirements throughout the weapon system life cycle. Emphasis is placed on designing for increased reliability and reduced logistics footprint, and on providing for effective product support through performance-based logistics (PBL) strategies.

The Defense Acquisition Technology and Logistics Life Cycle Management Framework (the 'Wall Chart') and a systems engineering process are used to define the appropriate activities and required outputs throughout a weapon system's life cycle, to include those related to sustainment of fielded systems. A System Operational Effectiveness (SOE) framework is included that shows the linkage between overall operational effectiveness and weapon system and product support performance is included in the Supportability Guide.

The Supportability Guide provides a reference for PMs and their teams to 'design in' and then assess the effectiveness of their PBL strategies throughout the system's life cycle. As such, the Supportability Guide provides the foundation upon which this PBL guide is based. PBL design and implementation should flow from the activities described in the Supportability Guide.

1.2 Product Support Boundaries (PSB)

Product Support Boundaries provides the strategic construct for innovation within a consistent support structure for the warfighter. It includes procedures to explore solutions that extend the support "envelope" and methods to enhance best value solutions while maintaining optimal military efficiency. The PSB summarizes the support policy memoranda and standards endorsements produced over the past two years.

The PSB advances the understanding of support responsibilities within TLCSM. PSB is to be used by PMs, Product Support Managers, Product Support Integrators, force providers, and product support providers. It is equally applicable to new and current

weapon systems. It provides a source document by which to prioritize operational, personnel, and training issues consistent with existing DoD guidance.

The aim of the PSB is to provide the boundary conditions for product support strategies that allow innovation but ensure consistency and interoperability across programs. The PSB provides strategic guidelines for the development of coherent and consistent sustainment solutions to optimize operational effectiveness within affordable costs. Specific objectives of the PSB are to:

- Guide PMs in developing sustainment solutions that ensure operational effectiveness and achieve best value.
- Ensure sustainment solutions are consistent with policy and standards.
- Provide criteria and a baseline for continuous improvement of system sustainment solutions.
- Evaluate the impact of innovative sustainment solutions on short and long-term readiness.

The PSB is organized into ten Key Support Areas (KSAs):

1. Operational Concepts
2. Logistic Support / Sustainability
3. Engineering and Asset Management
4. Materiel Flow
5. Industry and Innovation
6. Integrated Knowledge Enterprise and Logistics Command, Control, Communication, Computing and Information (C4I)
7. People and Training
8. Reduced Total Ownership Costs (R-TOCs)
9. Resource Management
10. Environment and Safety (E&S)

Under each KSA, Guiding Principles define the boundaries within which PMs are expected to design sustainment solutions and through which defense-wide cooperation and collaboration will be achieved. PMs will use PSB guidelines to develop and maintain their sustainment solutions. With the approval of their Service Acquisition Executive, PMs may operate outside the PSB if it proves to be more economically and operationally feasible. Any such deviation should be highlighted in an appropriate business case analysis (BCA) and the total ownership cost benefit quantified.

2.0 Total Life Cycle Systems Management (TLCSM) and Performance-Based Logistics (PBL)

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, which is a part of the acquisition strategy. The package of logistics support functions, which can be performed by public or private entities, includes materiel management, distribution, technical data management, maintenance, training, cataloging, configuration management, engineering support, obsolescence management, technology refreshment, and in-service support analysis; repair parts management, failure reporting and analysis, and reliability growth. Support and engineering activities must be integrated to deliver an effective and affordable product support package. DoD policy and guidance regarding the development and delivery of a product support package is embodied in Total Life Cycle Systems Management and Performance-Based Logistics.

2.1 TLCSM

DoD policy states: "The Program Manager (PM) shall be the single point of accountability for accomplishing program objectives for total life cycle systems management, including supportability." "PMs shall consider supportability, life cycle costs, performance, and schedule comparable in making program decisions. Planning for Operation and Support and the estimation of total ownership costs shall begin as early as possible. Supportability, a key component of performance, shall be considered throughout the system life cycle." (DoDD 5000.1, E1.29)

Under TLCSM, the PM is responsible for the development and documentation of an acquisition strategy to guide program execution from program initiation through reprocurement of systems, subsystems, components, spares, and services beyond the initial production contract award and during post-production support and through retirement.

PMs pursue two primary objectives. First, the weapon system as designed, maintained, and modified should continuously strive to reduce the demand for logistics. Second, logistics support must be effective and efficient. The resources required to provide product support must be minimized while meeting warfighter needs. As a product support strategy, PBL serves to balance and integrate the support activities necessary to meet these two objectives.

TLCSM is the implementation, management, and oversight, by the designated PM, of all activities associated with the acquisition (such as development, production, fielding, sustainment, and disposal) of a DoD weapon or materiel system across its life cycle. TLCSM bases major system development decisions on their effect on life cycle operational effectiveness and affordability. TLCSM encompasses, but is not limited to, the following:

- Single point accountability (the PM) for accomplishing program logistics objectives including sustainment.
- Development and implementation of product support strategies.
- Continuing reviews of sustainment strategies.

Implementation of the TLCSM business approach means that all major materiel alternative considerations, and all major acquisition functional decisions, demonstrate an understanding of the effects on consequential operations and sustainment phase system effectiveness and affordability. In addition, TLCSM assigns the PM responsibility for effective and timely acquisition, product support, availability, and sustainment of a system throughout its life cycle.

To maximize innovation and interoperability, and to enable greater flexibility in capitalizing on commercial technologies to reduce costs, acquisition managers shall consider and use performance-based strategies for acquiring and sustaining products and services whenever feasible. (5000.1 E1.17) For products, this includes all new procurements, major modifications and upgrades, as well as reprocurement of systems, sub-systems, and spares that are procured beyond the initial production contract award.

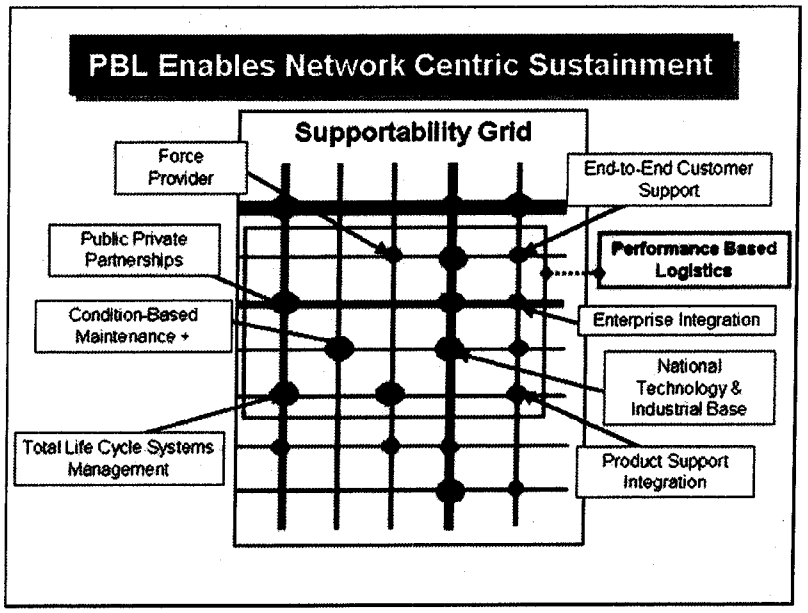


Figure 1: PBL Enables Net-Centric Logistics

To successfully accomplish the duties implicit in TLCSM, the PM must ensure a collaborative environment is maintained among all stakeholders. To do that, the DoD acquisition, capability needs, financial, and operational stakeholders shall maintain continuous and effective communications with each other through Integrated Product Teams (IPTs). Teaming among warfighters, users, developers, acquirers, technologists, testers, budgeters, and sustainers shall begin during capability needs definition. (5000.1 E1.2)

2.2 PBL

PBL is DoD's preferred approach for product support implementation. The PBL application will meet the warfighter's operational requirements and be cost effective as validated by a business case analysis (BCA). PBL utilizes a performance-based acquisition strategy that is developed, refined, and implemented during the systems acquisition process for new programs or as a result of an assessment of performance and support alternatives for fielded systems. PBL can help PMs optimize performance and cost objectives through the strategic implementation of varying degrees of Government-Industry partnerships.

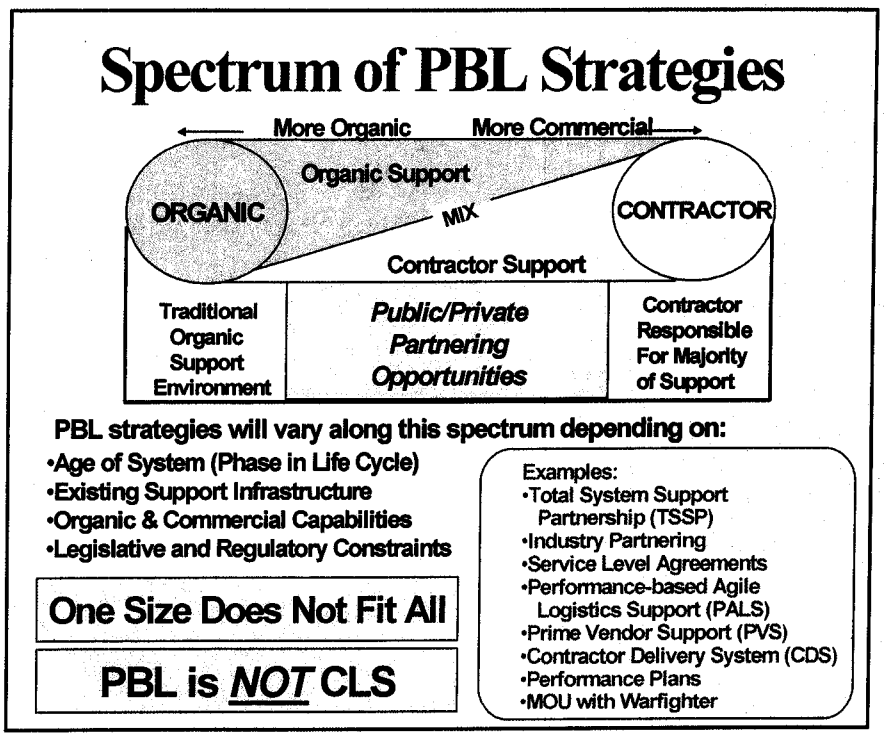


Figure 2: The PBL Strategy Spectrum

The essence of PBL is buying performance, instead of the traditional approach of buying individual parts or repair actions. This is accomplished through business relationships that are structured to meet the warfighter's operational needs, and align support objectives with required performance outcomes and available resources. PBL support strategies integrate responsibility for system support in one or more Product Support Integrators (PSI), who manage sources of support, public and private, in meeting the negotiated performance outcomes. The PM or their product support manager, while maintaining TLCSM responsibility, may delegate some level(s) of responsibility for system support to PSIs at the system, sub-system, or component level, to manage public and private sources of support in meeting negotiated performance outcomes. Source of support decisions for PBL do not favor either organic (government) or commercial providers. The decision is based upon a best-value determination, evidenced through a PBL BCA, assessing the best mix of public and private capabilities, infrastructure, skills base, past performance, and proven capabilities to meet set performance objectives. In simple terms, PBL transitions DoD support strategies from DoD transaction-based purchases of specified levels of spares, repairs, tools, and data, to the purchase of "capabilities," such as system availability. This is a fundamental and significant change, in that it transitions the responsibility, and corresponding risk, for making support decisions to the Product Support Integrator. The PM will tell the provider "what" they want, not "how" to do it.

Tailoring. It is important to note that, although the fundamental concept of buying performance outcomes is common to each PBL arrangement, the PBL strategy for any specific program or commodity must be tailored to the operational and support requirements of the end item. While similar in concept, the application of PBL for a tactical fighter aircraft may be very different from a PBL strategy for an Army ground combat system. There is no one-size-fits-all approach to PBL. Similarly, there is no template regarding sources of support in PBL strategies. Almost all of DoD's system support is comprised of a combination of public (organic) and private (commercial) support sources. Finding the right "mix" of support sources is based on best value determinations of inherent capabilities and compliance with statutes and policy. This process will determine the optimum PBL support strategy within the product support spectrum, from organic support to a total system support package provided by an original equipment manufacturer (OEM).

2.3 PBL Metrics

A key component of any PBL implementation is the establishment of metrics. Since the purpose of PBL is 'buying performance,' what constitutes 'performance' must be defined in a manner in which the achievement of performance can be tracked, measured, and assessed. The identification of top level metrics achieves this objective. The PM works with the user/warfighter to establish their system performance needs, and then works with the product support providers to fulfill those needs through documentation of their requirements (including appropriate metrics) in performance-based agreements. An effective PBL implementation depends on metrics that accurately reflect the user's needs and can be an effective measure of the support provider's performance.

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. Although actual PBL strategies, as implemented, may delineate metrics at levels lower than the warfighter top-level measures (e.g. System Availability), it is important that the initial identification of performance outcomes be consistent with the five key top-level metric areas outlined below.

PBL Top-Level Metric Objectives are defined in USD(ATL) Memorandum, August 2004, Performance Based Logistics: Purchasing Using Performance Based Criteria:

1. Operational Availability
2. Operational Reliability
3. Cost per Unit Usage
4. Logistics Footprint
5. Logistics Response Time

Operational Availability (A_o) is the percent of time that a system is available for a mission or the ability to sustain operations tempo.

Operational Reliability is the measure of a system in meeting mission success objectives (percent of objectives met, by system). Depending on the system, a mission objective could be a sortie, tour, launch, destination reached, or other service and system specific metric.

Cost per Unit Usage is the total operating costs divided by the appropriate unit of measurement for a given system. Depending on the system, the measurement unit could be flight hour, steaming hour, launch, mile driven, or other service and system specific metric.

Logistics Footprint is the government / contractor size or 'presence' of deployed logistics support required to deploy, sustain, and move a system. Measurable elements include inventory / equipment, personnel, facilities, transportation assets, and real estate.

Logistics Response Time is the period of time from logistics demand signal sent to satisfaction of that logistics demand. 'Logistics demand' refers to systems, components, or resources, including labor, required for system logistics support.

PBL metrics should support these desired outcomes. Performance measures will be tailored by the Military Departments to reflect specific Service definitions and the unique circumstances of the PBL arrangements.

One of the most critical elements of a PBL strategy is the tailoring of metrics to the operational role of the system, and ensuring synchronization of the metrics with the scope of responsibility of the support provider. Support providers, in the form of the Product Support Integrator (PSI), are fully responsible for meeting the metrics defined in the Performance Based Agreements (and any more formal documents, e.g. contracts) that result, and therefore there must be consistency between the scope of the PSI's support responsibilities and the identified metrics. If a PSI does not perform or manage all functions contributing to operational availability, consideration must be given to identifying appropriate metrics (other than Ao) for which the PSI may properly be held accountable.

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.

3.0 Implementing PBL

This section presents a 12-step PBL implementation model and addresses key PBL implementation issues, including Performance-Based Agreements and PBL Business Cases Analyses (PBL BCAs). It is important to understand that all PBL implementations are unique, and it is highly unlikely that two different programs will implement PBL in exactly the same way. The implementation model and other guidance presented here must be tailored and adapted to individual weapon systems by the PM Team.

The Defense Acquisition University (DAU) has established a Center of Excellence (CoE), which is available to advise and/or assist the PM in all facets of Performance-Based Acquisition and Performance-Based Logistics. Depending upon availability, representatives of the DAU CoE may provide ad-hoc support to a PM's IPTs.

Candidate System Identification is accomplished by reviewing those elements of cost and support needs to ascertain the potential for candidacy under a PBL support contract. Preliminary analysis is then performed to review factors related to population, remaining logistics life cycle, and any other factors that may promote the pursuit of a PBL support strategy, or eliminate the candidate system from PBL consideration. This quick look feasibility assessment should be conducted prior to beginning the 12 step process.

3.1 PBL Implementation Model

The PBL process presented here is a guideline for PMs to employ in implementing PBL. In an actual PBL implementation, the order in which these steps are taken is flexible and not necessarily serial. Some steps may be carried out in parallel, omitted, or reordered as appropriate to the system and its corresponding operational environment. The PM and PBL team should tailor this process guideline on a case-by-case basis.

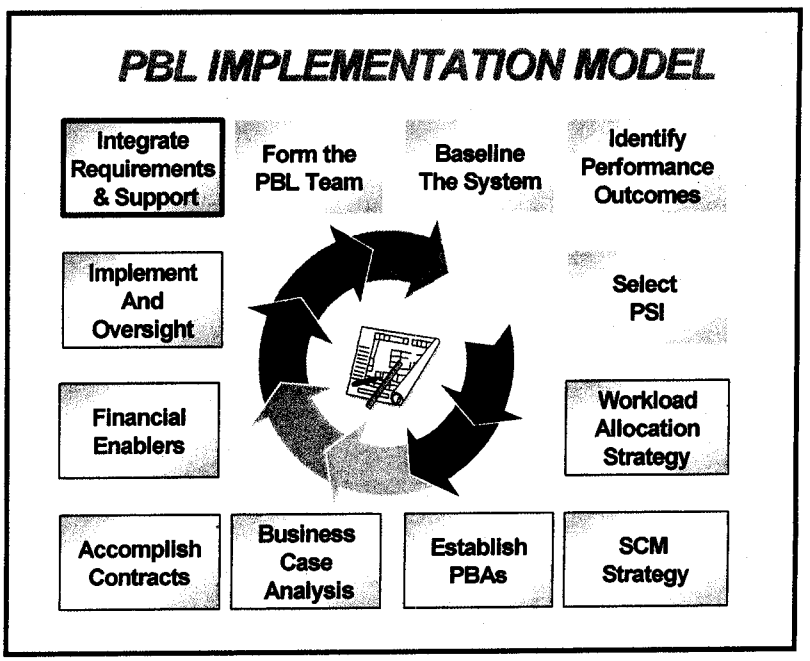


Figure 3: The PBL Implementation Model

3.1.1 Integrate Requirements and Support

An effective PBL implementation begins in the Joint Capabilities Integration and Development System (JCIDS) process by focusing capabilities needs on overall performance and linking supportability to performance.

Understanding warfighter needs in terms of performance is an essential initial step in

developing a meaningful support strategy. The PM team consults with the operational commands and organizations that support the warfighting combatant commanders. The operational commands are generally the weapon system customers. Their capability needs will be translated into performance and support metrics that will (a) be documented in Performance Based Agreements (PBAs), and (b) serve as the primary measures of support provider performance. Supportability needs should, as appropriate, also be a key performance parameter consideration and/or a testable performance metric. KPP designation for at least one supportability-related performance parameter, among an ACAT' subset of KPPs, is highly recommended and increasingly becoming a normal Service practice.

Understanding warfighter requirements is not a one-time event. As scenarios change and the operational environment evolves, performance requirements may also change leading to a change in the supportability strategy and PBL methodology. Thus, meeting warfighter needs and remaining in close alignment with warfighter requirements and logistics personnel is an essential and continuous process for the PM.

To achieve this needed flexibility, PBL strategies should be implemented via agreements (contracts, MOAs, MOUs, SLAs) that specify a range of performance outcomes and corresponding metrics sufficient to accommodate changes to resources, OPTEMPO, or other usage requirements. Ideally, the PBL strategy would be aligned across various tiers of support, from peacetime training to wartime surge levels, to the extent that they can be defined, with minimal contact exclusions, mitigating the need to amend or redevelop the PBL agreements. At some point, significant variations in usage may not be able to be defined, and may be accommodated by incorporating language for "over and above" services in the agreements.

3.1.2 Form the PBL Team

A critical early step in any PBL effort is establishing a team, which includes the user, to develop and manage the implementation. Although the PM is the total life cycle systems manager, the foundation of PBL strategies relies on ensuring the participation and consensus of all stakeholders, especially the customer, in developing the optimum sustainment strategy. The team, led by the PM or the PM's product support manager, may consist of government and private-sector functional experts and should include all appropriate stakeholders, including warfighter representatives; however, it is important that members are able to work across organizational boundaries. Team-building to support 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 outcomes.

The structure of the team may vary, depending on the maturity and the mission of the program. For instance, during the System Development and Demonstration phase,

systems design for operational effectiveness[1] has the biggest impact on life cycle sustainment. The PM must know where his system is at in the life cycle, understand what major milestones/events are approaching, and provide useful information to the decision makers for the program to move forward through the life cycle successfully.

Before a team can be established, the PM must establish the achievable goals. By knowing what must be accomplished, the PM can best choose who should be on the team to do the work, keeping resource impacts to the minimum. The wrong approach is for a PM to establish a team, and then look to the team to establish goals: this is known as "having a solution that is looking for a problem", and provides no initial team focus. By having the goals known up front, the PM can take a competency-based approach to team building, eliminating the stovepipes of function-based organizations, achieve system orientation, and build a management infrastructure.

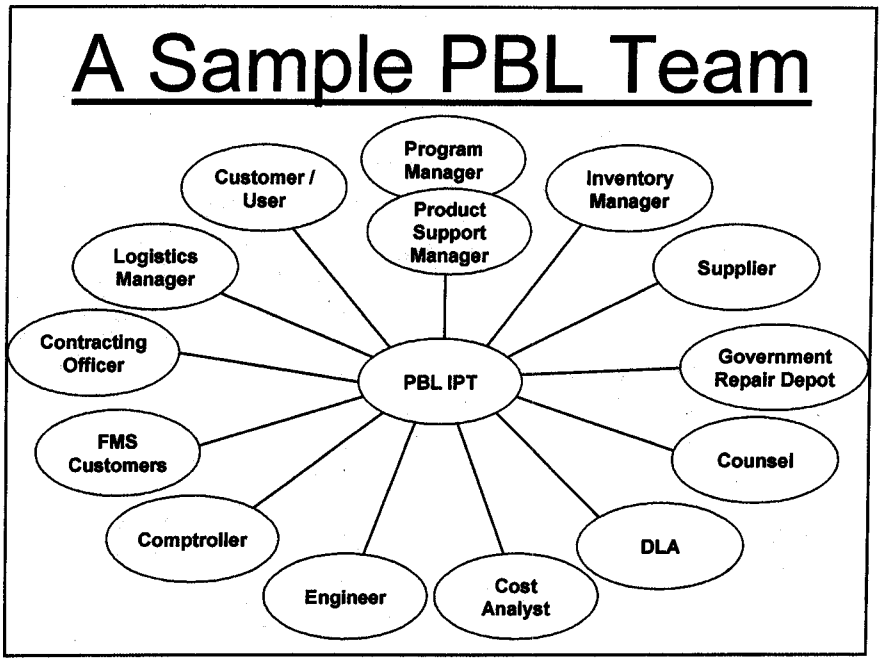


Figure 4: The PBL Team

Integrating Across Traditional Stovepipe Organizational Boundaries. 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 or defense agencies, as well as 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.

Establishing the Public/Private Support Strategy IPT(s). These IPTs will ensure consideration, throughout support strategy design and development, of all factors and criteria necessary to achieve an optimum PBL strategy that utilizes the best capabilities of the public and private sectors in a cost effective manner.

[1] PM's should refer to the OSD guidebook, titled *Designing and Assessing Supportability in DoD Weapon Systems: a Guide to Increased Reliability and Reduced Logistics Footprint* for information on systems engineering.

3.1.3 Baseline the System

Defining and documenting the system baseline answers four key questions: What is the scope of your support requirement? Who are the key stakeholders? What are your cost and performance objectives? For fielded systems, what are the historic readiness rates and O&S costs relative to the upgraded or new system?

To develop an effective support strategy, a PM needs to identify the difference between existing and desired performance requirements. Accordingly, the PM identifies and documents the current performance and cost baseline. The life cycle stage of a program determines the scope of a baselining effort. For new programs with no existing logistics structure, the baseline should include an examination of the cost to support the replaced system(s). If there is no replaced system, life cycle cost estimates should be used. 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. Once identified, the baseline can be used to assess the necessary establishment of, or revisions to, the support concept to achieve the desired level of support.

For existing systems, the baseline assessments form the basis for business case analysis (BCA) of PBL approaches being considered. Determination of the sustainment and readiness performance history, and associated operations and support cost, is essential. Use actual data when available for fielded systems. Early in the process, the PBL BCA is a rough order of magnitude that provides an overall sense of the planned improvements, benefits, and costs. Section 3.4 below provides a detailed discussion of PBL BCAs.

3.1.4 Develop Performance Outcomes

At the top level the performance outcomes and corresponding metrics should focus on the warfighter's needs: A system that is operationally available, reliable, and effective, with minimal logistics footprint and a reasonable cost.

The formal performance agreement with the warfighter (see 3.3.1 below) states the objectives that form the basis of the PBL effort. The PBL team should focus on a few outcomes such as weapon system availability, mission reliability, logistics footprint, and/or overall system readiness levels using the metrics defined in USD(ATL) Memorandum, August 2004, Performance Based Logistics: Purchasing Using Performance Based Criteria, and outlined in paragraph 2.3. Measures of readiness and supportability performance are balanced against costs and schedules.

Linking these 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. The PBL metrics discussed in Section 2.3 above

should be considered in all PBL contracts. It is important to select only those metrics that are within the control of each PBL provider.

3.1.5 Select the Product Support Integrator

A fundamental tenet of PBL is single point accountability for support. That role is encompassed by a Product Support Manager (PSM) or one or more Product Support Integrators (PSIs), who are responsible for integrating all sources of support, public and private, to meet the identified performance outcomes. The PM or PSM selects a product support integrator (see 3.2 below), from the government or private sector, to coordinate the work and business relationships necessary to satisfy the performance based agreement. Section 3.2 below provides a detailed discussion of the PSI's role, selection, and management.

3.1.6 Develop Workload Allocation Strategy

DoD policy requires that "sustainment strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements." (DoDD 5000.1, E1.17)

An effective support strategy considers 'best competencies' and partnering opportunities. Building on the System Baseline developed previously, the PM and PBL team must address each discrete workload and assess where, how, and by whom it can best be accomplished while considering statutory (i.e. Title 10), regulatory, and pertinent MILDEP guidance. In general, support workloads will include both system unique sub-systems, commodities, or components and common sub-systems, commodities, or components. Within these categories, there will be various characteristics to be considered as the workload allocation and sourcing decisions are accomplished, to include:

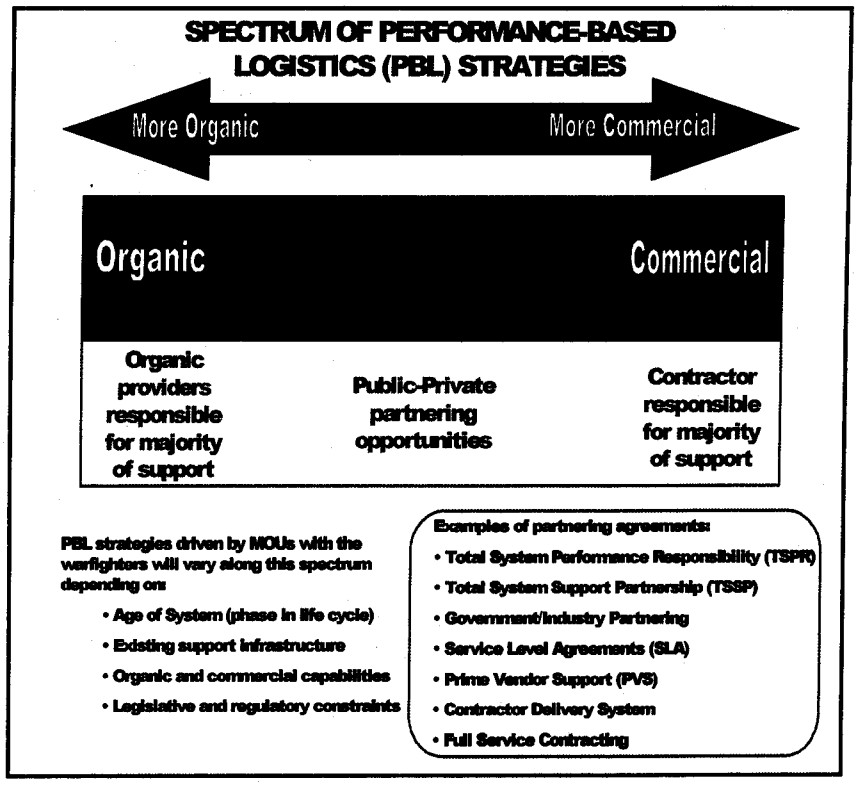


Figure 5: The PBL Spectrum

- Title 10 USC applicability (Core, 50/50);
- Existing support process (e.g. contract, organic);

- Existing support infrastructure (in-place, to be developed);
- Best capabilities evaluation (public, private sector market research);
- Opportunities for Public/Private Partnering;
- And similar factors.

The development of an effective support strategy will consider all of these factors in arriving at best value decisions, using decisions tools, including Business Case Analyses, to develop the optimum support sourcing decisions.

3.1.7 Develop the Supply Chain Management (SCM) Strategy

A supply chain management strategy is critical to the success of any PBL effort. Materiel support is a critical link in weapon systems supportability. All the skilled labor, advanced technology, and performance mean little without the 'right part, in the right place, at the right time.' The supply chain is also a primary target for utilizing industry flexibility, capability, and proprietary spares support.

DoD Materiel Management usually addresses four categories of supply support items:

- Unique Reparable Items: These are reparable (subject to repair) parts that are unique to the system (not common with other DoD systems). They are usually sourced by the Prime Vendor/Original Equipment Manufacturer (OEM) of the system. Strong consideration should be given to allocating responsibility for wholesale support of these items to the Prime Vendor, who has readily available technical data and identified sources at their disposal.
- Common Reparable Items: These parts are common with other systems and may have a variety of sources. They are usually managed organically within the DoD materiel management process but are also candidates for corporate PBL contracts.
- Unique Consumable Items: These are consumable (discarded after use) items that are used only on the target system, and are usually sourced by the Prime Vendor/OEM of the system. Strong consideration should be given to allocating responsibility for acquisition of these items to the Prime Vendor, which may elect to use the Defense Logistics Agency (DLA) as the preferred source of supply.
- Common Consumable Items: These are consumable items used across more than a single system, and are generally managed and provided by DLA. It may be viable to allow the Prime Vendor to procure these items should DLA be unable to meet time, cost, or quantity requirements, as appropriate. If needed, the PM should encourage establishing a PBA between DLA and the vendor when total private support is chosen.
- Unique DoD Inventory should always be considered, and a plan for draw down in place, prior to buying spares and repairs from private sources.

Transfer of ownership of spares and equipment, when necessary to support a contract during low rate initial production (LRIP) or interim contract support (ICS), needs to be managed appropriately to ensure equitability of capitalization and credit issues.

Supply chain management includes the distribution, asset visibility and obsolescence mitigation of the spare parts. From a warfighter's perspective, transportation and asset visibility have a substantial impact on high level metrics and should be emphasized in the PBL strategy.

3.1.8 Establish Performance Based Agreements (PBAs)

DoD policy states that: "The PM shall work with the users to document performance and support requirements in performance agreements specifying objective outcomes, measures, resource commitments and stakeholder responsibilities." (DoDI 5000.2 3.9.2.3)

The intent of the PBA is to ensure that all stakeholders (the User/Warfighter, the PM, and Support Provider) enter into a formal relationship for levels of support. This differs from the usual "best effort" approach typical of DoD organic support processes. With a clear delineation of performance outcomes, corresponding support requirements, and the resources required to achieve both, the PBA creates a clear understanding of the outcomes, and the commitments required to achieve those outcomes, among all stakeholder parties.

Documentation of a completed, approved, and funded product support/sustainment agreement is a critical step in any PBL implementation. A documented performance-based agreement between the PM, product support integrator, and force provider, that defines the system operational requirements (e.g., readiness, availability, response times, etc.) is essential. The PM and product support provider(s) will define and include the required support metrics necessary to meet the system performance requirements (5000.1 E1.29). Support providers may be public, private, or a mix to include public-private partnerships. Examples of public support providers include Service maintenance depots, Service and Defense Logistics Agency (DLA) inventory control points, and DLA distribution depots. Section 3.3 provides a detailed discussion of PBAs.

3.1.9 Conduct a PBL Business Case Analysis

In conducting the PBL BCA, alternative solutions are assessed in terms of the cost to meet the logistics performance objectives of the warfighters compared particularly to existing support strategies. Section 3.4 below provides a detailed discussion of PBL BCAs and includes a set of guiding principles to help the PM to conduct a BCA that optimizes system effectiveness at reasonable costs. Each military service has guidelines for the analysis methodology used to make business trade-off decisions.

3.1.10 Award Contracts

A PBL contract specifies performance requirements; clearly delineates roles and responsibilities on both sides; specifies metrics; includes incentives as appropriate; and specifies how performance will be assessed. PBL contracting strategies prefer utilizing an approach characterized by use of a Statements Of Objectives versus early development of a detailed Performance Work Statement. Ideally, PBL contracts will be implemented as Fixed Price, guaranteeing needed outcomes at a known price. However, the inherent risk of entering into Fixed Price contracts prior to establishing firm cost, resource, and material baselines necessitates the frequent use of Cost Plus contracting approaches early in the product support life. As a general rule, until "price risk" is minimized to a level of confidence for both DoD and the contractor, Fixed Price contracts should be avoided. Consequently, PBL strategies will generally have a phased contracting approach, initiated by Cost Plus cost reimbursement type contracts to Cost Plus incentive contracts to Fixed Price incentive contracts, over time.

There is a clear preference for long-term contracts when implementing a PBL strategy. PBL inherently "self-motivates" service providers to do "good things," such as improve component and system reliability, since it provides the foundation for increased profit. However, this motivation must be balanced against the ability of the service provider to invest in the needed infrastructure and processes required to achieve reliability improvements. This can only be achieved when there is sufficient contract length to assure the service provider of an adequate return on investment for these actions.

Also, PBL contracts should include adequate exit criteria or "off-ramps" should worst-case scenarios arise regarding contractor inability to (or loss of interest in) continuing to provide support. In general, these exit criteria should be included as negotiated options for the acquisition, transfer, or use of necessary technical data, support tooling/equipment, and the appropriate conversion training required to reconstitute or recompete the support workload.

For organically-led PBL strategies, an MOU/MOA will be used to define the terms of agreement, performance outcomes, and stakeholder responsibilities.

All PBL performance-based agreements should include: performance objectives, responsibilities, reliability growth targets, maintainability improvements, term of contract, flexibility (range of support), diminishing manufacturing sources (DMS)/obsolescence, continuous modernization/improvement; incentives/penalties, and cost reduction/stability. Industry PBL contracting priorities include: metrics, minimum number of contract line items (CLINs), cap on liabilities, risk mitigation, long term (5 years +), incentives, return on net assets (RONA), and clarity and flexibility.

Those purchasing PBL should follow Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) guidance, as appropriate, for the

acquisition of logistics services and support. They should also seek to utilize FAR Part 12, "Acquisition of Commercial Items" to acquire PBL as a commercial item.

3.1.11 Employ Financial Enablers

In executing performance agreements, the PM must implement a financial process strategy that is an enabler. The PM must estimate annual costs based on operational requirements and review funding streams for applicability. Buying performance is best facilitated by single line items and a single color of money. Once the funds have been appropriated, the customer must ensure that the funds are made available as needed to fund the support as defined in the PBA and (if present) subsequent implementing support contract. The force provider (customer) advocates for the required funding. Although this process does not provide the PM direct 'control' of the funds for support, it does put them in a clear management and oversight role of the funds used for sustainment. Section 3.6 provides further discussion of financial management strategies, including the Navy's utilization of it's working capital fund to facilitate PBL.

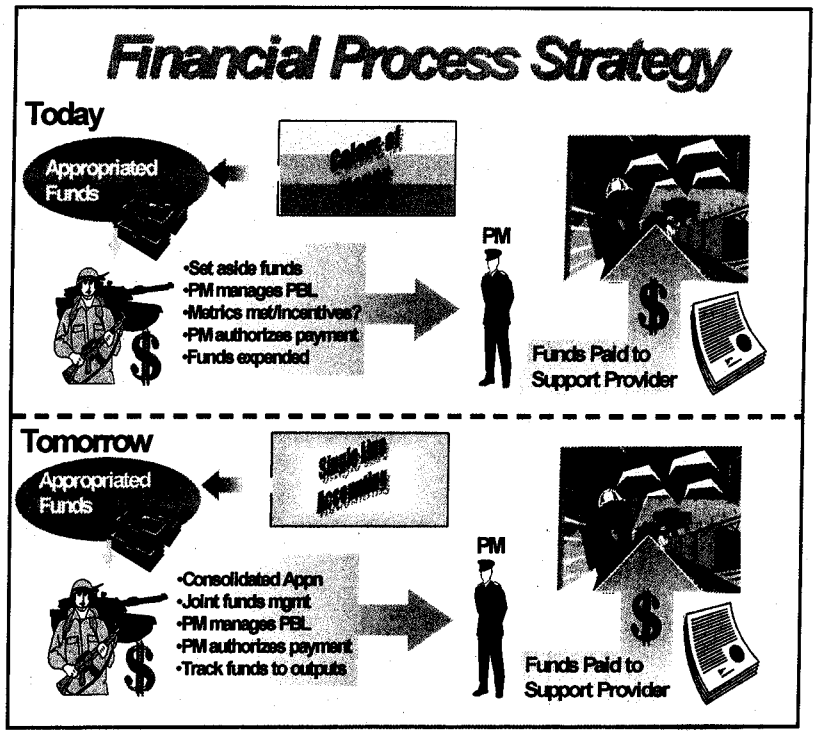


Figure 6: PBL Financial Process Strategy

3.1.12 Implement and Assess

The PMs oversight role includes developing the performance assessment plan, monitoring performance, and revising the product support strategy and PBAs as necessary. The PM also acts as the agent for the warfighter, certifying PSI performance and approving incentive payments. The PM must take a 'hands-on' approach and not assume that the contracts/agreements will be self-regulated.

The Services are required to conduct periodic assessments of system support strategies vis-à-vis actual vs. expected levels of performance and support (USD(ATL) Memo March 7, 2003, TLCSM & PBL, p. 9). These reviews occur nominally every three to five

years after IOC or when precipitated by changes in requirements/design or by performance problems, and should at minimum include:

- Product Support Integrator/Provider performance.
- Product improvements incorporated.
- Configuration control.
- Modification of performance based logistics agreements as needed based on changing warfighter requirements or system design changes.

The PM should perform reviews of PSI/PSP performance against the PBA on at least a quarterly basis and utilize that data to prepare for the Service level assessments.

3.1.13 PBL Implementation Process Summary

As noted previously, this PBL implementation process is not intended to be rigid and inflexible. The PM team should apply the steps presented in a manner that is best suited to the needs of their program, its business and operational environments. Key elements of any PBL implementation, the Product Support Manager (PSM) and Product Support Integrator(s); Performance Based Agreements; PBL Business Case Analysis; Legislative and Statutory Issues; and Financial Management Issues are discussed in detail below.

PBLs differ mainly in scale, covering a broad range from component level up to system platform level, as shown in Figure 7. On one end of the spectrum is an individual commodity while at the other end is the entire weapons system. The more systems are affected, the more complex the PBL candidate is to assess. Not only are the requisite BCAs tailored to the candidate list, but the time required to create the BCAs is also affected by the scope of the PBL.

PBL Support Integration

	Logistics Support Elements		
	All	Multiple	Single
System Level	All elements for entire system	Multiple elements for entire system	Single element for a entire system
Sub-System Level	All elements for sub-system	Multiple elements for sub-system	Single element for sub-system
Component Level	All elements for a single component	Multiple elements for a single component	Single element for a single component

Figure 7: PBL Support Integration

Usually the commodity-type PBL is the easiest to implement since it is easier to estimate the current baseline/level of support and, more often than not, may involve only a single commercial manufacturer. This contractor, having the most intimate knowledge of manufacturing processes, system reliability, and potential improvements may be a prime candidate for entering into a public/private teaming

relationship. Risk is one of the major cost drivers for contractors and, where the potential PBL contractor is also the original equipment manufacturer (OEM), risks should be reduced. The BCA associated with a single commodity should be relatively easy and quick to prepare.

The weapons system-type PBL introduces a much higher level of complexity. Not only must historical costs, reliability, and supportability be captured for a much larger number of parts but also several hundred different OEMs may be involved from a manufacturing basis. When a single contractor or contractor team is being solicited for interest in a weapon system-type PBL, the Government team needs to understand that the contractor(s) will perceive numerous risks. Some of these risks arise from the fact that the contractor(s) are not the OEMs of the majority of parts but will be forced to subcontract with the manufacturers. The greater the risks/complexity, the greater the likelihood that a PBL approach having a significant organic component will result.

Thus, when viewing the "Spectrum of PBL Strategies" figure, it may generally be assumed that the more limited the scope of the PBL, the greater the likelihood that a predominantly commercial solution will result. Conversely, the greater the complexity, the more likely a predominantly organic solution will result.

3.2 The Product Support Manager and Product Support Integrator(s)

The program manager's responsibilities for oversight and management of the product support function are typically delegated to a 'product support manager' (an overarching term characterizing the various Service function titles, i.e. Assistant Program Manager for Logistics, System Support Manager, etc.) who leads the development and implementation of the product support and PBL strategies, and ensures achievement of desired support outcomes during sustainment. The product support manager (PSM) employs a Product Support Integrator (PSI), or a number of PSIs as appropriate, to achieve those outcomes. The PSI is an entity performing as a formally bound agent (e.g. contract, MOA, MOU) charged with integrating all sources of support, public and private, defined within the scope of the PBL

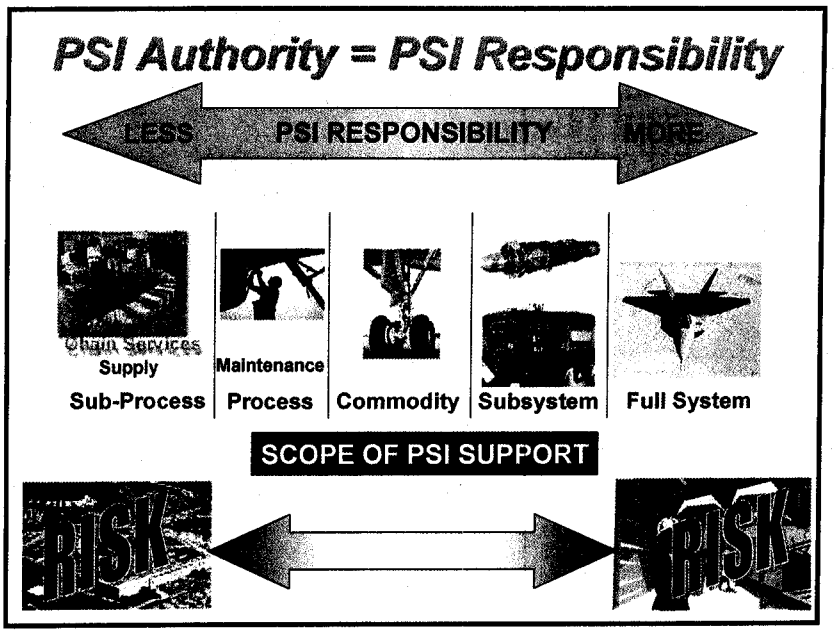


Figure 8: The PSI Responsibility Spectrum

agreements to achieve the documented outcomes. The product support manager, while remaining accountable for system performance, effectively delegates responsibility for delivering warfighter outcomes to the PSI. In this relationship, and consistent with "buying performance," the PSI has considerable flexibility and latitude in how the necessary support is provided, so long as the outcomes are accomplished.

The PM or PSM selects a Product Support Integrator (PSI) from DoD or the 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 ensures that the product support concept is integrated with other logistics support and combat support functions to provide agile and robust combat capability. The PM invites Military Service and Defense Logistics Agency (DLA) logistics activities to participate in product support strategy development and integrated product teams (IPTs). These participants help to ensure effective integration of system-oriented approaches with commodity-oriented approaches (common support approaches), optimize support to users, and maximize total logistics system value.

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. While product support execution is accomplished by numerous organizational entities, the product support integrator is the single point of accountability for integrating all sources of support necessary to meet the agreed-to support/performance metrics. The most likely candidates for the integrator role include:

- The system's original equipment manufacturer or prime contractor.
- An organic agency, product, or logistics command (e.g. DLA, NAVICP, depots).
- A third-party logistics integrator from the private sector.
- The PM's own logistics organization.

Once the PM has answered some key questions, they are better able to evaluate the PSI options and select the alternative that provides the greatest benefits. Typical questions the PM may want to answer are:

- What sustainment functions are planned to be included in this product strategy?
- What specific capabilities are required to perform these functions?
- Are these functions inherently Governmental?
- Are there statutory or regulatory limitations associated with performance of these functions?
- Are the desired functions more commonly performed in the commercial sector?
- Which provider offers the optimal mix of required performance at the lowest life cycle cost (also frequently referred to as best value)?

Anyone who provides products or services in the sustainment of an acquisition system is a Product Support Provider (PSP). The primary role of the PSI is to integrate the activities of the various PSPs.

The Product Support Integrator function can be aligned along vertical (weapon system platform) or horizontal (at the sub-system, commodity, or component level) axes. As shown below, the primary difference in the two approaches is whether or not the PSI is assigned the responsibility of implementing and managing the support functions from the "top down" (a weapon system platform approach), or implements support incrementally across a range of sub-systems, etc. which may support multiple platforms.

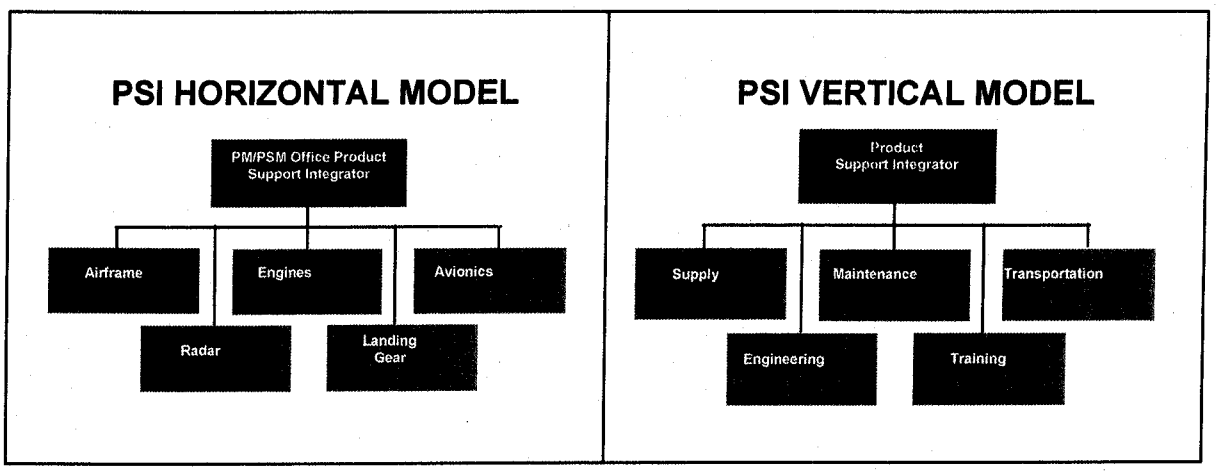


Figure 9: PSI Models

3.3 Performance-Based Agreements (PBAs)

One of the most significant aspects of PBL is the concept of a negotiated agreement between the major stakeholders (e.g., the PM, the force provider(s), PSI, and/or support provider(s)) that formally documents the performance and support expectations, and commensurate resources, to achieve the desired PBL outcomes. Per DoDI 5000.2 3.9.2.3, "The PM shall work with the users to document performance and support requirements in performance agreements specifying objective outcomes, measures, resource commitments, and stakeholder responsibilities." The term 'performance agreements,' as cited in DoD 5000 series policy, is an overarching term suitable for policy guidance. In actual PBL implementation guidance, the more specific term 'performance based agreements' is used to ensure clarity and consistency.

Performance Based Agreements are one of the key components of an effective product support strategy. (See DoDD 5000.1, E1.16) They establish the negotiated baseline of performance, and corresponding support necessary to achieve that performance, whether provided by commercial or organic support providers. The Program Manager, utilizing the performance objectives required by the warfighter, negotiates the required level of support to achieve the desired performance at a cost consistent with available support funding. Once the performance, support, and cost are accepted by the stakeholders, the PM enters into performance-based agreements with users, which specify the level of operational support and performance required by the users; and into performance-based agreements with the support providers, which specify the performance parameters that will meet the requirements of the warfighter. Further guidance regarding PBL agreements and recommended metrics are provided by USD(ATL) Memorandum,

August 2004, Performance Based Logistics: Purchasing Using Performance Based Criteria. As discussed below, there are generally two categories of PBAs: user agreements (PBAs with force providers for availability) and support provider agreements (PBAs for source, a contract with industry or a MOA/MOU with an organic support provider).

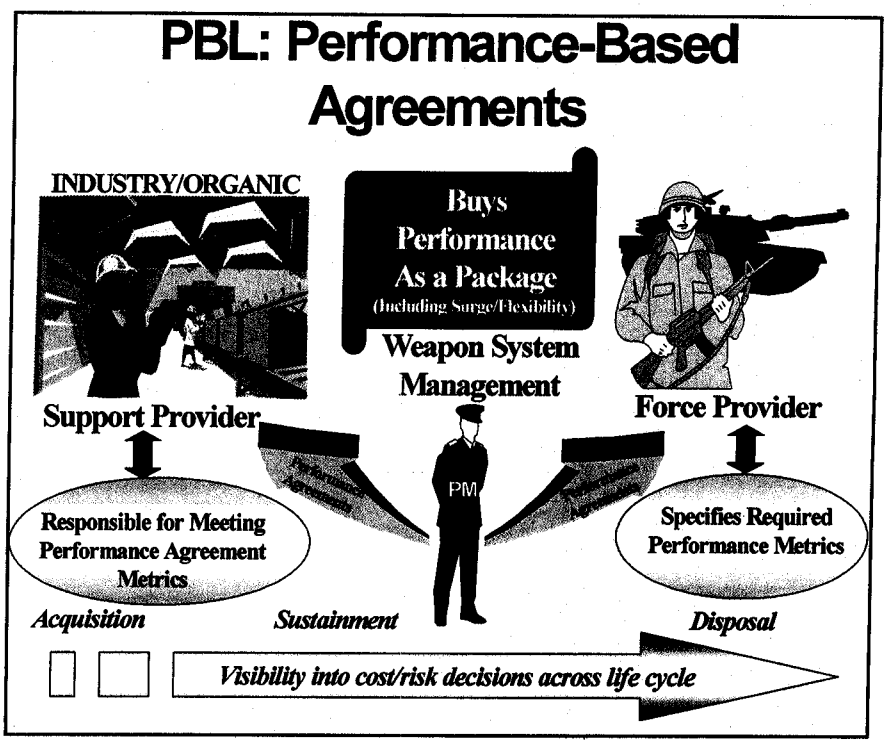


Figure 10: Performance-Based Agreements

3.3.1 User Agreements

A written performance-based agreement between the PM and the user is the centerpiece of the PM's overall PBL support strategy. Typically, the agreement identifies ranges of outcome performance with thresholds and objectives, and the target price (cost to the user) for each level of PBL capability. The agreement also delineates any constraints or boundary conditions and will reflect normal operations. The execution performance level will be dictated by the allocation of funds to a weapon system during the execution year. It must include specific terms and conditions related to surge and warfighting operations that will be considered "over and above" activity.

User performance-based agreements provide the objectives that form the basis of the PBL effort. Generally, a focus on a few performance based outcome metrics – such as weapon system availability, mission reliability, logistics footprint, and/or overall system readiness levels – will lead to more effective solutions. However, in developing the actual PBL support arrangements, it may not be possible to directly state the warfighter performance objectives as support metrics, due to lack of support provider control of all support activities necessary to produce the warfighter performance (e.g., availability). Most Service logistics policies and/or guidance mandate a preference for Service-performed organizational level maintenance and retail supply functions.

PBL agreements should be flexible enough to address a range of support requirements, so as to accommodate changes in OPTEMPO or execution year funding, including surge or contingency requirements to the extent that they can be defined. PBL agreements should clearly articulate cost versus price considerations, attendant risks associated with requirements definition, performance failure, etc. and capture alternatives.

3.3.2 Support Provider Agreements

Program managers enter into performance-based agreements with organic sources and contracts with commercial sources. The agreements should be written to maintain flexibility to spend year of execution funding and/or accept priority revisions. PBAs should also reflect a range of support levels to allow revisions in support requirements without the need to prepare a new performance based agreement. In most cases, PBL PBAs should be structured include both training and contingency OPTEMPOs.

For support provided by commercial organizations, the contract is, in most cases, the performance-based agreement. Accordingly, the contract contains the agreed to performance and/or support metrics that have been identified as meeting the requirements of the warfighter. In most cases, the ultimate performance requirements (e.g., availability) may be precluded as contract metrics because the contractor may not have total influence or authority over all of the support functions that produce system availability – some support functions may continue to be performed by organic organizations or other support providers. Accordingly, the contract should include the highest level metric(s) that is critical to producing the desired performance outcome(s). In order to motivate the contractor to achieve the desired metrics, appropriate contract incentives include award fee, award term, and share in savings, which promote and facilitate contractor performance.

For support provided by organic organizations, a performance-based agreement, similar in structure to a Memorandum of Agreement, Memorandum of Understanding, or Service Level Agreement may be used in lieu of a contract to represent and document the terms of the performance based agreement for organic support. One important distinction, however, between PBAs and other non-PBA type MOAs/MOUs is that PBAs contain the agreed to performance and/or support metrics that have been identified as meeting the warfighter requirements, and to which the warfighter has agreed to commit funding. The intent of agreements with organic support providers is to formally document the agreed to level of support and associated funding required to meet performance requirements. Organic providers, like commercial providers, will have a set of performance metrics that will be monitored, assessed, incentivized, and focused on the target weapon system.

A support provider in a PBL arrangement cannot be held accountable for functions they do not directly perform or manage. Accordingly, the PM may need to select the next echelon of metrics for which the support provider can be held accountable, and which most directly contribute to the warfighter performance metrics. The use of properly incentivized ranges of performance to define metrics can provide flexibility and is recommended. Many existing logistics and financial metrics can be related to top-level warfighter performance outcomes. These include, but are not limited to: not mission capable supply (NMCS), ratio of supply chain costs to sales, maintenance repair turnaround time, depot cycle time, and negotiated time definite delivery. 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 provider(s).

While objective metrics 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 to be balanced with overall objective measures of performance.

The Defense Logistics Agency (DLA) will often be an important stakeholder in a PBL effort. In addition to its role as a support provider, DLA works with the Services to develop guidance and policy that facilitates common approaches and effective, efficient competitive sourcing decisions. Through Strategic Supplier Alliances (SSA), DLA partners with DoD organizations to leverage areas of common strategic importance between stakeholders and industry partners. PBL contract provisions should permit use of DLA (for more information, see FAR Part 51).

3.3.2.1 Contracting for PBL

The preferred PBL contracting approach is the use of long-term contracts with incentives tied to performance. Award term contracts should be used where possible to incentivize optimal industry support. Incentives should be tied to metrics tailored by the Military Departments to reflect their specific definitions and reporting processes. Award and incentive contracts shall include tailored cost reporting to enable appropriate contract management and to facilitate future cost estimating and price analysis. PBL contracts must include a definition of metrics and should be constructed to provide industry with a firm period of performance. Wherever possible, PBL contracts should be fixed price (e.g. fixed price per operating or system operating hour).

Lack of data on systems performance or maintenance costs, or other pricing risk factors may necessitate cost-type contracts for some early stage PBLs. Full access to DoD demand data will be incorporated into all PBL contracts. PBL contracts should be competitively sourced wherever possible and should make maximum use of small and disadvantaged businesses as subcontractors, and may be incentivized to do so through PBL contractual incentives tied to small and disadvantaged business subcontracting goals. See USD(ATL) Memorandum, August 2004, Performance Based Logistics: Purchasing Using Performance Based Criteria. The applicability of FAR Part 12 for PBL is discussed Section 3.3.6.

3.3.3 Risk

Inherent in any business transaction where a level of performance is purchased, rather than discrete goods and services, there is a de facto shift of risk to the provider of support. This is true of PBL relationships, as well. While DoD can never completely delegate risk for system operational performance, PBL strategies move the level of risk away from DoD to the support provider commensurate with the scope of support for which the support provider is responsible. If structured with the right metrics, incentives,

and strictly limited exclusions to coverage, a PBL support package will highly incentivize the contractor to make 'good' decisions and not suffer the financial consequences of 'bad' decisions. Correctly structured PBL support will significantly reduce, but not eliminate, 'risk' to the government.

In traditional support strategies, where DoD purchases transactional goods and services, it is incumbent upon DoD to specify which goods and services are desired, and how many of each are desired. The support provider's only responsibility is to provide the goods or services requested. DoD managers make inaccurate decisions about which items need to be repaired, or what quantity of items need to be purchased, then responsibility for the subsequent degradation of system operational effectiveness lies with DoD, not the support provider. Conversely, when DoD buys a level of support or performance, then the responsibility for the subordinate decisions (i.e. which items to repair, what quantity of items to procure) transitions to the support provider, along with the risk for operational effectiveness.

A PBL business relationship also entails the effective identification and development of risk sharing strategies to mitigate or compensate parties for taking on risks. Although the degree of DoD risk is minimized, as mentioned above, it is still important to identify any potential shared risk factors and ensure that they are carefully managed by the PM and the PBL provider.

3.3.4 Incentives and Remedies

One of the key characteristics of PBL contracts is that they are based on a private sector business model – paying for performance. As is often done in commercial contracts, incentives are included to motivate contractor behavior. It is not uncommon for contractors engaged in PBL contracts to have the majority, or even all of their profit tied to performance-based metrics and dependant on earning the contractual incentives included in the contract. Incentives for organic PBL providers, such as depots, are also important. Properly defining what is expected of the organic provider and incentivizing them to achieve PBL goals is critical to shifting processes away from traditional support methods to PBL.

PBL contract/agreement incentives can include:

- Award Fee: Award fee earned based on subjective assessment by Government on how well contractor meets/exceeds performance standards.
- Incentive Fee: Incentive fee based upon the control of costs in the performance of a cost-plus-incentive-fee contract.
- Award Term: Awards additional periods of performance based on contractor performance. (Note: DoD limit on contracts is currently 5 years, with one year options thereafter.).
- Shared Savings: (implemented within an Award Fee or Incentive Fee structure) Contractor and Government share in any savings reductions achieved by the

contractor resulting from cost or other efficiencies, design improvements, or performance/producibility enhancements.

- Reliability Based Profits: Firm fixed price contracts may be structured to provide an inherent profit incentive for a PBL provider to lower operating costs by achieving higher product reliability and retain all or a portion of the savings achieved as a result of providing a better product.
- Positive past performance ratings which increase the chances of being awarded competitive contracts or follow-on efforts.
- Investment by the Industry prime in technical infrastructure that enhances the public partner's ability to perform (e.g. applications, computers, network services, tooling).
- Investment in training and certification or education.
- Investment in Lean, Six Sigma, and Theory of Constraint principles.
- The award of additional business.

Remedies for non-performance under PBL contracts can include:

- Requiring the contractor to perform a service at no additional cost.
- Reducing the price.
- Reducing/eliminating award fee or profit earned under an incentive fee arrangement.
- Not exercising the award term contract extension if performance goals in the contract fail to be attained (cost, quality, cycle time, etc.)
- Unfavorable CPAR ratings that become part of the Contractor's past performance formal record in the DoD PPAIS database.
- Terminating the contract.
- Terminating the contract and re-awarding the effort to be performed at the original contractor's expense.

Remedies for non-performance by organic PBL providers can include:

- Requiring the organic provider to perform service's at no additional cost until performance metrics are met.
- Reducing the price.
- Discounted cost reimbursement payments due to non-performance within established metric timeframe.
- Not exercising the award term agreement extension if performance goals fail to be attained.
- Terminating the agreement without loosing provider termination fees.
- Terminating the agreements and transitioning the effort to an alternate provider.
- Transition to be performed at the expense of the default organization.

Organic Depots are motivated differently to meet performance requirements. While depots are not driven by profit, they are driven to breakeven and to keep their workers employed. When higher headquarters controls depot workload and has strong influence

with the depot's leadership, it is imperative to have concurrence and support from the headquarters staff.

Reducing operating costs, makes the depots more competitive in retaining their business base. If the depot is unable to meet production and costs requirements, workload will be moved to (possibly) a commercial entity to meet warfighter needs. Failure to meet contractual/business agreements is bad for business and the reputation of the facility. Depots can also provide financial incentives for exceptional individual and group performance just as companies can. Individuals can be rewarded for cost savings ideas through the processing of Beneficial Suggestion.

PL 107-107 amends 10 USC 2563(c) concerning so called "hold harmless" language. The net result of this amendment is that the phrase "willful misconduct or gross negligence" is expanded to include cost, schedule and quality as basis to file claims if the public sector (e.g., maintenance depots) fails to comply with contracts for delivery of goods and services. It provides additional protection to the purchaser.

3.3.5. PBL Contracting Examples

Two examples of well structured PBL performance agreements are the support contracts for the Shadow UAV and TOW-ITAS systems.

3.3.5.1 Example: TOW-ITAS

The TOW-ITAS contract directly links profitability to availability – the higher the availability the greater the profit the supplier can earn. Availability, as defined by the Army, is measured using standard Army reporting data. This PBL arrangement, as depicted in the figure below, has resulted in 98-100% operational availability since February 2001.

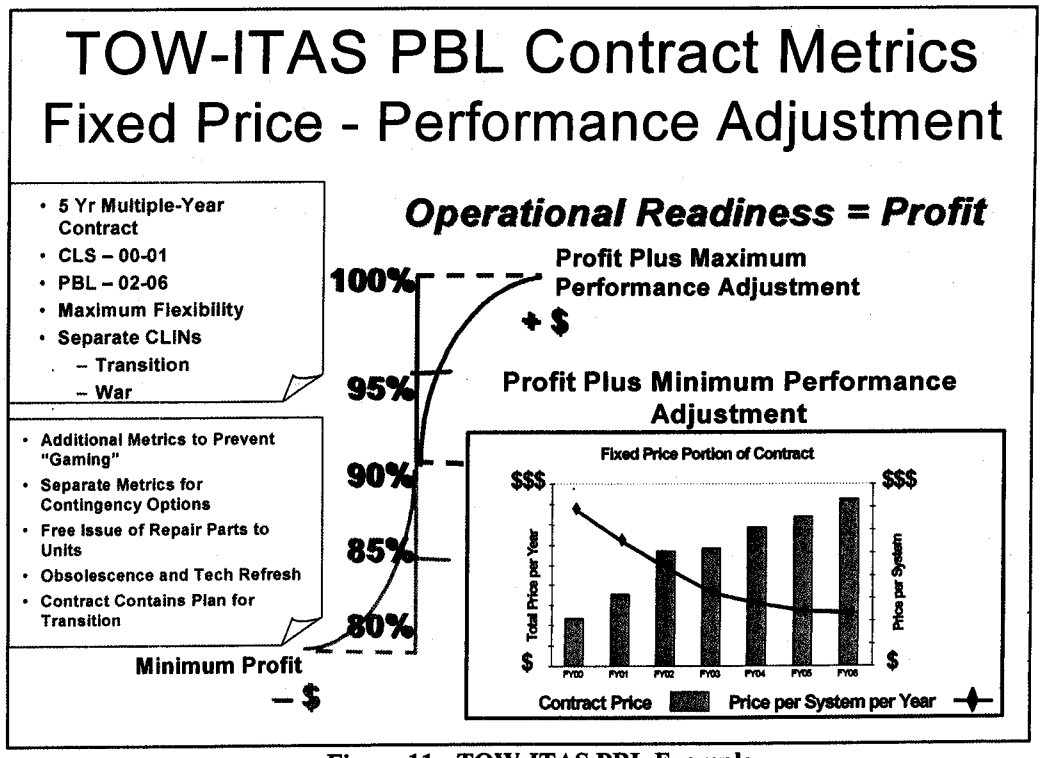


Figure 11: TOW-ITAS PBL Example

3.3.5.2 Example: Shadow UAV

The Shadow UAV PBL contract procures performance using measurable metrics instead of buying spares and repairs in the traditional manner. As depicted in the figure below, this PBL has exceeded all of its performance goals in the six months including Operation Iraqi Freedom (OIF).

This example demonstrates the establishment of a schedule for the transition from CLS to PBL based on lessons learned from operational usage in the user environment.

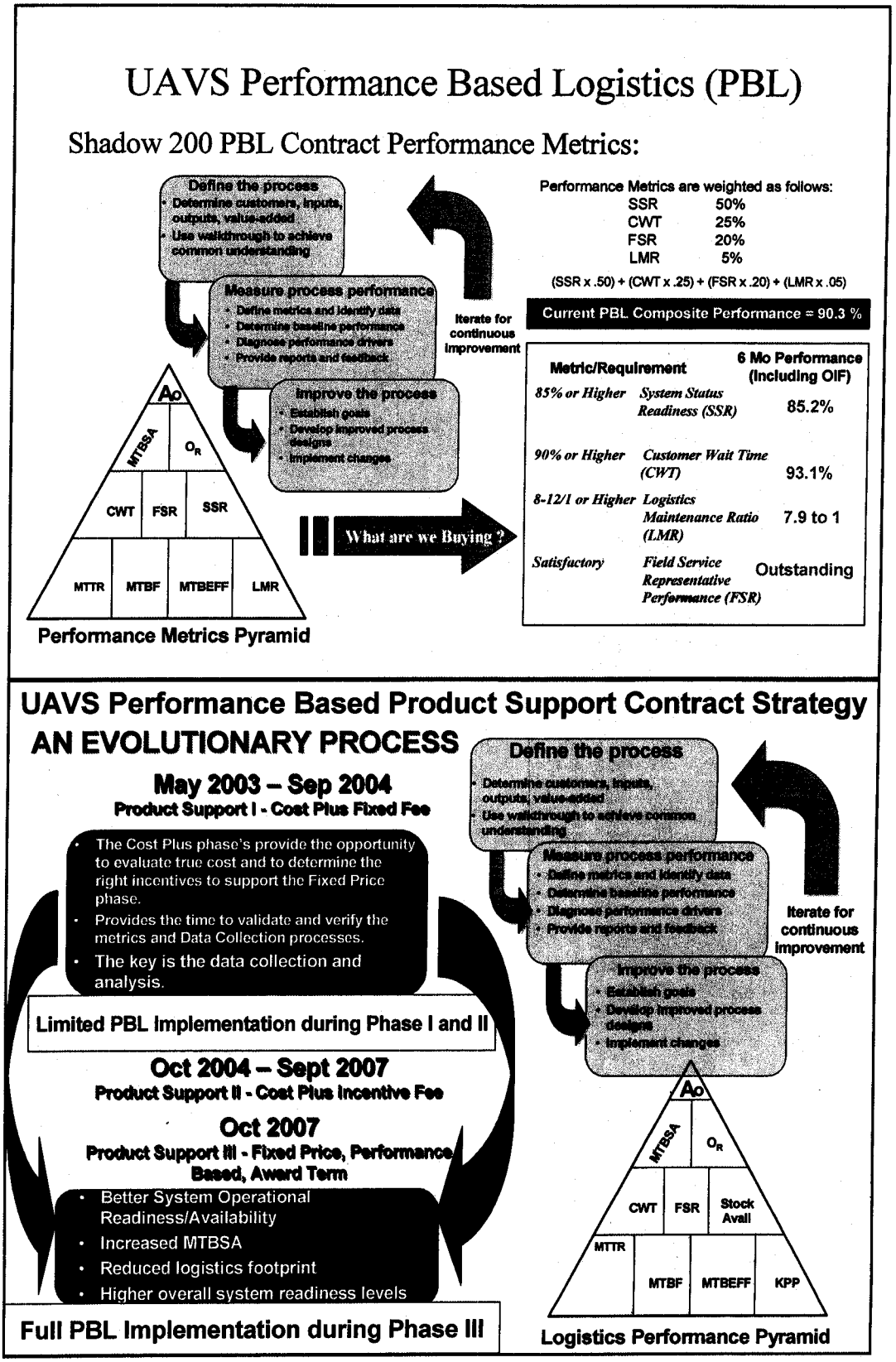


Figure 12: UAV PBL Example

3.3.6 FAR Part 12

PM Teams implementing PBL should should seek to utilize FAR Part 12 – "Acquisition of Commercial Items" for procurments of total weapons system support under the PBL concept.

In order to execute a FAR Part 12 contract, a determination of commerciality must be made. In reviewing FAR guidelines pertaining to commerciality, FAR 2.101 provides various definitions of commerciality of which any one of these or combination of these can be used to justify commerciality. Justification for commerciality does not have to be made at the item level; it can be made at the repair process level or at the support concept level. So if a specific weapon system cannot be determined to be a commercial item, the commercial nature of the program supporting such system can be demonstrated to be the commercial item. The following discussion focuses on demonstrating the applicability of FAR Part 12 to power by the hour concept (PBH) total weapon system support under PBL. Keep in mind that this is just one example of justifying commerciality.

A key aspect of PBL is the inclusion of a pricing arrangement to incentivize the contractor to reduce costs through increased reliability and at the same time continue to make a profit. One such arrangement that has been in widespread use in the commercial sector is the power by the hour concept. Under PBH, an hourly rate is negotiated and the contractor is paid in advance based on the forecasted operational hours for the system. Actual hours are reconciled with projected hours and overages and shortfalls are either added to or credited from the next period's forecasted amounts. Since the contractor receives funding independent of failures he is then incentivized to overhaul the asset the first time it fails so it stays in operation as long as possible. Bottom line: under the PBH concept, the fewer times the contractor touches a unit, the more money he makes.

The PBL support concept is comprised of the same features as PBH programs in the private sector. Both efforts include repair/overhaul of repairables or replacement of assets at the contractor's option in order to meet availability goals. Both PBH and PBL require the contractor to develop and implement material management processes such as inventory management, requirements forecasting to include repairable and consumable parts, procurement make-or buy decisions and subcontractor selection, receiving and inventory management and the holding of inventory for distribution to field users as needed. Maintaining configuration control and data management for changes not impacting form, fit or function (Class II) is also common between the programs, thus enabling the contractor to make timely technology upgrades, including obsolescence, based on their own internal affordability decisions.

The NAVICP/Honeywell PBL contract for Auxiliary Power Units in which this Total Logistics Support program using the PBH concept described above, is considered commercial – i.e., system support and availability, rather than the specific part number or system, satisfies the commerciality definition. The Government's Statement of Work (SOW) for TLS includes the following:

- Repair/Replace/Overhaul
- Material Management
- Engineering and Logistics Support
- Packaging and Shipping
- Configuration Management

All of those activities are also performed by Honeywell in their Maintenance Service Agreements (MSAs) with the airlines. Since the TLS program is of the same type that is provided as part of Honeywell's MSAs with their commercial customers it was therefore concluded that the TLS program provided by Honeywell to the Navy is in fact a commercial item.

The spirit and intent of FAR Part 12 is to encourage the Government to evolve toward commercial practices and processes. The improvements and savings we hope to achieve will be more likely to accrue if we allow the contractor, under government oversight, to implement the efficient practices already in place in the private sector. These efficiencies and cost savings will ultimately yield improved readiness, which is DoD's primary objective.

3.4 PBL Business Case Analysis (BCA)

A formal decision to adopt a PBL product support strategy should require a completed, tailored BCA. A PBL BCA provides a best-value analysis, considering not only cost, but other quantifiable and non-quantifiable factors supporting an investment decision. This can include, but is not limited to, performance, producibility, reliability, maintainability, and supportability enhancements. It is important and frequently necessary to make up-front investments in R&M improvements that result in short term increases in system costs to generate the requisite life cycle cost savings later. To effectively provide this justification it is critical that the process, scope, and objectives of the PBL BCA developers be clearly understood and communicated. A PBL BCA should be developed in an unbiased manner without prejudice and not be constructed to justify a pre-ordained decision. The analysis must stand on its own and be able to withstand rigorous analysis and review by independent audit agencies. Depending on the type of PBL contract, the PBL BCA may be used throughout the life cycle of the project. Specifically, the PBL BCA:

- Is used in the initial decision to invest in a project.
- Specifically guides the decision to select among alternative approaches.
- Is used to validate any proposed scope, schedule, or budget changes during the course of the project.
- Should also be used to identify the various budget accounts and amounts effected by the various product support strategies.
- Should be a living document – as project or organization changes occur they should be reflected in updates to the business case.

- Should be used to validate that planned benefits are realized at the completion of the project.

This information should be used in further decisions to sustain or enhance the solution and to refine estimation of benefits and costs for future projects in the organization.

A PBL BCA is an expanded cost/benefit analysis with the intent of determining a best value solution for product support. Alternatives weigh total cost against total benefits to arrive at the optimum solution. The PBL BCA process goes beyond cost/benefit or traditional economic analyses by linking each alternative to how it fulfills strategic objectives of the program; how it complies with product support performance measures; and the resulting impact on stakeholders. A PBL BCA is a tailored process driven by the dynamics of the pending investment (PBL) decision. It independently and without prejudice identifies which alternative provides optimum mission performance given cost and other constraints, including qualitative or subjective factors. Development of PBL BCA should determine:

- The relative cost vs. benefits of different support strategies.
- The methods and rationale used to quantify benefits and costs.
- The impact and value of Performance/Cost/Schedule/Sustainment tradeoffs.
- Data required to support and justify the PBL strategy.
- Sensitivity of the data to change.
- Analysis and classification of risks.
- A recommendation and summary of the implementation plan for proceeding with the best value alternative.

As a minimum, a PBL BCA should include:

1 - An introduction that defines what the case is about (the subject) and why (its purpose) it is necessary. The introduction presents the objectives addressed by the subject of the case.
2 - The methods and assumptions that state the analysis methods and rationale that fixes the boundaries of the case (whose costs and whose benefits examined over what time period). This section outlines the rules for deciding what belongs in the case and what does not, along with the important assumptions.
3 - The business impacts are the financial and non-financial business impacts expected in one or more scenarios.
4 - Risk assessment that shows how results depend on important assumptions ("what if"), as well as the likelihood for other results to surface
5 - Conclusions and recommendations for specific actions based on business objectives and the results of the analysis.

The PBL BCA becomes an iterative process, conducted and updated as needed throughout the life cycle as program plans evolve and react to changes in the business and mission environment.

3.4.1 PBL BCA Guiding Principles

DoD has promulgated the following Guiding Principles for conducting a PBL BCA in USD(AT&L) Memorandum, Performance Based Logistics (PBL) Business Case Analysis (BCA), 23 January 2004:

- All BCAs will be based on warfighter-stated performance requirement(s), which are documented in Performance Based Agreements (PBAs).

- BCAs will be conducted to assess changes from existing product support strategies for legacy systems and to support the product support strategy for new weapon systems. Over time, BCAs will need to be updated or repeated to validate the approach taken and to support future plans.

- BCAs will evaluate all services or activities needed to meet warfighter performance requirements using "best value" assessments. Best value is the expected outcome that, in the Department's consideration, provides the greatest overall benefit in response to requirements. The assessments will include cost per output, performance measures, capitalization/asset ownership, size of footprint, reliability growth, life cycle costs, Diminished Manufacturing Sources (DMS) management, obsolescence/obsolescence mitigation plan, technology insertion, and risk management. The value added in terms of benefits and outcomes of all services and activities will be identified.

- Initial strategies for ACAT1 programs will be developed prior to Milestone B, including definition of the metrics that will be used to define a program's ability to meet future logistics and operational performance requirements. These strategies shall provide the foundation for detailed PBL Business Case Analyses to be completed prior to Milestone C and/or contract award that are based on the detailed design. BCA estimates shall be accomplished at significant subsystem/repairable item levels that provide the information necessary to initiate cost-effective maintenance and repair actions.

- BCAs will continue through life cycle process with oversight to ensure reassessment at appropriate trigger points, including life cycle costs (LCC) updates; Reduced-Total Ownership Costs activities; and/or continuous improvements actions. The Military Services will evaluate PBL performance at appropriate decision points.

- The cost and performance baselines for legacy systems will be determined by historic experience and costs. The cost baseline will include all appropriate

government and/or contractor costs, including indirect costs, overhead, and handling fees. Consideration shall be given to the cost, performance, and risk aspects of all elements of Integrated Logistics Support (ILS). For new system BCAs, detailed Milestone C baselines shall be established considering reliability and maintainability projections at the major system repairable level. These individual estimates shall be sufficiently detailed to provide the basis for contractual actions leading implementable support strategy actions. Although these estimates shall sum up to the validated Service cost position Cost Analysis Improvement Group (CAIG) risk concerns must be considered within the overall process.

- BCAs will reflect operational requirements and existing DoD guidance for contractors on the battlefield, 10 U.S.C., Section 2464 (the necessity for the Department to maintain core logistics capabilities), 10 U.S.C., Section 2466 (the limit on contracting for depot level maintenance), ability to synchronize with the Defense Transportation System, and flexibility to support contingencies, and surges. The BCA will specifically consider the full range of minimum and maximum essential logistics capabilities (peacetime to full mobilization requirement), existing infrastructure and common consumables support.

- BCAs will include risk assessment of expected performance, supply chain responsiveness, and surge capabilities. Consideration of performance and cost risk will explicitly consider contract versus organic risk management, financial accountability, and recovery actions. The risk assessment should address the probability of and confidence level of the following events occurring: poor performance, cost growth, extended labor disputes, and change over in product support integrator/provider (PSI/PSP).

- For all PBL contracts, warfighter requirement(s) will be linked to metrics and metrics to contract incentives. For all organic PBL product support integrators (PSIs), warfighter requirement(s) will be linked to metrics and metrics to PBAs between the Program Manager and the organic PSIs.

- BCAs will be developed using information provided by all appropriate product support stakeholders, including government and industry providers. In order to maintain a competitive environment, industry participation will be determined IAW the Federal Acquisition Regulation (FAR).

- BCAs will be conducted using analytic tools approved by the Services.

These guiding principles are structured to support "best value" assessment of product support strategies, consistent with existing PBL guidance. All efforts to develop a business case analysis should be consistent with these guiding principles. See USD(AT&L) Memorandum, Performance Based Logistics (PBL) Business Case Analysis (BCA), 23 January 2004.

USD(AT&L) Memorandum, Performance Based Logistics (PBL) and the Business Case Analysis (BCA), May 20, 2004, provides additional guidance to the Services for performing Strategic Planning Guidance mandated PBL BCA's on all new and fielded ACAT I and II programs by September 30, 2006. This Memorandum defines the criteria to be used in the analyses and reemphasizes the PBL Guiding Principles detailed above.

3.5 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 2460, 2464, 2466, 2469, and 2474.

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 directs DoD to maintain a core logistics capability in order to perform maintenance and support of mission essential equipment.

Section 2466 requires 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. Section 2460 defines depot-level maintenance and repair.

Section 2469 stipulates that existing depot-level maintenance or repair workload valued at $3 million or more must not be contracted out or moved to another depot-level activity without using public/private competition procedures or DoD depot merit-based selection procedures. This requirement may be waived for workloads performed on public depots designated a Centers of Industrial and Technical Excellence that are pursuant to a public private partnership under 10 U.S.C. 2474(b).

Public Law 105-261, section 346 of the National Defense Authorization Act for FY 1999, as amended by Public Law 106-65, section 336 of the National Defense Authorization Act for FY 2000, requires a report to Congress prior to the award of a prime vendor contract for depot level maintenance, or repair of a weapon system. The Congressional report must address four specific areas. Section 346 of the 1999 Authorization Act requires military services to describe the competitive procedures used to award the contract and provide an analysis of costs and benefits that demonstrate government savings over the life of the contract. Section 336 of the 2000 Authorization Act further requires an analysis of the extent the contract conforms to 10 U.S.C. 2466 (50/50) and 10 U.S.C. 2464 (core logistics requirements). A 30-day waiting period after submission of the report to Congress applies.

Section 2474 requires the Departments to designate Centers of Industrial and Technical Excellence (CITE), authorizes and encourages public-private partnerships, permits

performance of work related to core competencies, permits use of facilities and equipment, and permits sale proceeds from public-private partnerships to be credited to depot accounts. This section also includes an exemption for work performed by non-Federal personnel at designated Centers of Industrial and Technical Excellence (certain maintenance depots) from the 50 percent limitation on contracting for depot maintenance.

These statutory and regulatory requirements are not roadblocks to PMs in implementing successful PBL strategies that meet the needs of the warfighter. Teaming and partnerships between the PM, the PSI and the performance providers, whether organic or commercial, benefit the user by optimizing the skills available in both the DoD and the Defense industrial base.

3.6 Financial Management Issues

As the Department heads towards full implementation of PBL, new financial mechanisms will enable a true focus on buying performance output rather than separate contractual line item transactions. Warfighter logistics improvement is the primary outcome of this approach, and performance measures will be the chief tool to ensure that improvement happens.

The Defense Business Practice Implementation Board has identified PBL as a "best business practice" and recommends a more aggressive approach to implementing PBL across the Services. In February 2004, the Deputy Secretary of Defense directed the USD(AT&L) and the USD(Comptroller) to issue clear guidance on purchasing using performance criteria, which led to USD(ATL) Memorandum, August 2004, Performance Based Logistics: Purchasing Using Performance Based Criteria. The Services have been directed to provide a plan to aggressively implement PBL, including transfer of appropriate funding, on current and planned weapon system platforms for Fiscal Years 2006-2009.

Currently, PBL programs are financed through a mix of appropriated (i.e. procurement and O&M) and Working Capital Fund accounts, Service-unique accounts, such as Procurement; Research, Development, Test and Evaluation (RDT&E); Defense Working Capital Fund (DWCF); and Operations and Maintenance (O&M) and multiple sub-accounts, making it difficult to baseline current performance execution. As new and legacy programs build PBL strategies, the Services should identify single lines of accounting within O&M appropriations to allow greater flexibility in managing performance as well as ease of tracking/baselining of sustainment costs.

The Navy has been very successful in utilizing the Navy Working Capital Fund (NWCF) to implement PBL. The NWCF is a non-expiring, revolving fund that finances the repair and procurement of Navy Depot Level Repairables, and select consumables at the wholesale level. The structure of the NWCF allows for contracts with multiple year performance periods, a necessity for PBL arrangements. PBL contracts citing the NWCF have been executed with five-year initial performance (base) periods and multiple five-

year option periods. These long-term contracts incentivize contractors to make long-term investments to improve weapons systems support and performance that would not have been otherwise supportable by the contractor's internal investment criteria. Congressional multiyear contract authority is not required for these contracts, which greatly simplifies contract execution. Funding is applied to these long-term contracts in annual increments reducing the amount of funding that must be obligated at any given time. The NWCF provides for the required contract termination liability by virtue of its size and its composition as a non-expiring revolving fund.

The size of the NWCF also accommodates the execution of the most mature form of PBL arrangements, which are power-by-the-hour (PBH) or other performance basis. Using the NWCF to fund a PBH PBL allows for costs to be tied directly to weapon system utilization and to O&M budgets. The NWCF 'obligation authority' is tied to fleet O&M funding and thus the substantial size of the NWCF permits these annual cost changes to be absorbed. This would not be the case if a single line of accounting was programmed to provide logistics support for a single platform.

The NWCF includes a Cost Recovery Rate (CRR) that provides the funding stream for a wide variety of program logistics support functions, some of which are not highly visible but nonetheless essential, including:

- Material Maintenance (Inventory Losses, Obsolescence, Depot Washout, Carcass Losses)
- Supply Ops Costs (NAVICP/FISCs)
- Requisition processing and DAAS support
- Transportation
- Payment to others (DLA Depots, DFAS)
- LECP Management
- MTIS-Reutilization
- Disposal

The Naval Inventory Control Point (NAVICP) has successfully executed holistic PBL arrangements for the Navy that provide all of the benefits desired from a single line of accounting. In addition, NAVICP has accommodated program offices desires to expand PBL coverage beyond logistics elements traditionally supported by NAVICP by including other logistics support requirements and by citing the associated program office appropriated funding in these PBL arrangements.

Industry leaders have indicated that long term PBL contract commitments (i.e. 5 to 10 years minimum) enable consideration of investing company funds for product improvements based on time remaining on a PBL contract that will permit reaping some rewards for their investments. Some WCF contracts are currently in place with contract terms of 5 or more years, while PBLs funded with appropriated fund accounts may be placed with multiple one year options.

PMs work with users to identify estimated costs of meeting performance capabilities. These estimates will become the basis for the user to advocate funding during the budget process. A thorough PBL business case analysis should precede this step in the process. The Services then identify specific appropriation elements that are intended to support product support strategies. Ultimately, this approach will result in clear lines of visibility and accountability, which will in turn support improved readiness and resource management.

It is critically important that PM teams remain informed of DoD initiatives and incorporate their lessons learned into their own PBL implementations. The Defense Acquisition University's Logistics Community of Practice is and excellent resource for this information. Improving financial processes is a key enabler to successfully implementing PBL.

4.0 Key Product Support Issues

The PMs must be sensitive to the following issues when carrying out their product support responsibilities and implementing PBL.

4.1 Configuration Management

Configuration Management (CM) is a process for establishing and maintaining the consistency of a product's physical and functional attributes with its design and operational information throughout its life.

Configuration management and control are important factors to consider when designing the PBL strategy. In order to create the appropriate support environment, and to be responsive to evolving technology and changing warfighter capabilities, the providers assigned the responsibility for delivering the weapon system capability must have the appropriate level of configuration management and control. As DoDD 5000.1 E1.16 states, "Acquisition managers shall base configuration management decisions on factors that best support implementing performance-based strategies throughout the product life cycle." Integral to successful CM is the development of a CM plan.

PMs establish and maintain a configuration control program. The approach and activity that has responsibility for maintaining configuration control will depend on a number of program-specific factors such as design rights, design responsibility, support concept, and associated costs and risk. Nominally, the government maintains configuration control of the system performance specification, and the contractor(s) performs configuration management for the design. As such, the Government retains the authority/responsibility for approving any design changes that impact the system's ability to meet specification requirements. The contractor(s) has the authority/responsibility to manage other design changes. The Government maintains the right to access configuration data at any level required to implement planned or potential design changes and support options. Configuration management of legacy systems should be addressed on a case-by-case basis as design changes are contemplated.

The following are attributes of the Configuration Management process:

- Configuration Identification- uniquely identifying the functional and physical characteristics of an item
- Configuration Change Management- controlling changes to a product using a systematic change process
- Configuration Status Accounting- capturing and maintaining metadata about the configuration of an item throughout the lifecycle
- Configuration Verification and Audit- ensuring product design is accurately documented and achieves agreed upon performance requirements.

The PM should consider industry standards and best practices. Those standards are documented in the following:

- ANSI/EIA 649A, *Configuration Management,* located on the GEIA website http://www.geia.org/ click on STANDARDS
- ISO 10007, *Quality Management – Guidelines for configuration management*
- EIA 836, *Configuration Management Data Exchange and Interoperability,* located on the GEIA website http://www.geia.org/ click on STANDARDS
- HDBK 649, *Configuration Management* – (in development, expected 12/05)

4.2 Data Management

Data management is an important part of TLCSM and PBL and should be considered early in the acquisition lifecycle. Data systems supporting acquisition and sustainment should be connected, real-time or near real-time, to allow logisticians to address the overall effectiveness of the logistics process in contributing to weapon system availability and life cycle cost factors. Melding acquisition and sustainment data systems into a true total life cycle integrated data environment provides the capability needed to reduce the logistics footprint and plan effectively for sustainment, while also insuring that acquisition planners have accurate information about total life cycle costs.

Data created during the design, development, and manufacturing of a system have value to both the data provider and the PM. The PM should adopt a performance-based approach to identify the minimum data required to cost-effectively maintain the fielded system and foster source of support competition throughout the life of the fielded system. In most cases, access to the contractor's data system is the best solution. The PM should determine the system's competition strategy early in the life of the program and determine minimum data needs to support the strategy and a performance-based approach to managing the data over the lifecycle of the system. Planning should include possible foreign military sales applications including applications after the system is out of the DOD inventory.

Should the PM select data access vice delivery, provisions should be made for future availability of data to support competitive sourcing decisions; maintenance and sustainment analyses; conversion of product configuration technical data to performance specifications when required for enabling technology insertion to enhance product affordability and prevent product obsolescence; and contract service risk assessments over the life of the system. When future delivery is required, the PM should require final delivery of data in both its native and neutral digital formats. The PM should never require paper or hardcopy delivery of data created in a digital format.

Whether the data is stored and managed by the government or by industry, the PM is responsible for protecting system data. DoD policy with regards to data marking and release can be found in the following: DoD Directive 5230.24, "Distribution Statements on Technical Documents," DoD Directive 5230.25, "Withholding of Unclassified

Technical Data From Public Disclosure," and DoD 5400.7-R, "DoD Freedom of Information Act Program."

A guide that may be helpful for PMs and data managers is the industry Consensus Standard for Data Management, EIA-859. This specification is an industry consensus document for trading partners participating in data management. It outlines principles and processes for the management of data including data quality, interoperability and longevity, best practices, and long term electronic data storage, use, and recovery.

In considering the best approach to data management, an analysis of all customers data needs and capabilities must be undertaken to ensure that the approach meets the needs of the customer. Areas of consideration include, but are not limited to:

- User's minimum data requirements and use of the data (i.e., view, edit, management of Freedom of Information Act requests, archiving, etc.)
- User's environment and work place (e.g. depots, deployed unit, etc.)
- User-s digital capability profile (e.g., access capability, download capability, portable devices, etc.)
- User's requirements for common look and feel (e.g., the style and format and navigation requirements for the data)
- User's requirements for viewers (e.g., proprietary viewers versus neutral viewers)\
- User's requirements for integration with existing DOD processes, indices, tools and repositories., etc.

With the competition strategy, foreign military sales plans, and analysis of user requirements in hand, the PM determines performance-based approach to acquiring and sustaining data over its lifecycle. Strategies may include:

- Access vice delivery to the government.
- Incentives for maintaining up to date configuration current data.

An integrated data management system captures and controls the system technical baseline (configuration documentation, technical data, and technical manuals) and serves as a ready reference for data correlation and traceability (among performance requirements, designs, decisions, rationale, and other related program planning and reporting elements). Integrated data management also:

- Facilitates technology insertion for affordability improvements during re-procurement and post-production support.
- Supports configuration procedures.
- Serves as a ready reference for the systems engineering effort.
- Supports TLCSM and provides the data required for PBL implementation.
- Provides long-term access to data to support:
    - Competitive sourcing decisions;
    - Maintenance and sustainment analyses;

- Conversion of product configuration technical data to performance specifications when required for enabling technology insertion to enhance product affordability and prevent product obsolescence; and
- Contract service risk assessments over the life of the system.

Public law, the Federal Acquisition Regulation (FAR), and Defense Federal Acquisition Regulation (DFAR), OSD, Services, and Agencies implementing documents provide guidance and requirements for Data Management. Industry standards-making bodies such as GEIA, ISO, and ANSI provide high level principles to guide integrated Data Management planning, and provide currency to industry best practices.

All new data should be acquired, developed, and delivered to the government using international or industry standards, examples of those standards are:

- S1000D, International Specification for Technical Publications Utilizing a Common Source Database
- ISO 10303, Standard for the Exchange of Product Model Data (STEP)

Examples of DM process and guidance documents are:

- Data Management Community of Practice (CoP), located on the Acquisition Community Connection on the DAU website http://acc.dau.mil/dm
- DoD 5010.12-M, Procedures for the Acquisition and Management of Technical Data, May 1993
- DoD 5200.1-M Acquisition System Protection Program, March 1994
- GEIA-859, Consensus Standard for Data Management, located on the GEIA website, http://www.geia.org, and click on STANDARDS. (Note: This document is currently being published.)
- Intellectual Property: Navigating Through Commercial Waters, October 15, 2001, website http://www.acq.osd.mi./dpap/docs/intelprop.pdf

4.2.1 Parts Cataloging

Identification and cataloging of spare parts in accordance with the Federal Catalog System provides a framework for data integration and interoperability of logistics support during sustainment, and serves as a useful tool in systems engineering decisions and reducing logistics footprint. Use of screening the existing Federal Catalog, through the Federal Logistics Information System, FEDLOG or other related commercial products serves to identify existing in use items which can preclude unnecessary added costs of development or procurement. Likewise, it serves to identify where new items require development or existing items need to be modified for improved performance or other considerations. Promoting access to technical data for the purposes of cataloging these new items in the Federal Catalog System should be strongly encouraged, regardless of whether the weapons systems program will purchase data for other support purposes.

4.3 DMSMS & Obsolescence

Diminishing Manufacturing Sources / Material Shortages (DMSMS) is the loss, or potential loss, of manufacturers or suppliers of parts, raw materials or other items needed to support and maintain a system. Material obsolescence may occur at the part, module, component, equipment, or other system indenture level. DMSMS is particularly troublesome for systems that rely on commercial electronics, which often have a product life cycle of 18 months or less. DMSMS obsolescence can occur in any program phase and can severely impact the program schedule, system availability, capability, or cost.

Open systems design can help mitigate the risks associated with technology obsolescence, avoiding being locked into proprietary technology or relying on a single source of supply over the life of a system. Spiral development also helps to alleviate obsolescence concerns. However, the PM must insure that PBL product support efforts include an active DMSMS process to anticipate occurrences and take appropriate actions. This can often be carried out by the Product Support Integrator. Actively addressing DMSMS will insure effective support throughout the system life cycle and prevent adverse impacts on readiness or mission capability. The Services and Defense Logistics Agency have DMSMS efforts that can assist the PM in addressing DMSMS.

DMSMS should be considered in the PBL BCA and enterprise integration efforts should accommodate DMSMS. When confronted with a DMSMS problem, the PM or PSI should respond in accordance with pertinent Service or DLA guidance. A basic DMSMS resolution process contains for basic steps: Identification/Notification; Case Verification; Case Analysis, including Proposed Resolution Alternatives; and Resolution Selection and implementation. For further information see: www.dmsms.org.

4.4 Corrosion Prevention and Control

The cost of corrosion to DoD is many billions of dollars annually. Therefore, corrosion control can contribute significantly to the total cost of system ownership, and is a key element of system supportability. Corrosion is a long term issue that usually impacts system operation after the system is procured, but the optimal time to address the impact of corrosion is early in system development. Proper consideration of corrosion in the design phase of a system will lead to significant cost savings over the life of the system. PBL efforts must support the tracking, costing, and prevention or control of systems and structures corrosion. In implementing PBL, PMs must concentrate on implementing best practices and best value decisions for corrosion prevention and control in systems and infrastructure acquisition, sustainment, and utilization.

All programs that are subject to Defense Acquisition Board (DAB) review are required to demonstrate Corrosion Prevention and Control (CPC) planning implementation. For this review, PMs must prepare a CPC Plan (CPCP) document, which should be completed as early as possible, but in the case of weapons systems, no later than Milestone B. The plan should do the following:

- Define CPC requirements;
- List applicable specifications and standards;
- Address facility or system definition, design, engineering development, production/construction and sustainment phases, consistent with the design life and affordability of the system; and
- Establish the management structure to be used for the specific system being designed, procured and maintained, including a Corrosion Prevention Advisory Team (CPAT).

Before beginning any CPC program, PMs should consult the **Corrosion Prevention and Control Planning Guidebook** for policies regarding corrosion prevention and examples of ways to implement a CPCP. Additionally, PMs should also consult the DoD Corrosion Exchange, (www.dodcorrosionexchange.org), which provides a forum for the DoD corrosion prevention community to exchange helpful information.

4.5 Earned Value Management

Earned Value Management (EVM) is a program management tool that integrates the functional stovepipes of cost, schedule, and work scope to create an aggregate picture of performance. EVM provides an early warning system for deviations from plan and quantifies technical problems in cost and schedule terms, providing a sound objective basis for considering corrective actions.

EVM gives the Cost Analysis Improvement Group (CAIG) the data necessary to provide accurate estimates of total program cost. Through EVM reporting, the contractor provides cost data as often as is necessary to ensure implementation of program objectives and facilitate PM oversight responsibilities as required by the CAIG. PMs must ensure EV data reporting is specified in the contract. Requiring an EVM for all firm fixed price contracts, subcontracts, and other agreements is a risk-based decision left to the discretion of the PM.

4.6 Sustained Materiel Readiness

The Department acquires, operates, maintains, and sustains a vast array of materiel through complex processes intended to provide the warfighters with reliable and technically superior weapon systems in a timely, cost-wise manner. Sustainment of weapon system materiel readiness necessary to meet the warfighters' requirements must be efficiently and effectively achieved through the application of life-cycle systems engineering, process excellence and responsiveness throughout the end-to-end value chain. In implementing PBL, this requires PMs to institutionalize sustained materiel readiness through sound Lean/Six Sigma/Theory of Constraints concepts, Condition Based Maintenance Plus (CBM+) principles, Sustaining Engineering (SE) practices, and

other efficiency methodologies in all DoD weapon system acquisition and sustainment processes.

The overall objective is to maximize weapon system readiness through optimum reliability and repair cycle time with a reasonable balance of costs across the value chain – we know when we employ such efficiencies we can provide much better readiness at much less cost. The value delivered by the DoD enterprise is weapon system and combat support equipment materiel readiness, specifically weapons capable of being safely and effectively employed by combat forces in the manner intended by the equipment designer and manufacturer.

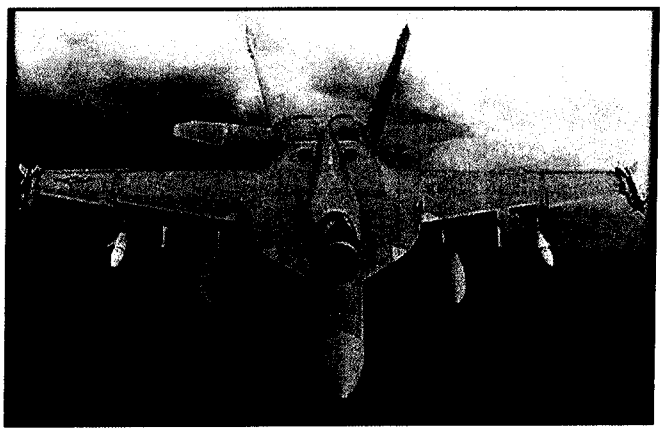
Key objectives include, but are not limited to:

- Develop an overall framework for "end-to-end" employment of sustained materiel readiness concepts and techniques within the weapon system's value streams, including those weapon system-related support functions that impact product value.
- Establish performance standards that support the key sustained materiel readiness objective of optimum reliability and repair cycle time with a reasonable balance of costs across the weapon system's end-to-end value chain.
- Aggressively seek opportunities to continuously improve processes by eliminating waste, ensuring quality, increasing weapon systems and commodities reliability and reducing repair turn-around times within the end-to-end value stream.
- Apply life-cycle systems engineering for fielded systems (see the Supportability Guide, sections 3.6-3.9).

5.0 Case Studies / Success Stories

The examples presented below are a sampling of successful PBL programs. PMs are encouraged to consider relevant examples for application to their own PBL efforts and are also encouraged to contact the program offices' product support manager for additional guidance or information.

5.1 F/A-18E/F



The single-seat F/A-18E and the two-seat F/A-18F Super Hornets perform a variety of missions including air superiority, day and night strike with precision-guided weapons, fighter escort, close air support, suppression of enemy air defense, maritime, reconnaissance, forward air controller, and tanker. The F/A-18E/F has 11 weapon stations, which allows for a significant degree of payload flexibility with the capability to carry a variety of both air-to-air and air-to-ground ordnance on one mission, including the complete compliment of Precision-Guided Munitions (PGM).

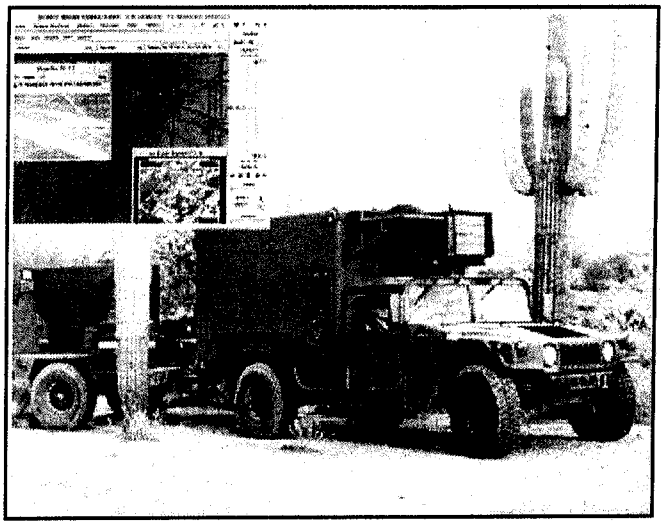
The F/A-18E/F Integrated Readiness Support Team (FIRST) Performance Based Logistics contract covers approximately 73% of F/A-18 E/F material support including 3,889 E/F WRAs, 653 I-Level Repairables, 349 Support Equipment Items, 130 DLA Consumables, and over 10,000 Non-DLA Consumables. NAVICP is a major the Product Support Integrator and Boeing is the PBL Contractor. DLA is the primary source for common consumables. Through the FIRST contracts, Boeing provides total aircraft support including supply chain support, reliability improvements, obsolescence management, E/F squadron activation, technical publication and support equipment management. Additionally, Boeing has Commercial Services Agreements with all three NADEPs for depot level repairs. For further information contact: PMA 265 F/A-18 Fleet Support DPM & F/A-18 APML, 301-757-7578.

5.2 Common Ground Station (CGS)

The Army's Common Ground Station (CGS) is designed, manned, and equipped to provide tactical commanders a single system from which to receive information from a variety of tactical, theater, and national sensors. Its primary goal is to keep the commander aware of the current situation and to support Battle Space Visualization.

The CGS takes advantage of both government and industry strengths with product support integration being managed organically at the Tobyhanna Army Depot. Performance Based negotiations are ongoing between the product support integrator and the support providers. The goal of the CGS program was to develop a fully capable weapon system with a support infrastructure that would meet the sustainment requirements, yet reduce life cycle (operation and support) costs.

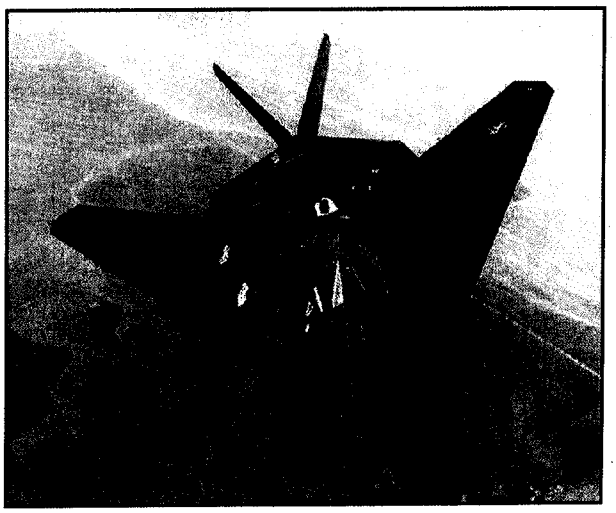
These challenges in product support were approached by the PSI establishing a Supportability Integrated Process Team (SIPT) that capitalized on the competencies within industry, the Defense Logistics Agency, and the Army Communications Electronics Command. Each support provider is a member of the CGS SIPT, providing relevant support to the CGS fleet of over 100 systems deployed worldwide. Further information can be found at the following website: www.tobyhanna.army.mil



5.3 F-117

The F-117 Nighthawk is the world's first operational aircraft designed to exploit low-observable stealth technology. This precision-strike aircraft penetrates high-threat airspace and can employ a variety of PGM against critical targets. The F-117 is equipped with sophisticated navigation and attack systems integrated into a digital avionics suite that increases mission effectiveness and reduces pilot workload.

Lockheed Martin Aeronautics Company at Palmdale (LMAC-P) is the F-117 prime contractor and has total system performance responsibility (TSPR) for the F-117 weapon system. Modification programs are sole source to LMAC-P as part of the larger TSPR effort. RDT&E funds are executed to develop improved capability, reliability, maintenance, and safety modifications. Operational Flight Program (OFP) software is continuously updated as



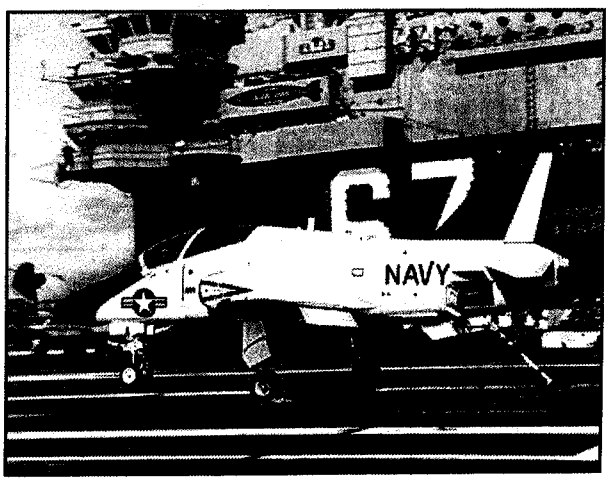
needed to complement modification development efforts. The contracting approach varies by individual effort and involves Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) contract types. For further information contact: F-117 Product Support / Logistics, ASC / YNL, 937-904-5456.

5.4 TOW ITAS

The TOW Improved Target Acquisition System (ITAS) is a material change to the current target acquisition and fire control subsystem used by light infantry forces. ITAS increases target detection, acquisition, recognition and engagement ranges, using a second-generation Forward-Looking Infrared Radar (FLIR), an eye safe laser rangefinder, and other digital components. TOW ITAS provides a highly mobile, adverse weather, day or night capability needed by early entry forces to destroy advanced threat armor at greater standoff ranges. ITAS fires all versions of the TOW missile from both the M41 ground launcher and the M1121 HMMWV platform, and provides a growth path for future missiles.

A PBL Contractor Logistics Support Contract for TOW-ITAS was signed with Raytheon in FY2000. Fielding to 1st and 2nd Brigade 82 Airborne Division began in late 2001. Many other active Army and National Guard units are to receive ITAS. PBL was implemented in early 2002 with free issue spares delivered to units and loaded as shop stock. The contractor is the item manager for ITAS peculiar parts and provisions for field and depot. The contractor provides the SARSS interface with DAAS and has RIC. For further information see: www.msl.army.mil/ccws.htm

5.5 T-45



The T-45 Goshawk two-seat, single-engine aircraft is the jet trainer for Navy pilots, and is designed to excel in the rigorous naval aviation training environment, including catapult launches and arrested landings. Training in the T-45 shortens the transition to fleet jets, requiring 31.5 fewer flight hours over previous training jets, as pilots concentrate on their primary mission

of learning how to perform key tactical maneuvers. The T-45 uses a 1553 bus and has two multi-function displays in each cockpit providing navigation, weapon delivery, aircraft performance, and communications data.

PBL performance is based on Aircraft Ready for Training (RFT) and Sortie Completion Rate (SCR) each normal work day, including a bonus which is calculated daily and paid once a month. The aircraft PBL contractor shall have a minimum number of aircraft RFT at 1100 M thru F (excluding Federal holidays) and each Surge Day (as delineated in paragraph 4.1.6 of this PWS). This minimum number of RFT aircraft each day shall be computed.

The T-45's F405-RR-401 engine is supported through a PBL 'power by the hour' (PBTH) contract with Rolls Royce. Performance is based on aircraft flying time and paid per flight hour. The engine contractor provides a minimum number of RFI engines to the aircraft PBL contractor. The ACO will be responsible to make any adjustments to the actual engine inventory. For further information contact: PMA 273 Director of Logistics, 301-757-5169.

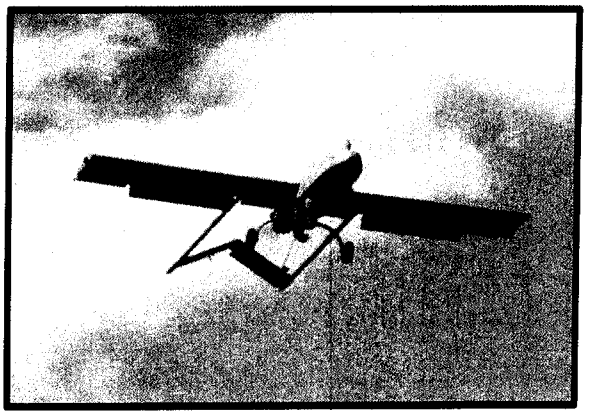
5.6 JSTARS

The E-8C Joint Surveillance Target Attack Radar System (JSTARS) is an airborne battle management and C2 platform. From a standoff position, the modified 707-300 manned by a joint Army-Air Force crew, detects, locates, tracks, and targets hostile surface movements, communicating real-time information through secure data links to Air Force and Army command centers.

Northrop-Grumman is the prime contractor under a Total System Support Responsibility (TSSR) arrangement for sustainment of JSTARS over a maximum contract period of 22 years. Warner-Robins ALC performs core sustaining workloads (e.g. repair of prime mission equipment and system software maintenance) and other workloads (e.g. ground support software maintenance and various back shop functions) under a work-share partnership with Northrop-Grumman. DLA is the primary provider for common consumable parts and almost all JSTARS unique consumable parts. For further information contact: JSTARS Product Support / Sustainment, WRALC / LXJ, 478-222-3615.

5.7 Shadow Tactical UAV

The Shadow Tactical Unmanned Air Vehicle, Ground Control Station, and related systems are designed to meet the Army's Unmanned Aerial Vehicle System (UAVS) requirement for flexible, responsive near-real-time Reconnaissance, Surveillance, and Target Acquisition (RSTA), Battle Damage Assessment (BDA), and battle management support to maneuver commanders.



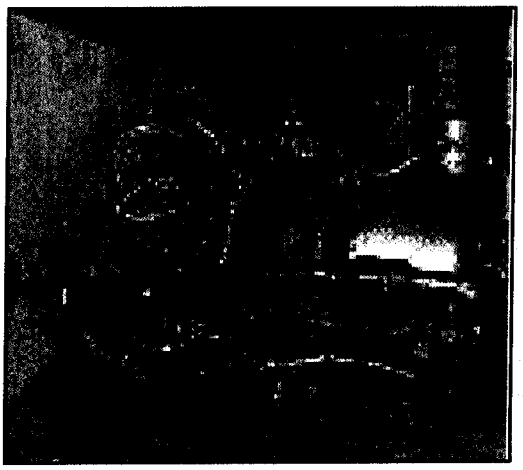
Under performance based logistics, the contractor is responsible for providing total product support for the Unmanned Aerial Vehicle system using a performance based contractor managed supply and maintenance system that imposes performance metrics designed to support the system operational requirements. Performance will be measured on a recurring basis and the contractor is incentivized to exceed defined contract performance metrics. For further information see: www.tuav.redstone.army.mil.

5.8 NAVICP: Aircraft Tires

The Naval Inventory Control Point (NAVICP) Aircraft Tires PBL contract transfers traditional DoD inventory management functions to the contractor, which will guarantee a level of tire availability vice physical inventory. Under this vehicle, the contractor is tasked to become the single supply chain integrator for Navy aircraft tires and is responsible for requirements forecasting, inventory management, retrograde management, stowage, and transportation. The contractor provides a full service 24 hours a day, 365 days a year service center with Web-based access. In addition, the contractor is committed to providing surge capability to support up to twice the normal monthly demand. Finally, the Navy expects to achieve significant transportation, warehousing and inventory savings over the system life cycle. Performance benefit: 96 percent material availability during initial performance review with 8,000 fleet orders filled and zero backorders. For further information see: www.navicp.navy.mil.

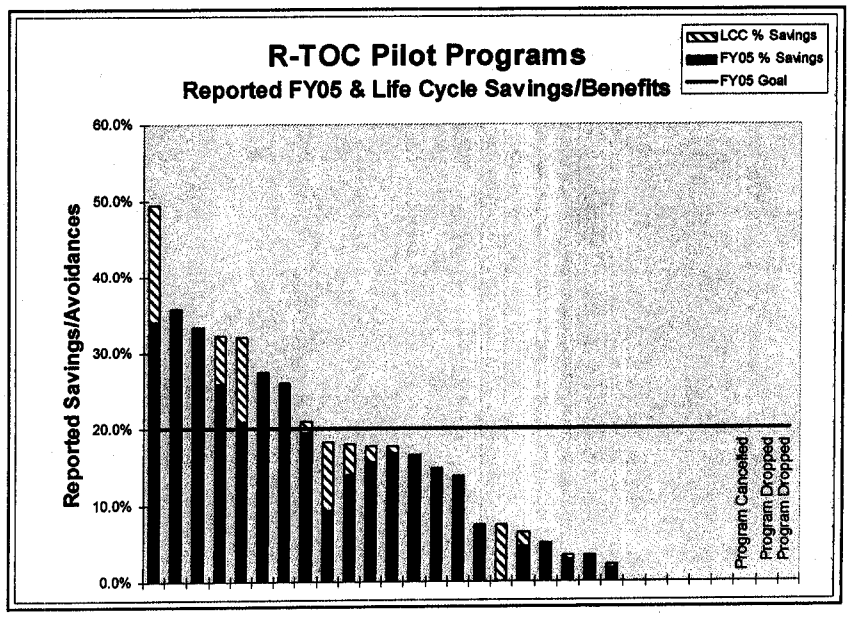
5.9 NAVICP: Auxiliary Power Unit/Total Logistics Support (APU/TLS)

The APU/TLS PBL contract shifts total management responsibility for APU types used on the F/A-18, S-3, C-2 and P-3 aircraft including all peculiar components and accessories. The APU/TLS PBL contract represents the first Public/Private partnership in Naval logistics. In this groundbreaking arrangement, the contractor provides program management while Naval Aviation Depot Cherry Point provides the touch-labor. The contract provides 30 percent to sixty percent reliability improvement guarantees, two-day delivery guarantees for high-priority requirements, obsolescence management, product support engineering, and surge capability up to 120 percent of annual flight hours. In addition, the arrangement provides the government gain-sharing opportunities if reliability is improved and includes downward price adjustments if the contractor fails to meet reliability or performance guarantees. Life cycle cost savings should exceed $50 million. The contract is a 'corporate contract,' structured to facilitate adding any Honeywell product from any of the services to TLS. Additions include the C-130 APU, F/A-18 F404 Engine Main Fuel Control, and the P-3 Engine Driven Compressor. Performance benefit: G Condition at the Depot (awaiting parts) reduced from 232 to 0, backorders reduced from 125 to 0, supply Material Availability increased from 65% to over 90%, over 75 reliability improvements, and 98% of requisitions received during Operation Enduring Freedom filled within contractual requirements despite a 60 percent increase in demand. For further information see: www.navicp.navy.mil.



5.10 Reduction in Total Ownership Cost (RTOC)

Over the past 5 years, the RTOC program has supported Pilot Program initiatives to reduction total ownership costs. F-117, JSTARS, and TOW-ITAS, discussed above, are RTOC Pilot Programs. The program has been highly successful, reaping significant cost savings/avoidance and identifying lessons learned, which are now being institutionalized throughout the Department of Defense. The institutionalization effort will



be led by the recently identified RTOC Special Interest Programs, which include the F-18, also discussed above.

Identified RTOC Best Practices and their associated programs include:

- R-TOC Management
  - Coordination of R-TOC initiatives: Common Ship, AEGIS cruisers, LPD-17, CVN-68 carriers
  - Development of tools for R-TOC tradeoffs (JSTARS), analysis of maintenance requirements (CH-47), and recapitalization (Apache)
- Reliability and Maintainability Improvements
  - Design for reduced O&S: LPD-17, EFV, MTVR
  - Government-industry partnerships: Abrams
  - Recapitalization and system upgrade: Apache, HEMTT, CH-47, EA-6B, C-5, F-16, C/KC-135
  - Replacement of high O&S cost components and subsystems with COTS: C/KC-135, F-16, Common Ship, AEGIS cruisers
- Supply Chain Response Time
  - Direct vendor delivery: HEMTT, H-60
  - Commercial maintenance agreement: Aviation Support Equipment (ASE)
  - Industrial/virtual prime vendor: C/KC-135, F-16, and C-5
  - Reliability centered maintenance: EA-6B, ASE
  - Team Armor Partnership: Abrams Tank System
  - Electronic tech manuals: F-16, C/KC-135
- Performance Based Logistics (PBL)
  - Systems sustainment responsibility: F-117, JSTARS
  - Contractor logistics support: ITAS
  - Flexible sustainment: C-17
  - Life cycle support study: LPD-17
  - Performance based product support: Abrams, EA-6B, Guardrail

For more information go to: rtoc.ida.org.

6.0 Resources and References

6.1 The Acquisition Community Connection (ACC) and the Logistics Community of Practice (LOG CoP)

The Acquisition Community Connection, sponsored by the Defense Acquisition University (DAU), is a tool to facilitate collaboration, sharing, and the transfer of knowledge across the DoD AT&L workforce. ACC is a collection of communities of practice centered on different functional disciplines within the acquisition community. Access to ACC is at [http://acc.dau.mil]. The Logistics Community of Practice (LOG CoP), is one of the communities currently residing within the ACC framework. LOG CoP provides a number of resources for implementing life cycle logistics. The community space also allows members to share (post to the website) their knowledge, lessons learned and business case related material so that the entire logistics community can access and benefit. DoD's intention is to make LOG CoP the go to resource for the logistics community. Access to LOG CoP is at [http://log.dau.mil].

TLCSM Template: The TLCSM template, developed by the USD(AT&L), provides a synopsis of the key activities and outputs to assist PMs in effectively implementing TLCSM and PBL within the defense acquisition management framework. The template is a useful benchmark for assessment of program implementation of PBL in the design and development of weapon systems and associated sustainment strategies. It can be found in the LOG CoP at:
[http://acc.dau.mil/simplify/ev.php?URL_ID=11679&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1062159864]

Business Case Guidance: Business case development and analysis is a tailored process. The scope of a product support investment decision substantiated by the business case can range from a complete system-of-systems, to that of individual sub-system components. Likewise, each Service component has established ownership and structure of how business case development and analysis are conducted to support their investment decisions. For this reason, one specific approach, format or template may not fit all situations. The LOG CoP contains numerous references, guides and templates to assist in business case development and analysis.
[http://acc.dau.mil/simplify/ev.php?URL_ID=11167&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1054568385]

PBA Templates and Guidance: In addition to providing guidance and detailed explanations of PBL and related concepts, sample PBAs, policy and guidance, contractual incentives and other resources are available under the PBL section of LOG CoP.
[http://acc.dau.mil/simplify/ev.php?URL_ID=11165&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1066393478]

6.2 Service Tools and Databases

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/Organization.htm
Navy: http://www.navair.navy.mil/toc/
Air Force: http://www.safaq.rtoc.hq.af.mil/tools.cfm

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: https://logistics.navair.navy.mil
Air Force: http://www.saffm.hq.af.mil

6.3 DoD, Service, and Agency Guidance:

The following are relevant guidance and references for implementing Performance-Based Logistics.

6.3.1 DoD Guidance

DoDD 5000.1; "The Defense Acquisition System," May 12, 2003
http://dod5000.dau.mil/DOCS/DoD%20Directive%205000.1-signed%20(May%2012,%202003).doc

DoDI 5000.2; "Operation of the Defense Acquisition System," May 12, 2003
http://dod5000.dau.mil/DOCS/DoDI%205000.2-signed%20(May%2012,%202003).doc

The Defense Acquisition Guidebook
http://AKSS.DAU.MIL/DAG/

JDMAG
http://www.jdmag.wpafb.af.mil

6.3.2 Army Guidance

Army Regulation 70-1—Research, Development, and Acquisition, Army Acquisition Policy
http://www.usapa.army.mil/pdffiles/r70_1.pdf

Army Regulation 700-90, Army Industrial Base Process
http://www.apd.army.mil/pdffiles/r700_90.pdf

Army 700-127, Integrated Logistics Support
http://www.usapa.army.mil/pdffiles/r700_127.pdf

FM-100-10-2 Contracting Support on the Battlefield
http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/100-10-2/toc.htm
Or:
http://dasapp.saalt.army.mil/Documents/CAF%20Guidebook%20(Final).doc

Army Policy Memo—Supportability Co-equal with Cost, Schedule and Performance
http://www-
tradoc.army.mil/dcscd/documents/suportability%20coequal%20feb%2000.pdf

Army Policy Memo—Life Cycle Management
http://acc.dau.mil/simplify/file_download.php/LCM+MOA.pdf?URL_ID=48727&filena
me=10923989381LCM_MOA.pdf&filetype=application%2Fpdf&filesize=240892&nam
e=LCM+MOA.pdf&location=user-S/

Army Policy Memo—Management of the Total Life Cycle for Acquisition Category (ACAT) Systems
http://www.amc.army.mil/amc/rda/milspec/memo29april97.html

Army Policy Memo—Total Ownership Cost Reduction
http://acc.dau.mil/simplify/file_download.php/ArmyTOCRPolicy.pdf?URL_ID=6606&fi
lename=103436114811ArmyTOCRPolicy.pdf&filetype=application%2Fpdf&filesize=73
0337&name=ArmyTOCRPolicy.pdf&location=user-S/

6.3.3 Navy Guidance

SECNAVINST 5000.2B Implementation of Mandatory Procedures for Major and Non-Major Defense Acquisition Programs
http://neds.nebt.daps.mil/5000.htm

SECNAVINST 4105.1 N432 Integrated Logistics Support: Assessment and Certification Requirements
http://www.navsea.navy.mil/download.asp?iDataID=8673

NAVAIR—Maintenance Trade Cost Guide
http://www.navair.navy.mil/toc/tools/mtcg_external.doc

NAVAIR—Contracting for Supportability Guide
https://logistics.navair.navy.mil/cfsg/library/CFSG1.doc

NAVAIRINST 4081.2 Policy Guidance for Alternative Logistics Support Candidates
https://directives.navair.navy.mil

6.3.4 Air Force Guidance

Air Force Instruction 63-107, Integrated Product Support and Planning Assessment
http://www.e-publishing.af.mil/pubfiles/af/63/afi63-107/afi63-107.pdf

Air Force Instruction 63-111, Contract Support for Systems and Equipment
http://www.e-publishing.af.mil/pubfiles/af/63/afi63-111/afi63-111.pdf

Air Force Instruction 63-124, Performance-Based Service Contracts
http://www.e-publishing.af.mil/pubfiles/af/63/afi63-124/afi63-124.pdf

Air Force Instruction 63-1201 Assurance of Operational Safety, Suitability and Effectiveness
http://www.e-publishing.af.mil/pubfiles/afmc/63/afmci63-1201/afmci63-1201.pdf

Air Force Instruction 10-601, Mission Needs and Operational Requirements Guidance and Procedures
http://www.e-publishing.af.mil/pubfiles/af/10/afi10-601/afi10-601.pdf

Air Force Instruction 10-602, Determining Mission Capability and Supportability Requirements
http://www.e-publishing.af.mil/pubfiles/af/10/afi10-602/afi10-602.pdf

Air Force Instruction 25-201, Support Agreement Procedures
http://www.e-publishing.af.mil/pubfiles/usafa/25/afi25-201_usafasup1_i/afi25-201_usafasup1_i.pdf

Air Force Instruction 21-101, Maintenance Management of Aircraft
http://www.e-publishing.af.mil/pubfiles/af/21/afi21-101/afi21-101.pdf

6.3.5 Defense Logistics Agency Guidance

DLA One Book (DLAD 5025.30) Chapter: Engagement of Military Services' Contractor Logistics Support (CLS), Performance Based Logistics (PBL), Product Support

Reengineering, and Reduction of Total Ownership Cost (RTOC) Initiatives for Weapon Systems
https://today.dla.mil/onebook/process/152.htm

The Program Manager's Tool (PMT) will provide program offices, and the many organizations that support them, with a tool to assist in the selection of 'other than information technology' standards to help document requirements for interoperability, logistics readiness, safety, and other operational needs. It will categorize standards by importance and by product category using the Work Breakdown Structure. While the PMT will include a small number of standards mandated by law or regulation, for the most part, it will contain preferred standards that Program Managers should consider using. For each preferred standard, Program Managers will find a description of the reason for preference, the impact of not using the standard, and a link to the full text of the document. The PMT is not intended to be a mandatory architecture, but it will be guide for program offices to make informed selection of which standards to implement on their programs. The PMT can be accessed at: http://12.109.46.136

6.4 Statutory Requirements

The PM should be aware of the following statutory requirements, which affect various aspects of product support. The complete statutes can be found at:
http://uscode.house.gov/title_10.htm

U.S. Code: Title 10, Chapter 131 – Planning and Coordination.

- Section 2208 -- Working-capital funds.
- Section 2208(j) -- Direct sales of items.

U.S. Code: Title 10, Chapter 146 – Contracting for Performance of Civilian Commercial or Industrial Type Functions.

- 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 2461a -- Development of system for monitoring cost savings resulting from workforce reductions.
- 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 2469 -- Contracts to perform workloads previously performed by depot-level activities of the Department of Defense: requirement of competition.
- 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.
- Section 2475 -- Consolidation, restructuring, or re-engineering of organizations, functions, or activities: notification requirements.

U.S. Code: Title 10, Chapter 152 – Issue of Supplies, Services, and Facilities.

- Section 2563 -- Articles and services of industrial facilities: sale to persons outside the Department of Defense.