

**PERFORMANCE BASED LOGISTICS:
Addressing Challenges to Expanded Use**

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The DoD has identified Performance Based Logistics (PBL) as its preferred approach for supporting and sustaining defense weapon systems, subsystems, and components for the last 15 years. This research effort references DoD PBL statute, policy, and guidance regarding appropriate application of PBL and identifies impediments in implementing PBL consistent with that documented foundation. The net result of this research should enable the DoD to plan and take appropriate actions to alleviate or eliminate these impediments, leading to expanded successful use of PBL across the Department.

Background

In response to a Congressional request in 1998 on plans to stem the rising growth in Operations and Support (O&S) cost, DoD submitted the “Product Support Reengineering” report to Congress in 1999 describing the basic concepts and business model of PBL. Based on those concepts, 30 pilot programs were identified, 10 from each of the Military Departments, to implement PBL support strategies. The results were positive, and DoD formally identified PBL in the 2001 Quadrennial Review as a preferred product support strategy. Continued use and success of PBL across the Department led to the inclusion of PBL as the directed product support strategy in DoD Acquisition policy in 2008. Currently OSD has emphasized the need for increased use of PBL in the Better Buying Power (BBP) initiatives, citing PBL as a key objective in the 2014 release of BBP 3.0.

A History of Success

In most cases, PBL contracts are multiple-year agreements (typically with options that can extend the contracts for 5 to 15 years). Most PBL contracts include contractor management of the supply chain, including depot maintenance (via public-private partnerships) where applicable. Whereas traditional sustainment contracts incentivize the provider to sell parts, PBL’s “pay for performance” approach motivates the provider to reduce failures and resource consumption. These long-term partnerships with industry leverage commercial best practices and DoD infrastructure and skilled personnel to provide improved processes. There is ample empirical data that demonstrates that PBL produces desired outcomes in the key performance areas of availability, reliability, logistics footprint, and cost. Major systems have reduced sustainment costs by hundreds of millions of dollars.

The goals of PBL contracts are to provide the U.S. military with a higher level of logistics efficiency and effectiveness; to improve accountability; and to promote the development of more reliable products. Based on the experience of the private sector and the pilot programs conducted in the DoD, it is widely

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believed that PBL support offers the best approach for long-term support of weapon systems, and their subsystems (Gansler & Lucyshyn, 2006). Some examples include:

- **HIMARS**—a system level PBL. In 2007 costs associated with operational tempo totaled \$12.4 million; in 2009, these costs had declined to \$3.8 million, for a total cost avoidance of \$8.6 million, a figure that was used to inform pricing for the subsequent PBL contract. The program also consistently achieved or exceeded program objectives in all performance areas (Gansler & Lucyshyn, 2014).
- **C-17**—a system level PBL. Business Case Analyses demonstrated that additional efficiencies and project savings of \$12.4 billion, over a 30 year life span. In FY12 over \$42 million was saved, lowering the contracted cost per flying hour by 10 percent. The contractor continues to reduce costs (C-17 nomination package, 2012).
- **H-60 TIP-TO-TAIL**—management and provision of components. The fixed-price per flight hour was reduced by \$310, or 17% - a major reduction in costs to the Navy. The T2T PBL contract performance demonstrated a fill rate continuously exceeding 80% in each period over the life of the program. It averages 88% overall; an improvement of 19% over the pre- rate of 69% (O’Hatnick, 2012).
- **AVIATION TIRES**—management and provision of components. This program improved material availability and reliability. Response times dropped from 60 days to 2 days within the continental U.S. and 4 days outside the continental U.S. Fill rates have been 100 percent completed and 98.5 percent on-time, exceeding goals of 95 percent. This high level of material availability enabled the Navy to completely draw down its former stockpile of wholesale tires from 60,000 tires to zero, saving the Navy money by reducing the costs related to the ownership and maintenance of the tires and warehouses (Lucyshyn & Burdgd, 2014).

The PBL Model

PBL contracting, when used appropriately, can reduce sustainment costs relative to traditional, organic approaches. PBL is a logistics support solution that transfers risk and responsibility for integration and management of specified logistics functions (e.g. inventory management, technical support, and supply chain management) for an identified system, subsystem(s), or component(s) to a provider who guarantees a level of performance at the same or reduced cost. Instead of buying spares, repairs, tools, and data in individual transactions, PBL entails the purchase of a predetermined level of availability that meets the warfighter’s objectives. PBL’s business and economic model incentivizes manufacturers and suppliers to innovate and reduce total system and life cycle costs by making investments resulting in improved process efficiency and product reliability. Successful PBL contracts reflect common characteristics, which provide the basis for driving contractor behavior that benefits the DoD customer through improved performance and reduced cost. These common characteristics are listed below.

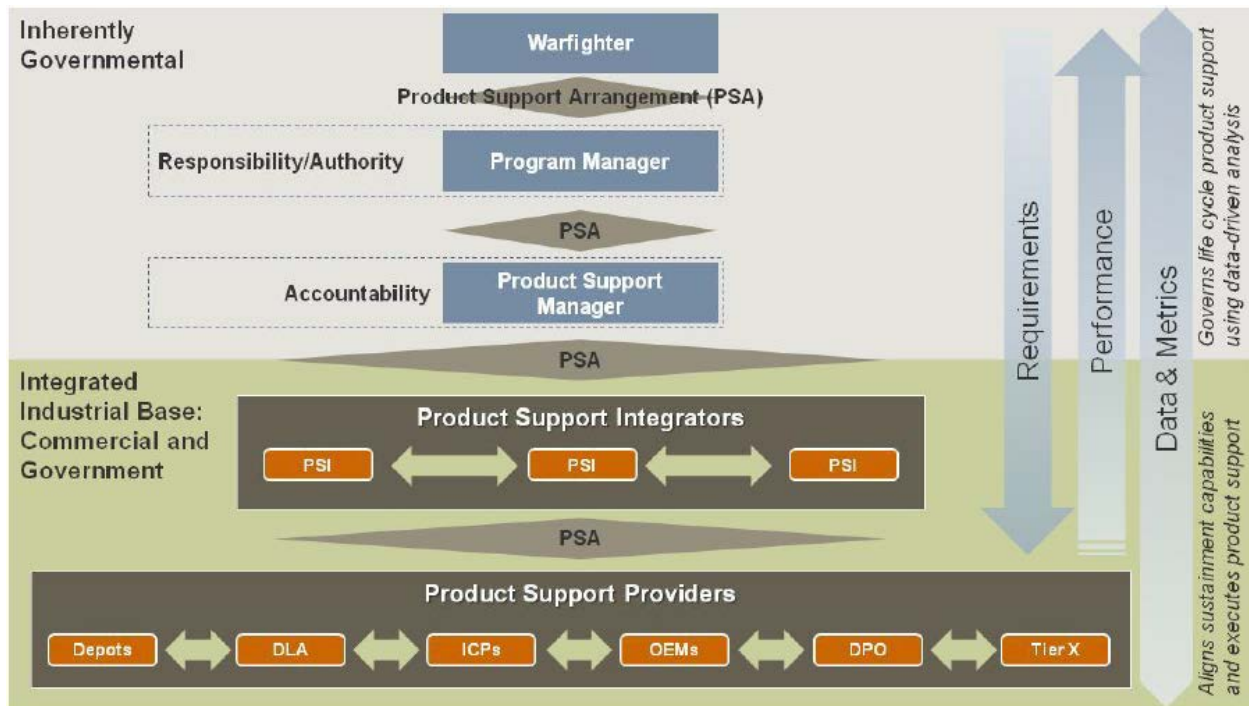
- **Long term business relationships:** long term contracts provide the necessary business basis for contractors to make investments in product and process improvements with adequate time to receive a return on those investments

- **Stable funding:** Most mature PBL contracts are a form of fixed price, providing the contractor confidence in cash flow over time which enables investments, and also incentivizes contractor actions to reduce the cost of support leading to increased contractor profit. In most current PBL contracts those savings are shared with the DoD customer
- **Alignment of the PSI scope of product support responsibility with those functions that drive the specified contractual metric outcomes:** This alignment of functions with metrics ensures that the contractor has the ability to integrate and assure performance across those functions to meet the metric objectives for which they are financially at risk
- **Appropriate Metrics:** Both the selection of metrics and the setting of metric requirements are critical to successful PBL contracts. Metrics should be few in number, and tied to the top-level outcome(s) desired.

When implemented, PBL shifts the focus of the government's efforts from transactions to identifying performance outcomes and assigning responsibilities. The objective is to develop accountability, instead of relying on control. With PBL, active management of the sustainment process (e.g. forecasting demand, maintaining inventory, and scheduling repairs) becomes the responsibility of the support provider. Additionally, it changes the incentives for the supplier. The supplier, with a properly structured PBL business arrangement, is now incentivized to improve the reliability of systems, and reduce inventories of spare parts, which reduce support costs and provide the contractor with the opportunity to increase profit through earning incentive fees or increasing the cost delta between their cost to provide support vs. the monies received in a fixed price contract. From the government's perspective, PBL results in optimizing total system availability; and, at the same time, minimizes the cost and the logistics footprint (Gansler & Lucyshyn, 2006). Other countries are also discovering the benefits of a performance-based product support strategy (Gansler et al., 2012)

PBL Roles and Responsibilities

DoD law, policy, and guidance on PBL centers around the Product Support Business Model, below.



Source: *Product Support Manager's Guidebook, April 2011*

This business model delineates three key roles and commensurate responsibilities, summarized below.

Product Support Manager (PSM) (source: 10 U.S.C. § 2337)

The PSM, designated as a government entity (*Product Support Manager Guidebook, 2011*), is responsible for the following actions:

- Develop and implement a Product Support Strategy (PSS)
- Iteratively monitor, validate, and revise the PSS as necessary
- Ensure achievement of product support outcomes through development and implementation of appropriate product support arrangements with a PSI.

Product Support Integrator (PSI) (source: 10 U.S.C. § 2337)

The PSI is designated as an “entity within the Federal Government or outside the Federal Government charged with integrating all sources of product support, both private and public, defined within the scope of a product support arrangement” developed by the PSM. The PSI integrates the support services of a range of Product Support Providers (PSPs) to achieve the specified warfighter required outcomes.

Product Support Provider (PSP) (source: 10 U.S.C. § 2337)

The PSP is an “entity that provides product support functions. The term includes an entity within the Department of Defense, an entity within the private sector, or a partnership between such entities.” In this context, each PSP is the ‘hands on’ performer for the majority of product support functional activities.

With the exception of the government-only PSM role, DoD policy and guidance states that the PSI and PSP roles can be performed by either government or industry entities. Private industry can partner and

share the support functions when transitioning to PBL. The Program Office can combine organic DoD support and private industry contractor support to meet sustainment strategy objectives. The allocations of support responsibilities are often based on factors such as the age of the system, existing support infrastructure, organic and commercial capabilities and legislative and regulatory constraints. Frequently, successful public private partnerships have been used to bring the best of the public and private sector knowledge and resources to bear on the issue of sustaining weapons systems (Gansler et al., 2010)

With the challenging responsibility of leveraging and integrating both public and private sector support, the role of the Product Support Integrator is critical to the effective execution of PBL strategies. The PSI must continually monitor, manage, integrate, and course correct sustainment activities to satisfy the warfighter performance requirements in an affordable manner over the life cycle. While previously cited DoD statute states that the PSI can be an entity from either within or outside the Federal Government, in practice the vast majority of PSIs have come from industry. We believe this is due to challenges and impediments preventing a government entity from successfully performing the PSI function, that are either not applicable or less applicable to a private sector PSI.

Challenges and Impediments faced by a Government PSI

The OSD “Proof Point Project, A Study to Determine the Impact of Performance Based Logistics (PBL) on Life Cycle Costs (Nov 2011)” presented the results of an in-depth quantitative analysis of PBL support strategies vs. traditional transactional support strategies. The results were significant, concluding that “PBL arrangements can reduce DoD costs per unit of performance while simultaneously driving up the absolute levels of system, subsystem, and component readiness/availability,” and that the degree of success was closely related to adherence to a distinct set of fundamental success tenets, listed below.

1. Contract type incentivizes cost reduction behavior and shifts the risk from the government to the provider
2. Incentives and/or penalties for maintaining Key Performance Indicator target(s)
3. Key Performance Indicator(s) manageable and measurable
4. Agreed upon Key Performance Indicator target level(s)
5. Contract length incentivizes investments

These tenets are directly related to aligning the objectives and activities inherent to, accomplished by, and ultimately changing the behavior of the PSI so that the PBL strategy optimizes outcomes for the DoD customer. In that context, the ability of the PSI to be successful is highly dependent on the degree to which the PSI can be incentivized to achieve the desired positive behaviors. These tenets are consistent with the broader foundation of Performance Based Services Acquisition (PBSA), from which PBL evolved. PBSA is the acquisition of services from a contractor, and industry’s ability to leverage and be incentivized by them is well-founded in PBSA and PBL contracts.

In assessing the ability of an organic DoD PSI entity to achieve that same level of behavioral change and ensuing beneficial actions, we found a number of challenges and impediments, summarized in the table and text below:

PBL Key Success Tenets	PSI Roles/Actions	Impediments to USG PSI
Contract type incentivizes cost reduction behavior and shifts the risk from the government to the provider	<ul style="list-style-type: none"> Invest in product and process improvements, using discretionary investment \$\$ Absorb current year loss for outyear ROI Use 'colorless' funds 	<ul style="list-style-type: none"> Federal Appropriations Law 31 U.S.C. 1301 – Purpose Statute 31 U.S.C. 1517 and 1341 – Anti-Deficiency Act Appropriation time limits
Incentives and/or penalties for maintaining Key Performance Indicator target(s)	<ul style="list-style-type: none"> Incurs financial risk for metrics achievement Financially accountable for achieving metrics 	<ul style="list-style-type: none"> Federal entities cannot incur a financial profit or loss (WCF net operating zero result, etc.) Federal agency-to-agency “Hold Harmless”; cannot penalize
Key Performance Indicator(s) manageable and measurable	<ul style="list-style-type: none"> Develops and integrates IT systems to manage and measure metrics 	<ul style="list-style-type: none"> DoD aging, functionally stovepiped IT systems lack integration & aggregation
Agreed upon Key Performance Indicator target level(s)	<ul style="list-style-type: none"> Incurs financial risk for metrics achievement Financially accountable for achieving metrics 	<ul style="list-style-type: none"> Federal government “Hold Harmless” indemnification Inability to incur financial profit or loss
Contract length incentivizes investments	<ul style="list-style-type: none"> Make discretionary current year investments requiring multiple year ROI Use 'colorless' funds 	<ul style="list-style-type: none"> Federal Appropriations Law: time limits on appropriations, Anti-deficiency, and Purpose statutes Can't incur multiple year liability

U.S. Government PSI Role Challenges and Impediments

1. **Contract type incentivizes cost reduction behavior and shifts the risk from the government to the provider:** A properly structured PBL contract/business arrangement inherently incentivizes the provider to invest in product and process improvements. In most instances, those investments require flexibility in the type of investments made (e.g. research and development, procurement, additional personnel, etc.) and the relevant time period (e.g. investing in the current year for future year benefits). A government PSI is constrained by Federal Appropriations Law, most notably the “purpose statute” and the “anti-deficiency act” (defined below), in the flexibility needed to invest vs. an industry PSI.

Purpose: the "purpose statute" (31 U.S.C. 1301(a)) prohibits federal officials from using appropriated funds for purposes other than those for which the funds were appropriated

Anti-Deficiency Act: the “anti-deficiency statute” (31 U.S.C. 1341) prohibits Government agencies (and their officers or employees) from obligating the Government, by contract or otherwise, in excess of or in advance of appropriations

Industry PSIs most often invest for future year returns (based on the long term contract length tenet). This is prompted by the reality that it may take multiple years to identify major cost drivers, identify the causative factors, and develop and implement solutions to reverse negative trends. Similarly, industry PSIs frequently invest in articles or services that cross appropriation boundaries. That flexibility is not available to a government PSI without going through extensive financial administrative processes to request and obtain approval, often at the Congressional level.

- 2. Incentives and/or penalties for maintaining Key Performance Indicator target(s):** An industry PSI incurs tangible financial risk for metrics achievement in a PBL contract. Their profit (or loss) is tied directly to meeting the contract-specified metric requirements. This financial risk factor is compensated by the opportunity to increase their profit through the implicit or explicit financial incentives of the business arrangement. This is the primary component of the PBL business arrangement that changes industry PSI behavior to benefit the customer. DoD law and policy prevents DoD entities from incurring a real financial profit or loss over the long term. An entity (e.g. a depot, paid via Working Capital funds) may lose money in a given year, but since a Working Capital fund must comply with a net operating zero requirement, the DoD rates would be raised in follow-on year(s) to recoup the loss.

This implicit risk of suffering tangible, financial consequences (loss of profit, a net loss, or loss of follow on option or contract term periods) incentivize industry to persistently drive achievement of the metric requirements. A DoD PSI, like any other DoD federal entity, is indemnified in a “Hold Harmless” context for suffering any tangible financial or related negative consequence for failure to achieve those same metrics. The lone statutory exception to this is a DoD depot participating in a Direct Sales public-private partnership in which they act as a ‘subcontractor’ to an industry PSI, and can be held accountable for “failure of the Government to comply with quality, schedule, or cost performance requirements in the contract to provide the articles or services.” (10 U.S.C. § 2563).

With these impediments there is no tangible incentive, beyond good will, to change the behavior of a DoD PSI.

- 3. Key Performance Indicator(s) manageable and measurable:** Industry PSIs, wholly reliant on the effective management and integration of those product support activities that directly influence achievement of the contract metrics, as well as the accurate measurement and validation of those metrics, invest in highly integrated Information Technology systems and data integration processes to ensure they not only reflect accurate information, but also as a means to monitor all product support processes and activities so as to promptly identify and correct performance issues that may impact their achievement of the contract metrics. DoD, to a great degree, continues to rely on aging, functionally stovepiped IT systems with lesser ability to integrate and aggregate information.
- 4. Agreed upon Key Performance Indicator target level(s):** Since a DoD PSI is unable to suffer a tangible financial impact (or benefit) for achieving the warfighter required outcomes, the incentives to change their behavior are generally not as effective.
- 5. Contract length incentivizes investments:** Industry PSIs, as cited above will (and do, as evidenced by numerous PBL program examples) make investments to improve reliability, improve processes, and improve products in order to reduce those cost drivers (e.g. excessive demands, excessive repairs) which lead to overall reduction in the cost of support. They are incentivized to do so because, as mentioned earlier, in a stable funded (e.g. fixed price) contract, this leads to an opportunity to increase their profit. These cost reductions are generally shared with the DoD customer as “gainsharing” clauses in the contract, and also serve as the basis for reducing the contract price in follow-on contract periods. The contract length, however, must be sufficient for the contractor to

receive a return on those investments. A DoD PSI, as explained above, is hindered by compliance with Federal Appropriations law regarding the purpose, anti-deficiency and time limits on appropriations, making it more difficult to invest in a timely manner as problems are identified to address and resolve those problems. Many DoD PBL programs are funded primarily by Operations & Maintenance (O&M) funding, which has a one year time limit, i.e. all O&M appropriations in a given year must be obligated in that same year. Most investments to improve reliability and similar support benefits require longer term actions. Funds obligated in a current year may require expenditure over 2 or 3 years. Previously cited funding time period limits preclude DoD PSIs from executing these beneficial actions without going through administratively burdensome processes to reallocate funds, request additional funds, or obtain waivers, generally at the congressional level.

A final observation, though not specifically cited in statute or policy, should also be addressed. A fundamental tenet of Performance Based Services Acquisition is the clear separation of roles of the ‘buyer’ and ‘seller’. The buyer (customer) specifies the performance outcomes; the seller takes actions as necessary to achieve and/or deliver those outcomes. The seller is both accountable to the buyer in that regard, and is at financial risk for satisfying the buyer. In a PBL business arrangement, the PSM acts as the ‘buyer’ and the PSI acts as the ‘seller’. The PSM is a government-only position, ensuring the DoD always has the ultimate responsibility for managing and executing product support. While under current statute the PSM could elect to assume the role of PSI as well, this would create a situation in which the same government entity is both the buyer and the seller. This situation would effectively violate the buyer-seller relationship fundamental to successful performance based arrangements – the buyer would effectively be holding themselves accountable, a clear conflict of interest.

Summary and Recommendations

PBL has proven to provide improved product support while reducing costs. Partnering with the private sector enables the government to incentivize the private sector and leverage its strengths, particularly in planning, integration, and management.

However, for a variety of reasons, there has been a material decline in PBL contracting since 2005, when there were more than 200 PBL contracts in place within the DoD (Gansler et al., 2010) vs. less than 90 in 2015. OSD’s current priority to expand the use of PBL must address the loss of PBL knowledge regarding its proper application, including the described incentive structure that generates positive PSI behaviors.

The many successful PBL programs clearly demonstrate the capability of the private sector to effectively perform the PSI function. Although a Government entity can be designated as a program PSI, we believe the highlighted statutory and policy challenges and impediments work to inhibit its ability to effectively perform that function. Given OSD’s current strong emphasis on expanding the use of PBL, we recommend the government proceed with the proven strategy of designating an industry PSI, and forming Public-Private Partnerships to integrate and leverage the necessary DoD organic support infrastructure and capabilities.

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