PERFORMANCE-BASED LOGISTICS:

A PRIMER FOR THE NEW ADMINISTRATION

EXECUTIVE SUMMARY

President Obama faces a crisis in security as daunting as that in the economy. Simply stated, the costs of operations and support – in essence, the day-to-day costs of running the U.S. Department of Defense – are eating up the defense budget. Operations and support costs now account for two-thirds of all defense expenditures and show every indication of continuing to rise. At a time when the new administration appears on a path to decreasing future defense spending, it must figure out ways of economizing while maintaining a strong military.

One way of reining in defense spending is to adopt more economical ways of maintaining the vast array of hardware the military operates. In 2001, the Department of Defense undertook a radical new approach to reducing operations and support costs for weapons systems. Performance-Based Logistics (PBL) promises a break with the traditional approach to operating and maintaining the military. Performance-Based Logistics focuses on performance outcomes, not the acquisition of individual parts or particular repair actions. Performance outcomes can include delivery time, work-in-progress, and most important, availability of systems and material to the warfighter. Specific contracts to implement PBL, termed Performance-Based Agreements (PBAs), are structured to meet warfighters' particular needs. Government oversight is still maintained through the program office, but at reduced cost.

To date, most PBAs have proven successful. They have increased markedly the availability of equipment and systems to our military in combat. Greater availability is a force multiplier as fewer items are unavailable. This translates into increased combat power. Performance-Based Agreements also appear to be saving the government money. A study of 23 PBAs showed an average annual savings of $21 million.

In some quarters, PBL is still controversial. The Government Accountability Office has criticized the Defense Department for its failure to consistently conduct business-case analyses to support the implementation of PBL. Critics have faulted PBL for requiring relatively long contract periods that reduce the government's flexibility in using its resources. Some observers have noted that while PBL can reduce costs, savings achieved by the contractors are rarely shared with the government. These criticisms indicate not that PBL is a bad idea, but rather that on occasion it has not been implemented well.

The Department of Defense maintains hundreds of major weapons systems. Only a small percentage is supported through PBAs. Imagine the impact on the Defense Department's warfighting potential and budget if the majority of them were maintained and supported through PBAs. In addition, there is the potential to extend PBAs to major logistics support areas such as medical care, water and mail delivery, and humanitarian relief. Additional savings and process improvements could be achieved if PBAs were implemented early in the acquisition process.

The incoming administration can have a significant, early positive impact on national security by directing the Department of Defense to move forward aggressively on PBL. It should also take the necessary steps to educate Congress on the value of PBL and oppose misguided attempts by some members to create barriers to a more efficient logistics system.

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The Need For A 21st Century Logistics System

It is imperative that the Department of Defense (DoD) create a 21st century logistics system. Changes in the character of modern warfare, the need to deploy forces in an expeditionary fashion to difficult locations, and the requirement to improve the efficiency and cost-effectiveness of logistic processes dictate the need for a modern approach to logistics. A reformed logistics system must be agile and flexible, able to respond to unpredictable demands. It must also be able to provide a high level of service at reduced cost.

A new logistics system is needed to address the intersecting challenges posed by the likelihood of reduced defense spending and continuing increases in the operations and maintenance (O&M) account. The Obama Administration's budget projections call for reduced defense spending over the next decade. The withdrawal from Iraq will mean reduced or eliminated supplemental funding. During previous periods of reduced defense spending, the procurement accounts have been particularly stressed.

The Navy's F-18 "FIRST" sustainment program is one of the most comprehensive Performance-Based Agreements.

Operations and support spending now accounts for more than 60 percent of the DoD budget. Acquisition and research and development have shrunk to some 35 percent. Operations and maintenance costs are rising as the result of two seemingly contradictory factors. First, since much of the military's hardware is relatively old, maintenance costs are steadily increasing. At the same time, new systems are more complex, although more reliable overall. The cost of necessary maintenance on new platforms is extremely high. Another factor contributing to the growth in O&M as a share of the defense budget is the growing cost of personnel. The cost per active duty service person is growing significantly faster than for their civilian counterparts. Pay for Active and Reserve service members rose 32 percent and 47 percent, respectively, between 2000 and 2006. The cost of military health care has risen some 144 percent over the last decade. In effect, current costs are crowding out spending on modernization.

Historically, the government has bought military equipment, supplies and services "by the yard" with relatively little thought as to the costs of integrating all the parts and activities. The availability of that material and support to the warfighter was a secondary consideration. Traditional fixed-price and cost-plus contracts created disincentives on the part of the suppliers (defense industry) to both pursue approaches that lower costs and improve outcomes. With a fixed-price contract all the risk is assumed by the supplier. Yet, the government customer affords the supplier few incentives to improve the outcomes provided, since he will realize no gain. For a cost-plus contract there are actually disincentives for the supplier to reduce costs.

It is likely that changes to national security policy and budgetary strictures will result in a smaller overall force. This will increase the value of every platform and weapons system that is available to the warfighter. It will be imperative to maintain high readiness levels and to ensure that systems in need of repair are moved rapidly through the maintenance process. Future forces will not be able to afford the costs of an inefficient logistics system. More important, high levels of availability for platforms and weapons systems will be absolutely essential.

What Is Performance-Based Logistics?

For several decades, the Department of Defense has pressed for a different way of maintaining military equipment and acquiring services, one that would both be less costly and provide greater benefit to the warfighter. Since 2001, DoD has settled on Performance-Based Logistics (PBL) as the most desirable way of streamlining the system for maintaining weapons systems and major components. According to DoD:

> PBL is the purchase of support as an integrated, affordable, performance package designed to optimize system readiness and meet performance goals for a weapons system through long-term support arrangements with clear lines of authority and responsibility. Simply put, performance based strategies buy outcomes, not products or services. [1]

Performance-Based Logistics is similar to purchasing a warranty when acquiring a car. However, rather than simply guaranteeing to repair any defects that occur over a specified period of time, the car dealer either promises the purchaser that the car will be in working order for a specified number of miles or guarantees that a car will be available for his use 95 percent of the time. The car dealer undertakes to provide preventive maintenance and even to replace parts with ones that are more reliable in order to achieve the mileage goals. If the car fails to make the specified number of miles, the car dealer has to refund part of the warranty price or provide the purchaser with another vehicle. Alternatively, every morning the car owner goes to his garage to find a car in working order; how it gets there is the dealer's problem. If the car dealer can reduce the cost associated with maintaining the car, he makes more money based on the premium charged for the warranty. Unlike the current system, the car dealer has every incentive to keep the car in working order and out of the repair shop.

The essence of PBL is the purchase of weapons system sustainment as an affordable, integrated package based on output measures such as weapons system availability, rather than input measures, such as parts and technical services. At the heart of the value of PBL is creating a situation in which the private sector is incentivized to finds ways of reducing costs and increasing weapons systems availability.

Performance-Based Logistics has been used extensively in commercial businesses for more than 25 years. The airline industry pioneered the concept of "power-by-the-hour," in which engine manufacturers contracted with the airlines to guarantee a certain minimum number of flying hours for every engine. The engine companies also guaranteed to replace a faulty engine within a specified period of time anywhere the airline flew. Since the airlines' primary interest is to keep planes in the air, power-by-the-hour is very attractive to them. Other companies such as Caterpillar, Honeywell, Rolls-Royce, and Allison use PBL to support their worldwide sales of heavy machinery, generators, and engines.

Performance-Based Logistics promises a break with the traditional approach to operating and maintaining the military. It focuses on performance outcomes, not the acquisition of individual parts or particular repair actions. Performance outcomes can include delivery time, work-in-progress, reliability, reduced logistics and most important, availability of systems and material to the warfighter. Specific contracts to implement PBL, termed Performance-Based Agreements (PBAs), are structured to meet warfighters' particular needs. Typically, the objectives of a PBA are to improve the sustainment of a platform or system, increase the availability of that asset to the warfighter and reduce the overall costs to the government.

The Secret To The Success Of Performance-Based Logistics

Performance-Based Logistics not only improves weapons systems' availability and reduces the cost of sustainment, it also streamlines maintenance and support activities. Reducing work-in-progress, repair turnaround times and back orders are all appropriate objectives for PBL and serve to enhance the availability of platforms and systems to the warfighter.

Buying outcomes instead of parts or man-hours means reducing costs, decreasing cycle times, improving performance and accurately predicting demand. Parts and supplies must be delivered on time and in the right quantities either to maintenance and repair facilities or to units in the field. In addition, a successful PBA generally requires a continuous flow of high-quality information about the status and history of every element of the supply chain and about the parts, systems, or even platforms subject to the contract. Continuous and accurate information enables the PBA contractor to anticipate demand, identify and implement desirable change in design, fabrication or transportation of items, and even alternative maintenance practices.

Performance-Based Logistics can be particularly advantageous when it comes to maintaining and modernizing existing platforms and systems. The contractor has an incentive to conduct continuous product improvements and to develop low cost solutions for addressing aging issues. Under the current system, the government must pay for almost all modifications and improvements to platforms and systems. For this reason, PBL tends to favor open architecture and commercial-off-the-shelf-based solutions.

By focusing on outcomes such as operational availability, PBL can improve the effectiveness or "reach" of a limited set of assets. Greater availability translates into more equipment or platforms in the hands of operators and in the field. This is particularly important in the case of so-called low-density/high-demand platforms and systems.

Performance-Based Logistics offers another advantage over traditional contracting approaches. It reduces the demand for government personnel – military and DoD civilians – in the logistics system. PBL provides a lower cost alternative to the maintenance of a large government workforce through the use of private sector methods and fewer people. Government oversight is still maintained through the program office, but at reduced cost.

The Army's Chinook helicopter engine being repaired.

Critics of PBL on occasion have argued that it is more expensive than traditional approaches to sustainment which focus largely on the price of goods and services, and that increases in contractor profits are evidence of an unfair arrangement. This critique fails to consider the needs of the warfighter. In addition, it does not include the cost of maintaining fleets of platforms and inventories of parts larger than absolutely necessary in order to meet availability and readiness requirements. Finally, such criticisms fail to recognize that contractor profits depend on delivering a mix of improved availability and lowered costs. In a properly structured PBL contract, improving contractor profits are not evidence of increased customer costs, but rather of improved performance and decreased customer costs.

How The Performance-Based Logistics System Works

Performance-Based Logistics is designed to buy results and outcomes instead of services and resources. The service provider is responsible for the final outcome measured in terms agreed to by the customer – the government. The government is responsible for managing suppliers rather than supplies and services. The results are measured in terms of outcomes not costs.

Performance-Based Logistics changes the risk and incentive relationships that exist between the suppliers of services and the government customer. Unlike fixed-price or cost-plus contracts, PBL permits the service provider to realize greater gains the more efficient he becomes and the greater the availability of the products. By tying the supplier's compensation to outputs – measurable increases in value to the customer – PBL serves to improve product availability and reduce the total costs of ownership for the customer.[2]

All PBL implementations are unique. They are designed to fit the character of the platform or system being supported, and the specific needs of the warfighter. Performance-Based Logistics strategy defines performance outcome in terms relevant to the warfighter. One of the challenges in pursuing PBL is to determine the appropriate character or scope of a specific sustainment activity. In some instances, it may make sense to make a platform's maintenance and all its support requirements part of a single activity. In other cases, it is more appropriate to focus only on critical systems or components – for example, aircraft engines, or compressors that have high maintenance requirements and that are critical to the availability and operation of a platform or major system. Even the provision of commodities such as tires and batteries can be the subject of PBL. Regardless of the focus of the PBL activity, the key is to empower the service provider to integrate all aspects of maintenance and sustainment – repair, the supply chain, and product improvement.

In order for Performance-Based Logistics to work, it is critical to identify the appropriate outcome or performance parameter the warfighter requires. These outcomes will be translated into system performance levels or support metrics that will be documented in the PBA. The specific performance measures desired may vary widely. In a memo dated July 31, 2008, the Under Secretary of Defense for Acquisition, Technology, and Logistics focused on Material Availability, Material Reliability, and Ownership Cost at the macro level. Often more than one performance measure will be specified in a contract or agreement.

A key to the success of PBL is the altered relationship between the service provider and the customer. According to the DoD product support guide to program managers: "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."[3] For the government, the incentives are improved support to the warfighter and more predictable expenditure of resources with less of a management burden. However, the government retains ultimate control over the process. A study by the Center for the Management of Science and Technology explained the altered role of the government thusly:

> With PBL, traditional functions of the government are shifted to the contractor without giving up the 'core capabilities,' allowing the government to maintain the capability but relinquishing the performance of the service to the contractor. For example, an Item Manager (IM) is concerned with the individual parts and the supply of the specific items. With a PBL arrangement the Item Manager is now a manager of suppliers not parts.[4]

The Performance-Based Agreement

The mechanism by which PBL is implemented for a specific platform, system, or item is through a Performance-Based Agreement. A traditional sustainment contract provides parts and/or labor hours at a set price. A PBA sets out the specific outcomes or support metrics the customer seeks and the manner in which the contractor is to be rewarded for successful performance. A PBA is based on performance metrics established by the warfighter and contractual outcomes or metrics defined by the program manager. The contractor defines the level of support necessary to achieve those outcomes.


Corpus Christi is the Army's premier helicopter repair facility.

The ultimate objective of a PBA is to establish a fixed price for the desired outcomes. For many PBAs it is desirable to employ a cost-plus incentive fee approach early in the performance period while risk reduction occurs. With sufficient data regarding the platform's or system's sustainment requirements and the creation of a well-functioning supply chain, it should be possible to convert a PBA to a fixed-price contract.

Each PBA requires a Business Case Analysis (BCA). The BCA is intended to justify entering into a PBA. It establishes a best-value analysis, considering not only cost but also other factors such as performance, reliability and supportability of the platform or system in question. The BCA should demonstrate that by entering into a PBA, the government will either save money in comparison to existing support arrangements or will realize performance benefits at little or no additional cost. One of the most difficult challenges facing program managers seeking to implement PBL is to conduct a thorough, accurate and fair BCA.

Establishing metrics by which to define the focus of the PBA and judge its outcome is a critical part of the process. Metrics must reflect the needs of the warfighter and be expressed in terms of performance criteria that relate to desired outcomes. Cost may be a metric, but it is only one of several. In some instances it is not possible to translate the warfighter's desired outcomes directly into performance metrics because the Product Support Integrator (PSI) lacks control over all the support functions necessary to achieve that outcome. For example, in the case of naval aviation, it is impossible to make aircraft carrier sorties generated per day a performance metric because this metric is subject to variables such as weather, damage to the ship, etc. which are beyond the contractor's control.

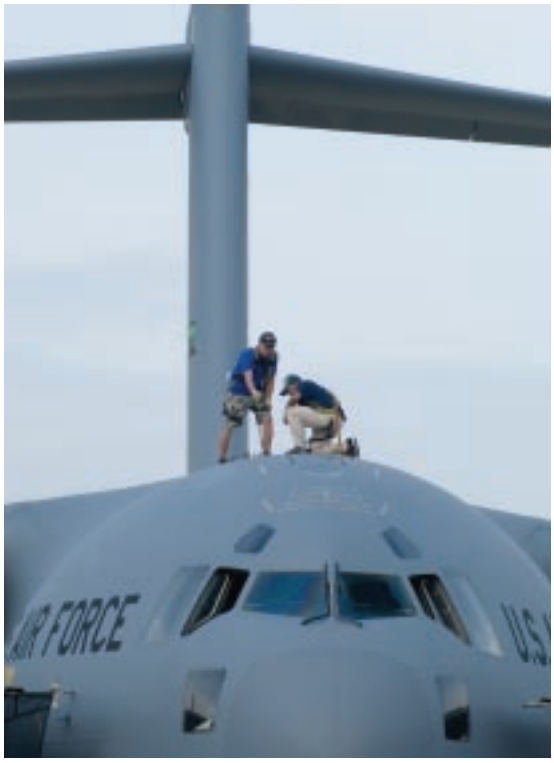
Performance-Based Agreements need to be of a sufficient duration to allow the PSI to fully appreciate the costs involved in supporting a platform or system, identify opportunities for cost reduction and implement the necessary changes. The service provider needs time to make the necessary investments in infrastructure, engineering support and maintenance processes to improve availability and reliability, and see the return on investment. Experience has suggested that five years is a minimum time for a PBA and ten years is better still. The time constraints don't appear to be as much of a hindrance on foreign PBAs; some contracts are for more than 30 years duration.

One of the reasons that PBL works is the identification of a PSI or in the case of a commodity item, a Product Support Manager, to perform the tasks set out in the PBA. The PSI is responsible for integrating all sources of support required to perform the contracted services. The PSI can look across the entire logistics system for a given platform or item in order to develop the lowest cost approaches to achieve the specified performance objectives. The PSI may be a private company or a government entity such as a depot. The PSI is responsible to the government Program Manager, who has the full authority of the government to oversee and direct the activities of the PSI. However, it is the PSI who is responsible for day-to-day management of contractually-required activities.

The C-17 Globemaster III Sustainment Partnership

One successful PBA is the C-17 Globemaster III Sustainment Partnership (GSP). This program encompasses a wide range of logistics activities including field support, depot-level maintenance, supply-chain management, and aircraft modifications and upgrades. Under the GSP PBA Boeing is responsible for providing consistent sustainment support at continuously raised benchmarked levels. Product support is thus managed through a long-term performance-based partnership between Boeing and its C-17 customers, which now include the U.S. Air Force, the British Royal Air Force, the Royal Australian Air Force, the Canadian Forces, and the North Atlantic Treaty Organization (NATO).

When the C-17 GSP contract was awarded to Boeing in 1998, that company became the first contractor to operate as an Air Force depot with the establishment of an inventory control point. The company took over the responsibility of forecasting, purchasing and material management for the C-17, its F117 engine and all C-17-unique support. This enabled the Boeing team to achieve economies of scale through the purchase of supplies for the worldwide C-17 fleet.



The C-17 is the newest jet transport in the joint force.

The GSP is a public-private partnership (PPP). Boeing has direct-sales partnership agreements with each of the three Air Logistic Centers (ALCs) at Warner-Robins Air Force Base (AFB), Georgia; Hill AFB, Utah; and Tinker AFB, Oklahoma. The ALCs perform a variety of C-17 airframe and individual component repair actions. The arrangement allows Boeing to request an ALC to perform specific workloads as part of the PPP arrangement.

Boeing has invested corporate funds in Warner-Robins to improve the ALC's ability to conduct work under the GSP. The company has spent more than $60 million on improvements to facilities at Warner-Robins in support of the C-17 GSP. These investments included remodeling of the primary hangar used for C-17 maintenance, auxiliary power unit generators, landing gear repair equipment, and wing maintenance stands.

The GSP is not limited to maintenance and repair of the C-17 fleet. Under the Material Improvement Project program, Boeing and the ALCs are responsible for many upgrades and retrofits to older C-17s. The GSP program permits Boeing to create a seamless flow between new models of C-17s coming off the production line and the upgrades to the older aircraft. The PPP with the ALCs also ensures that the organic base is skilled in the maintenance of all models of the aircraft.

One indication of the success of the GSP PBL is the reduction in Cost per Flight Hour throughout the life of the contract. Boeing has reduced the Cost per Flight Hour by over 10 percent in the last four years and is expected to further reduce it by 9 percent from fiscal year (FY) 2009 to FY2011 (constant FY2008 dollars). The cumulative savings to the government in the first ten years of the agreement is estimated to have been $807 million on engine management efforts alone (both reduced expenditures and cost avoidance). Engine overhaul turn-around time for the C-17 was reduced from around 100 days in 2001 to less than 70 days in 2008. At the same time, the average sustained mission capable rate was 85.5 percent during 2001-2007, the highest rate of any strategic airlifter in Air Mobility Command. In October 2008, the Air Force signed a new three-year GSP PBA with Boeing. One objective of the new agreement is a further cost reduction of $200 million with no decrease in performance.

Public-Private Partnerships

It is national policy to maintain a core government-owned and -operated defense industrial base. This so called organic base is required by law to spend no less than 50 percent of all funds made available for depot-level maintenance with public depots. Public-private partnerships offer the possibility of supporting a healthy organic industrial base while also supporting the needs of the warfighter.

One of the keys to the success of PBL is the relationships that are created between the private sector and the public sector or organic defense industrial base. As part of the effort to institutionalize PBL across DoD's sustainment base, the Department developed the depot maintenance partnership. This initiative enables the organic depots to develop appropriate partnerships with the commercial sector, while recognizing the legitimate national security need for DoD to retain depot maintenance capability.

Some PBAs involve equal partnerships between public and private entities; in other instances the public facility is a subcontractor to the private company. There are even cases in which the private company has a PBA to provide supply-chain management support for the public facility, which, in turn, is a subcontractor to the same private company for a PBA on a platform or system. These PPPs help to rationalize the mix of capabilities and skills that exist across the defense industrial base.

Public-private partnerships are vital to reducing the life-cycle costs of weapons systems. Some 60 percent of the total life-cycle costs of any weapons system are in post delivery sustainment and support. Linking the organic maintenance base with equipment manufacturers offers opportunities to improve the performance of both and provide savings to the government at the same time.

There are a number of clear benefits to using PPPs to perform a PBA. Public-private partnerships make sense because no single entity can be the best at all aspects of the sustainment process. A PPP capitalizes on the strengths of each partner. The mix of capabilities provided by private contractors and the organic base gives better support to the warfighter. The organic depots have unique capabilities. Often they have underutilized capacity that can be applied to the PBA, thereby improving the depot's overall efficiency. At the same time, the contractor remains responsible for managing the supply of repair parts and even consumables. The private partner can provide improved reliability of parts and create a means for rapid infusion of new technology. In addition, a properly structured PBA can allow the organic depots to improve their technical competencies with respect to the system being supported. Finally, PPP can help the public sector maintain the mandated 50-50 balance of work in areas considered critical.

Concerns have been raised by some that PBL will take work away from the organic base. Nothing could be farther from the truth. One early study of PBL identified dozens of cases of PPPs that not only improved sustainment of critical military systems, but brought additional work into the organic base. These programs not only took advantage of beneficial labor rates available in the organic base, but the unique technical skills of specific depots and logistics centers.[5]

Performance-Based Logistics Works

Performance-Based Logistics has led to improvements in availability in the neighborhood of 20-40 percent while typically reducing costs by 15-20 percent. A study by the Aerospace Industries Association of 23 PBAs showed an average annual program cost savings of more than $21 million while achieving an average increase in availability of 16 percent. [6] A senior government official working in the logistics arena identified a number of major PBL programs which produced savings of $100 million or more across the contract period. [7]

It is clear that PBL can have a dramatic impact on both the cost and performance of sustainment and support activities. This has been particularly important in wartime. According to the Defense Acquisition University, PBL works not only in peacetime but in supporting the warfighter in Operations Iraqi Freedom and Enduring Freedom. It increased availability of air-based, close-in weapons systems from 80 percent to 89 percent, the availability of F-14 targeting systems from 73 percent to 90 percent, the engine up-time for the F-404 to 90 percent while cutting maintenance time in half, and wait time for F-18 supplies was reduced from 47 days to 7 days. Helicopter depot maintenance time was cut from 261 days to 76 days. [8] According to the Commander, Naval Air Systems Command, "The success of Performance Based Logistics (PBL) has allowed the Naval Aviation Enterprise (NAE) to improve support to the warfighter and achieve weapon system readiness at lower life-cycle costs." [9]

There is additional evidence of the utility of PBL from other countries. The United Kingdom's Ministry of Defence, facing severe budgetary pressures for years, is relying extensively on PBL for the support of critical systems. BAE Systems has demonstrated the success of the PBL formula on such diverse systems as the Nimrod, the Tornado and the Sea Harrier. The Tornado PBA has reduced down-time by as much as 35 percent and repair man-hours by 40 percent. Tornado radar support now requires 50 percent less inventory, and costs are down 45 percent. [10]

Similarly, the Through Life Cycle Support program with Boeing is a 34-year partnering agreement to provide complete logistics support for the United Kingdom's Chinook fleet. Through Life Cycle Support will provide $250 million in savings over the life of the program while guaranteeing a specific level of aircraft availability.

There have been cases where PBAs have failed to produce the expected results. Most often this is due to the unwillingness of contracting officials or program managers to adhere to the principles for creating PBAs. To work, a PBA must focus on a system or capability where availability matters to the customer. At the same time, the PBA must be specific enough that the contractor's behavior can actually affect availability. The funding needs to be consistent and long-term enough to justify required upfront costs. The PBA needs to have a straightforward means of measuring performance and rewarding the participants based on results. Because a goal of PBL is to save the government money, the savings from a successful PBA should be shared by the private contractor and the government. These are the basic characteristics of all PBAs.

Examples Of Successful Performance-Based Agreements

The following examples of specific PBAs demonstrate how PBL can improve the availability of critical systems to the warfighter while at the same time reducing the O&M costs to the Defense Department. In addition, these examples demonstrate the wide applicability of PBAs and the range of possible PPPs they can support.

The F/A-18E/F Integrated Readiness Support Teaming (FIRST) is one of the most comprehensive PBAs. It covers over 1,100 repairable items and 10,000 consumable items, and provides for engineering work to support obsolescence and configuration management for the aircraft. Included in the PBA is a guaranteed response-time metric. Based on the Business Case Analysis, the cost savings to the government will total some $688 million over the life of the program. The mission capable rate for the F/A-18E/F improved from 57 percent in 2001 to 73 percent in 2007 and the program increased aircraft availability from 67 percent to 85 percent.

Lockheed Martin and Sikorsky are paid to provide H-60 helicopter support based on total flight hours, not number of repairs, saving the government money.

General Dynamics has provided support to the Army through a PBA for the Tactical Airspace Integration System (TAIS). This is a total life-cycle support program that provides comprehensive configuration management and system tracking capability to ensure that contracted metrics and system health can be monitored on a near real-time basis. The TAIS PBA has achieved 90 percent availability.

B-2 is the pathfinder for testing PBL at the weapon systems level in a non-contractor logistics support environment.

Maritime Helicopter Support Company (MHSCo), a joint venture between Lockheed Martin and Sikorsky Aircraft, is engaged in a PBA to provide logistic support for the Navy's H-60 helicopters. MHSCo provides procurement, repair, overhaul, modification, packaging, handling, storage, configuration management, obsolescence management and reliability improvements for the Navy's H-60 helicopters. MHSCo will be paid based on total helicopter flight hours, rather than on the number and type of repairs.

The B-2 Total System Support Partnership is an effort by the Air Force to test the value of PBL for a legacy platform at the system level. It involves both the aircraft's original equipment manufacturer, Northrop Grumman, IBM and the Oklahoma City ALC.

According to the Air Force,

> … the B-2 team is leading the way by testing the value of consolidated O&M funding. Results of this test may pave the way for other weapon systems and serve as a catalyst to radically change Air Force O&M funding policies for improved acquisition of sustainment. B-2 is the pathfinder for testing PBL at the weapon system level in a non-contractor logistics support environment. [11]

The F-22 Raptor PBL Team composed of Lockheed Martin, Boeing, Pratt & Whitney and the three ALCs was awarded the 2008 PBL System Level Award. Demonstrating the inherent ability of PBL to provide continuous reliability improvements, the team increased the mean time between maintenance for the F-22 by 69 percent fleet wide. In addition, the team achieved a 15 percent improved mission rate and reduced repair time by 20 percent.

An example of the future of PBL is Textron's support for the Shadow unmanned aerial vehicle. The PBA involves a partnership with both Tobyhanna and Letterkenny Army depots. Work is done through the Naval Inventory Control Point at both Forward Repair Centers Southeast and Southwest. The PBA requires 100 percent availability at a firm fixed price. The metric is cost savings year to year and supportability costs as a percentage of total procurement. Moreover, the PBA requires that supportability cost percentages go down year over year.

The F-22 sustainment program is a public-private partnership resulting in improved mission rates and reduced repair times.

The Department of Defense Needs Performance-Based Logistics

All signs point to tightening defense budgets and greater pressure on the Department of Defense to contain costs. Operations and maintenance is one of the largest expenses incurred by the U.S. military. The Department of Defense cannot continue to do business as it did in an era of relative fiscal plenty. As two specialists in logistics and sustainment noted in a recent article:

> Now is when we should be discussing stable, long-term collaborative strategies that incentivize up-front investment in reliability improvement and drive down total costs over the life cycle. Now is when we should be talking about how intelligent supply chain integration can harness network-wide knowledge in a manner that creates superior, more effective and affordable product support.
>
> Now is when we should be articulating reasoned choices and viable strategies to live within our means. Life cycle affordability can, and must, be modeled, measured, benchmarked, managed and continuously improved. Cost, schedule, performance and affordability across the life cycle are key and co-equal performance parameters. We should stop pretending they are not.[12]

A number of studies have shown that DoD's logistics and sustainment practices significantly lag those of the private sector. Even where both the public and private sectors engage in similar work involving systems that are alike, the public sector's performance has tended to be less than that by similar private entities. This trend was recognized at the beginning of the decade when DoD first proposed PBL.

The exception to this rule is those systems maintained under PBL. Performance-Based Logistics offers a flexible and affordable approach to reducing the total life-cycle costs of maintaining major weapons systems while, at the same time, improving the outcome for the warfighter. As demonstrated in the above discussion, PBL contracts have saved the government hundreds of millions of dollars a year.

An additional advantage of the PBL system is its encouragement of the partnering of the public and private sectors. Through PPP, the best of both the private and public sectors can be exploited to the betterment of both and for improved outcomes for the government as a whole. Tight budgets could lead to an intensifying struggle between the two halves of the defense industrial base for work shares. Public-private partnerships offer a potential solution to this problem.

The C-17 is a complex, expensive aircraft that has performed numerous remote and dangerous operations.

The Department of Defense needs to redouble its efforts to institutionalize PBL in its logistics and sustainment activities. This means requiring that each of the services and all defense agencies use PBL whenever possible in contracting for maintenance and sustainment services. Such an effort will require clearing up lingering uncertainties and difficulties in such areas as defining and documenting the business case for PBL, ensuring the establishment of adequate and appropriate metrics, and the distribution of cost savings between the government and the private contractors. PBL should be made a central tool in the development of total life-cycle management strategies for every new system DoD deploys.

GLOSSARY

AFB	Air Force Base
ALC	Air Logistics Center
BCA	Business Case Analysis
DoD	U.S. Department of Defense
FIRST	F/A-18 E/F Integrated Readiness Support Teaming
FY	Fiscal Year
GSP	Globemaster III Sustainment Partnership
IM	Item Manager
MHSCo	Maritime Helicopter Support Company
NAE	Naval Aviation Enterprise
NATO	North Atlantic Treaty Organization
O&M	Operations and Maintenance
PBA	Performance-Based Agreement
PBL	Performance-Based Logistics
PPP	Public-Private Partnership
PSI	Product Support Integrator
TAIS	Tactical Airspace Integration System

END NOTES

1 Defense Acquisition University, *Performance Based Logistics: A Program Manager's Product Support Guide*, March 2005.
2 " 'Power by the Hour': Can Paying Only for Performance Redefine How Products Are Sold and Serviced?" Knowledge@Wharton, February 21, 2007.
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