PERFORMANCE BASED LOGISTICS:

THE CASE OF THE NAVY AVIATION TIRES PROGRAM

By

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Executive Summary

The Department of Defense (DoD) represents approximately 13 percent ($495.6 billion) of the total $3.9 trillion FY2015 federal budget (GPO 2014). Despite shrinking budgets, and the decrease in defense spending, the DoD must turn to nontraditional support models to reduce costs, while maintaining or improving the availability and reliability of the end product for the warfighter. Specific drivers for this logistics transformation within DoD include the rising cost of maintenance and support for new and legacy systems; long customer wait times in support of war-fighters; and the increased flexibility/agility required in the new (and largely unpredictable) military environment.

The DoD could move to a best-in-class system that maintains efficiency in peacetime and quickly adjusts to the surge demands of warfare. The benefits include significant increases in availability and reliability, along with significant cost reductions. The decision to move away from traditional support models must recognize the end objective difference between private and public: losing money vs. losing warfighter lives.

One nontraditional option is performance-based logistics. Performance-based logistics (PBL), also known as performance-based life cycle product support, is an outcome-based support strategy that plans and delivers an integrated, affordable performance solution designed to optimize system readiness (Boyce & Banghart 2012). PBL's economic model incentivizes manufacturers and suppliers to innovate and reduce total system and life cycle costs, usually resulting from investments in improved reliability.

Three typical components of PBL contract pricing structure:

1. Share-in-savings to incentivize provider to lower overall sustainment costs.
2. Incentive fee to reward provider for meeting performance expectations.
3. Annual fixed-price or fixed-price per operating hour contract schedule to provide payment to provider regardless of quantity of parts or services consumed (Deloitte 2010).

To date, performance-based logistics strategies are used in 86 major DoD systems (Gartner 2012). In this case, we discuss the success of the Navy's aviation tires PBL contract, which encompasses all activities related to delivering spare and repair parts. It includes manufacturing,

repair, warehousing, inventory management, transportation, and related functions (Mahadavia, Engel, & Fowler 2006).

The Navy competitively awarded a firm-fixed-price contract in April 2001 to Michelin Aircraft Tires Corporation (MATC), Greenville, S.C. to manage the Navy's aircraft tire program. This contract had a five-year base, and two five-year options totaling $261.5 million, to support all 23 tire types the Navy used (PBL Award Summary 2011). MATC subcontracted with Lockheed Martin to provide the supply chain services, including demand forecasting, order fulfillment, and inventory management. The responsibility for on-time tire delivery fell on Lockheed Martin.

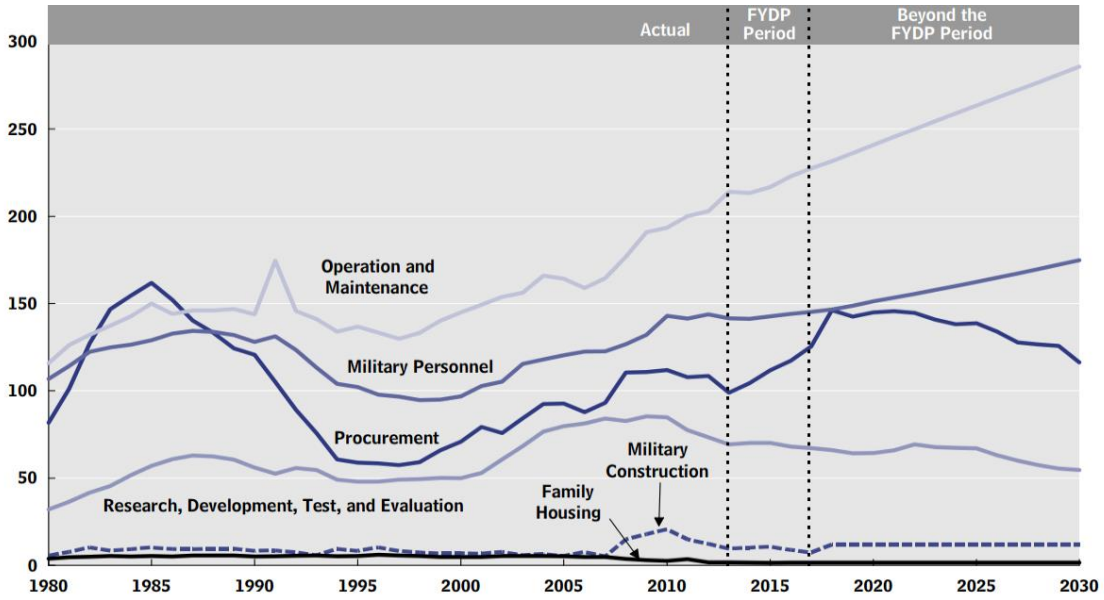
The PBL tires team improved material availability and reliability. Response times dropped from 60 days to 2 days within the continental U.S. (CONUS) and 4 days outside the continental U.S. (OCONUS), even during surge periods. Fill rates have been 100 percent completed and 98.5 percent on-time, exceeding 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, consistently reduced delivery timeframes, and significantly reduced the need for local retail customer inventory levels. The inventory drawdown saved the Navy money by reducing the costs related to the ownership and maintenance of the tires and warehouses (PBL Award Summary).

The program also achieved a high level of material reliability and reduced the total ownership cost. This is evident by the dramatic reduction in engineering investigations and continued improvements to the aviation tire reliability, safety, and maintainability. This demonstrates the benefit that the Navy receives from a long-term contract based on performance - the private investment in product improvement that results in cost-savings and a better end product. In 2011, the PBL tires program was awarded the Component Level Award, one of the three 2011 Secretary of Defense PBL awards for these significant sustainment improvements.

I. Introduction

The Department of Defense (DoD) represents approximately 13 percent ($495.6 billion) of the total $3.9 trillion federal budget for FY2015, and operations and maintenance represents approximately 40 percent ($198.7 billion) of the Department of Defense's (DoD) budget (GPO 2014). The FY2015 DoD budget proposal seeks $495.6 billion, which is $0.4 billion less than the appropriations for FY2014 and meets the caps set by the Bipartisan Budget Act of 2013 (DoD 2014; CRS 2014). Figure 1 illustrates changes in defense spending despite shrinking budgets, in particular in the operation and maintenance category.

Figure 1: CBO projection of base budget costs of DoD's plans, by appropriation category (billions of 2013 dollars)



(CBO 2012)

Defense discretionary spending is the largest component of total federal discretionary spending and is broken into five categories: operation and maintenance, military personnel, procurement, research, development, test and evaluation, and other (such as military construction or family housing). Sustainment costs are included in the operation and maintenance category, consisting of 41 percent of total defense discretionary spending (Schwabish & Griffith 2012). Figure 2 provides more details, comparing currently enacted discretionary categories to the FY2015

requested amounts. With a continued increase in the Defense budget needs and continued pressure to decrease the federal budget, the DoD must turn to nontraditional support models to reduce costs while maintaining or improving the availability and reliability of the end product for the warfighter.

$ in Thousands ***Base Budget***	**FY 2014 Enacted**	**FY 2015 Request**	**Delta FY14 - FY15**
Military Personnel	135,924,801	135,193,685	-731,116
Operation and Maintenance	192,822,692	198,726,096	5,903,404
Procurement	92,439,558	90,358,540	-2,081,018
RDT&E	62,805,956	63,533,947	727,991
Revolving and Management Funds	2,222,427	1,234,468	-987,959
Defense Bill	**486,215,434**	**489,046,736**	**2,831,302**
Military Construction	8,392,244	5,366,912	-3,025,332
Family Housing	1,415,764	1,190,535	-225,229
Military Construction Bill	**9,808,008**	**6,557,447**	-3,250,561
Total	**496,023,442**	**495,604,183**	**-419,259**

Note: Reflects Discretionary Budget Authority, FY 2014 includes $4,205938 in prior year rescissions *Numbers may not add due to rounding*

Figure 2: DoD base budget by appropriation title (OUSD 2014)

It is within this challenging environment that the DoD must strive to improve the efficiency and effectiveness of the performance of its product support. Specific drivers for this transformation within DoD include the rising cost of maintenance and support for new, as well as legacy systems; long customer wait times in support of war-fighters; and the increased flexibility/agility required in the new (and largely unpredictable) military environment. The DoD could move to a best-in-class system that maintains efficiency in peacetime and quickly adjusts to the surge demands of combat operations. The benefits include significant increases in availability and reliability, along with significant cost reductions. The decision to move away from traditional support models must recognize the end objective difference between private and public: losing money vs. losing warfighter lives.

One nontraditional option is performance-based logistics. PBL encompasses all activities related to delivering spare and repair parts. It includes manufacturing, repair, warehousing, inventory management, transportation, and related functions (Mahadavia, Engel, & Fowler 2006). To date, performance-based logistics strategies are used in 86 major DoD systems (Gartner 2012).

In 2005, the DoD recognized the benefits of PBL-like strategies and offered the following justification for its recommendation for the 2005 BRAC, to consolidate and disestablish organic storage and distribution functions:

> *"This recommendation achieves economies and efficiencies that enhance the effectiveness of logistics support to forces as they transition to more joint and expeditionary operations. This recommendation disestablishes the wholesale supply, storage, and distribution functions for all tires; packaged petroleum, oils and lubricants; and compressed gases used by the Department of Defense, retaining only the supply contracting function for each commodity. The Department will privatize these functions and will rely on private industry for the performance of supply, storage, and distribution of these commodities. By doing so, the Department can divest itself of inventories and can eliminate infrastructure and personnel associated with these functions. This recommendation results in more responsive supply support to user organizations and thus adds to capabilities of the future force. The recommendation provides improved support during mobilization and deployment, and the sustainment of forces when deployed worldwide. Privatization enables the Department to take advantage of the latest technologies, expertise, and business practices, which translates to improved support to customers at less cost"* (Joint Cross-Service Groups 2005).

The Department of Navy's successful application of PBL contracts for tires acquisitions demonstrates a best practice logistics strategy that meets warfighter demands both at home and in theater. The first section of this paper describes PBL within the DoD and the related successes and challenges. The next section outlines the current PBL strategy for tires acquisition within the Department of Navy along with the goals and results. Finally, we offer our recommendations and concluding thoughts on PBL.

II. Background

The key strategy DoD identified to transform weapon system support is Performance-Based Logistics (PBL). Performance-based logistics (PBL), also known as performance based life cycle product support, is an outcome-based support strategy that plans and delivers an integrated, affordable performance solution designed to optimize system readiness (Boyce & Banghart 2012). PBL's economic model incentivizes manufacturers and suppliers to innovate and reduce total system and life cycle costs, usually resulting from investments in improved reliability.

Three typical components of PBL contract pricing structure:

1. Share-in-savings to incentivize provider to lower overall sustainment costs.
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Figure 3 illustrates how the DoD and private industry can partner and share the support burden, depending on regulations. The Program Office can combine organic support (the DoD) and contractor support (private industry), based on the overall sustainment strategy. The allocations of support responsibilities would be based on factors such as the age of the system, existing support infrastructure, organic and commercial capabilities and legislative and regulatory constraints. The goal of PBL contracts is to provide the U.S. military with a higher level of logistics efficiency and effectiveness, to improve accountability, and to promote the development products that are more reliable. Based on the experience of the private sector and successful programs conducted in DoD, it is widely believed that PBL support offers the best approach for long-term support of weapon systems, and their subsystems (Gansler & Lucyshyn 2006).

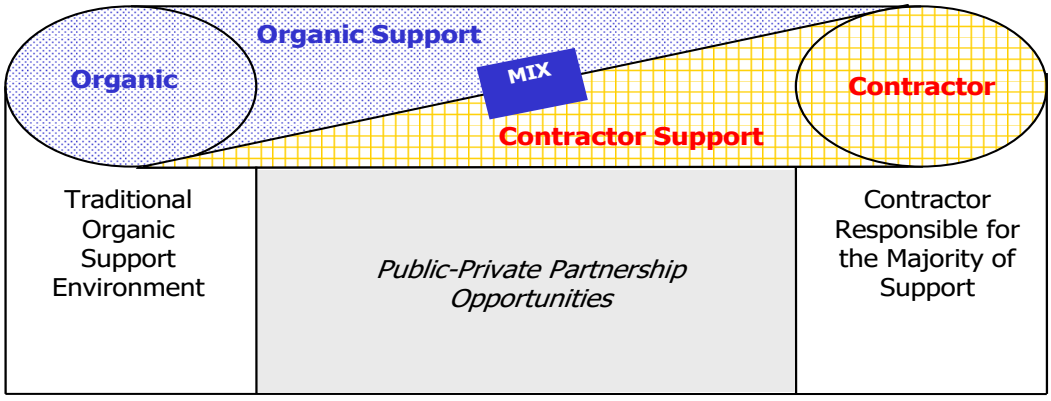

Figure 3. Spectrum of PBL Strategies (DAU 2005)

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 using 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. A properly structured PBL program incentivizes the supplier to improve the reliability of systems and reduce inventories of spare parts. With fewer repairs made and fewer parts sold, the contractor stands to make more profit – while from the government's perspective, PBL results in optimizing total system availability, and, at the same time, minimizing cost and the logistics footprint (Gansler & Lucyshyn 2006). See figure 4.

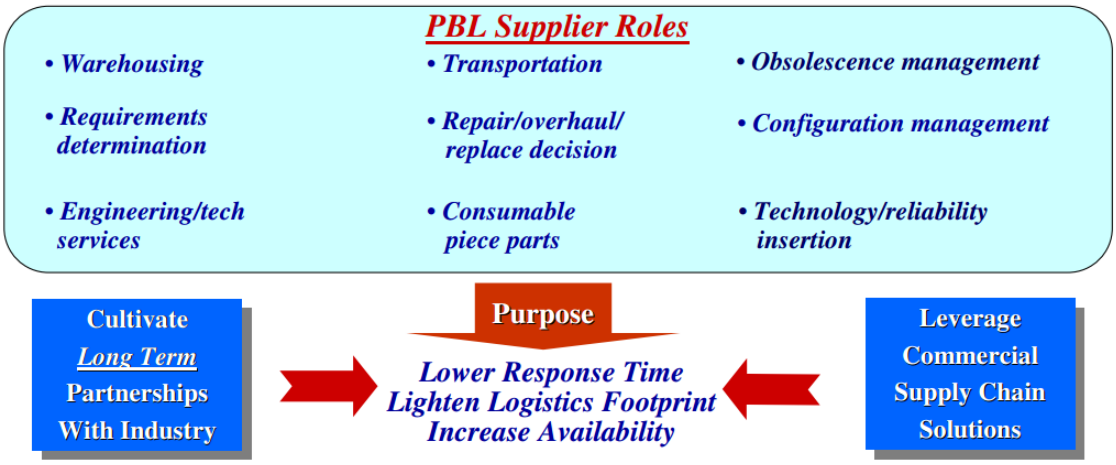

Figure 4: A reengineering tool to improve readiness through reliability (NAVSUP 2005)

Advantages of PBL

Delineates outcome performance goal

The objective of PBL programs is to buy measurable outcomes, i.e. those measures of effectiveness used, to define the outcomes. They should, at the top level, be based on war-fighter performance requirements; and include only a few simple, realistic, consistent, and easily quantifiable metrics (focused on operational performance and value-added process indicators). These metrics can then be linked, through the contract vehicle, to supplier incentives.

Ensures responsibilities are assigned.

A PBL effectively switches most of the risk and the responsibility for supply chain management from the customer to the supplier, for the system, or part, that is managed. For example, pre-PBL, the DoD customer does not have the visibility to make financially-sound decisions due to the many "silos" associated with the full spectrum of the traditional supply chain management (e.g. acquisition, engineering, procurement, comptroller, and logistics). With a PBL contract, the customer understands the true cost of the support, making his financial forecasts and budgets much more accurate. Additionally, the PBL metrics, when properly developed, further define the suppliers' responsibilities very clearly. For example, part or system availability is unambiguous. If the contract calls for the delivery of a part within 48 hours, 95 percent of the time, it is evident to all if the supplier is meeting his obligation (Keating 2005).

Reduces Cost of Ownership

PBL programs, when properly implemented, will reduce the cost of ownership of DoD weapon systems, while improving readiness. This reduction results from the decline in inventories, improved supply chain efficiency, replacement of low reliability components, and increased system availability.

Provides incentives for attaining performance goal

Each PBL initiative should be unique and tailored to its program or situation, and strive to be a "win-win" for both the customer and the supplier. The PBL program should then fundamentally align the interest of the supplier with that of the customer, and lead suppliers to assume greater

responsibility for providing ongoing improvements to their products. This approach is designed to provide incentives for the supplier (in most cases a contractor), so they are allowed to improve design and processes, and implement commercial best practices (Gansler & Lucyshyn 2006).

PBL Challenges

The right program structure will align the incentives of the customer (the government) and the support provider; and can lead to a win-win scenario. However, the wrong program structure will not achieve desired results for the program. As a result, PBL arrangements can be more challenging to develop and manage than other contract types; appropriate performance metrics must be developed, monitored, and evaluated. These metrics need to be straightforward, measurable, and achievable. The Performance Based Agreement (between the user and the program office) should specify a range of support to accommodate changing priorities and resources available, and therefore give flexibility to the derived metrics.

This requires continuous communication during both the negotiation and the execution of the PBL contract. Communication will establish the necessary mutual understanding of scope that must occur for the successful implementation of the contract. Communication should occur among all members of the integrated product team.

III. Current Strategy

In 2001, the Navy Inventory Control Point (NAVICP), had already used PBL to transform other supply chains, improving performance and reducing costs, and turned their focus to aircraft tires (Mahandevia 2006). NAVICP was a Command responsible for more than 400,000 items of supply, and had an inventory valued at $27 billion, with $4.2 billion in annual sales. As of July 2011, NAVICP was replaced by the Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS). The mission of NAVSUP WSS is to "provide the Navy, Marine Corps, Joint and Allied Forces program and supply support for the weapons systems that keep our Naval forces mission ready" (NAVSUP 2014). It should be noted that NAVSUP WSS only enters into a PBL contract after assessing and concluding that a PBL contract cost would be equal to or less than traditional support. Overall, NAVSUP WSS PBL contracts have reduced costs by 3.9 percent (The Naval Aviation Enterprise Air Plan 2013).

Traditionally, NAVICP treated aircraft tires as a commodity; they bought them in bulk, and then stored them until they were needed. This resulted in a large on-hand inventory (approximately 60,000 tires) that may or may not have had the right mix of tires for the fleet. This inventory was maintained through small contracts for individual types of tires, which were awarded to a variety of manufacturers (PBL Award Summary 2011). The unintended consequence of this short-term acquisition process was to send erratic signals to the industrial base; this resulted in less than optimal production runs, higher cost raw material sourcing, and longer lead-times. In addition, distribution services were provided by organic military resources, often with delays, causing operational units to maintain a retail inventory. This resulted in higher overall costs to the fleet.

In May 2000, NAVICP issued a Request for Proposal (RFP) for a PBL contract to manufacture and deliver naval aircraft tires to all U.S. Navy, Marine Corps and foreign military sales customers (NAVICP 2000). A firm-fixed-price contract was competitively awarded in April 2001 to Michelin Aircraft Tires Corporation (MATC), Greenville, S.C. to manage the Navy's aircraft tire program. This contract had a five-year base with an estimated value of $67.4 million, supporting all 23 types of tires that the Navy used (NAVICP 2001). The contract also had two five-year options, and the resultant 15-year value for the contract was $261.5 million (PBL Award Summary 2011). The first five-year option was exercised in July 2005, with an award of

almost $92 million to MATC (DoD 2005). The second five-year option was awarded in June 2010 and was valued at over $101 million (Military Industrial Complex 2010). This contract ends in January 2016.

This initiative was the first time the DoD contracted out for the support for new and repairable tires. MATC is the logistics integrator and prime contractor for the program as well as the manufacturer and supplier of the tires. MATC maintains responsibility for requirements forecasting, inventory management, retrograde management, storage, and transportation (Gansler & Lucyshyn 2006; Mahadavia, Engel, & Fowler 2006).

MATC subcontracted with Lockheed Martin to provide the supply chain services. These services include demand forecasting, order fulfillment, and inventory management. Lockheed Martin then contracted with the third party logistics provider, Eagle Global Logistics (EGL), to provide warehouse services (see Figure 5). In addition, Lockheed Martin also manages the commercial carriers. In addition to EGL, FEDEX and DHL serve as carriers to deliver the tires (Bland & Bigaj 2003). In summary, Lockheed Martin has the responsibility to ensure that the tires were delivered on time.

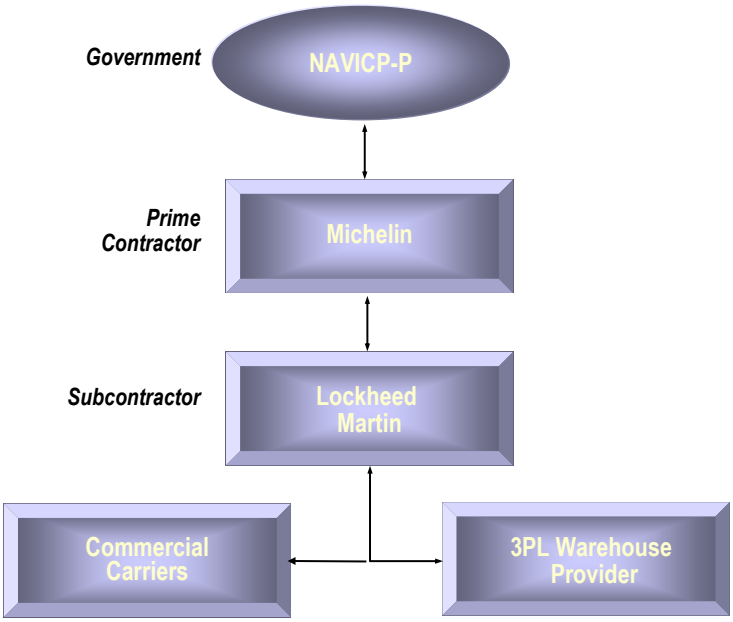

Figure 5. Program Structure (Gansler & Lucyshyn 2006)

As part of their supply chain task, Lockheed Martin provides a service center that is available 24/7, called the Lifetime Support Command Center (LSCC). This center controls all requisitions and maintains real-time requisition status with web-based access, and is electronically interfaced with Michelin, the two warehouses, and NAVICP (i.e., through NAVICP also the Naval Air Stations, Marine Corp Air Stations, carriers, and Landing Helicopter Assaults and Landing Helicopter Docks). This data along with shipping status and product support information is provided to Michelin to maintain their internal systems (Gansler & Lucyshyn 2006; Mahadavia, Engel, & Fowler 2006; Bland & Bigaj 2003).

Goals & Requirements

The Navy's performance measurement for each subcontract is tied to the requirements in the prime contract, ensuring an integrated system to meet the requirements (goals) of the contract.

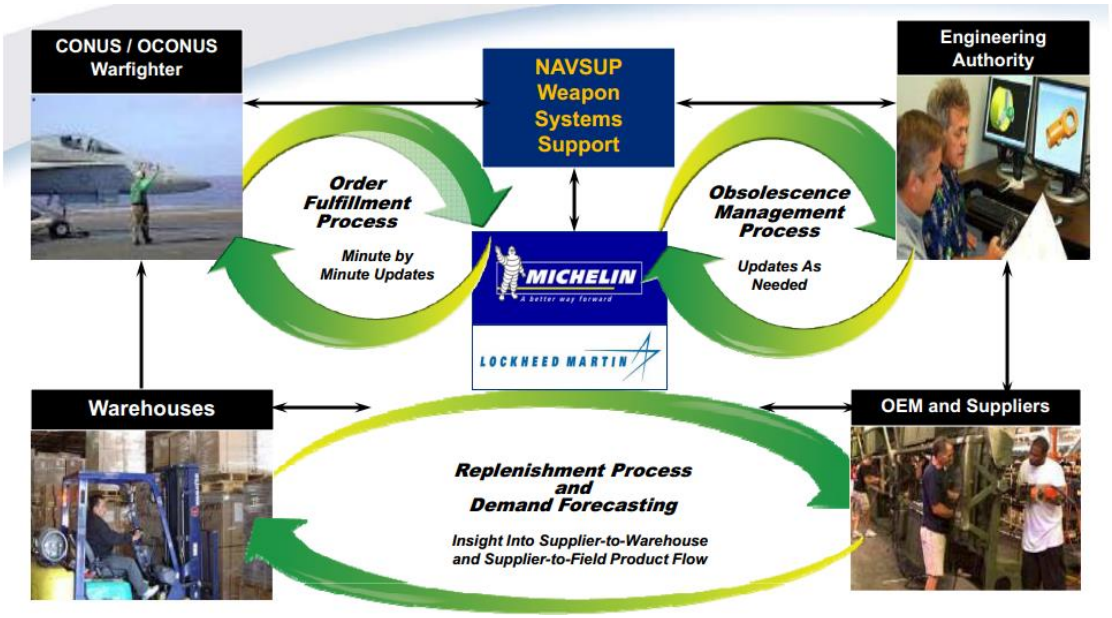

Figure 6: MATC integrates three engineering processes (NAVSUP 2005)

The contract outlined four main goals, as follows:

1. Improve logistics response time
2. Reduce back orders
3. Reduce retail level stock
4. Reduce warehouse storage footprint.

The ambitious contract requirements are as follows:

- 95 percent on-time fill rate
    - 48 hours (2 days) within the continental United States (CONUS)
    - 96 hours (4 days) outside the continental United States (OCONUS)
- Reduce retail inventories to a 90-day operating level (Bland & Bigaj 2003)
- Achieve and maintain a surge capability at a rate of up to twice the monthly demand rate of each tire type (Bland & Bigaj 2003; DoD 2005).

The Michelin-Lockheed Martin team developed internal metrics to measure performance to achieve the 95 percent on-time delivery requirement. These included dock-to-stock time in warehouse, inventory accuracy, order fill time, and carrier performance (Bland & Bigaj 2003).

Results

"Michelin's performance on the contract has been outstanding; getting tires on time has not been an issue for us."

Capt. Thomas Halley
Air Wing Commander
U.S. Naval Air Station-Oceana

Material Availability

The program shipped its first tires on July 9, 2001. As of 2011, the program continues to support 16 aircraft types with 23 different tire sizes, has delivered almost 319,000 tires, and has filled 100 percent of the 104,896 requisitions (Courtney, Carnes, & Thornton 2011). Prior to this PBL contract, tire availability was 81 percent. As of 2011, backorders dropped from 3,500 to zero, and logistics response time dropped from 60 days to under 2 days in CONUS and under 4 days OCONUS. As of 2011, the average customer wait time was 32.1 hours CONUS and 59.5 hours OCONUS, and on-time performance rates were 98.5 percent – well exceeding the contract requirement of 95 percent on-time (PBL Award Summary 2011). These results were achieved during surge periods – supporting Operation Enduring Freedom and Operation Iraqi Freedom – with no reported impact to the fleet customer.

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. This high level of availability and

consistently reduced delivery timeframes significantly reduced the need for local retail customer inventory levels (PBL Award Summary).

Material Reliability

The program also achieves a high level of material reliability and reduces the total ownership cost. This is evident by the dramatic reduction in engineering investigations and continued improvements to the aviation tire reliability, safety, and maintainability. The material reliability is evident also through the immediate actions of team members to address issues quickly. For example, after an issue with the EA6B main landing gear tires, MATC immediately halted shipments and quarantined inventory of these retread tires. The best-in-class logistics support system (the Lifetime Support Command Center or LSCC) also allowed Lockheed to notify the NAVAIR program manager with shipment dates and serial numbers in order to locate and quarantine any tires already out of the warehouses (Bland & Bigaj 2003). This demonstrated the benefit that the Navy, a public entity, received from a long-term contract based on performance - the private investment in product improvement that results in cost-savings and a better end product.

Sustainment Strategy Effectiveness/Efficiency

The Navy saved $1.7 million alone by reducing retail tire inventories ashore by 66 percent, and by reducing the shore inventory from 4,769 to 1,626 tires (Courtney, Carnes, & Thornton 2011; PBL Award Summary 2011). By eliminating the Navy's wholesale inventory of over 60,000 tires, 280,000 cubic feet of storage space in the distribution depots were made available. Previously, the ownership and maintenance costs for these 60,000 tires were absorbed by the DoD. The tires were stored in "geographically dispersed" government warehouses and frequent individual contracts led to a costly, labor-intensive process for DoD and industry personnel. The Navy also reduced total ownership costs by handing off the responsibility of retrograde pick-ups and disposal of scrapped tires. Additionally, the quick retrograde pick-up time, of 3.4 days on average, eliminated the need for the labor and storage costs associated with retrograde tire management. By reducing wholesale/retail inventory and eliminating retrograde pick-up, the program demonstrated the Navy's improved inventory management.

MATC also maintains full responsibility for obsolescence, removing the risk from the Navy. If the Navy no longer needs a specific tire in inventory, the Navy carries no risk of losing money from unusable products. MATC minimizes its' own risk by regular communication and program reviews with the Navy.

PBL Award

On September 21, 2011, the PBL tires program was awarded the Component Level Award, one of the three 2011 Secretary of Defense PBL awards. The tire PBL team/Michelin aircraft tire company of the USN Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS) was awarded the component level award for the following:

> *"The Navy Tire Performance Based Logistics Team is recognized for its innovative reinvention of the logistics supply chain for the management of Navy Aircraft Tires. Through execution of the PBL contract with the Michelin Aircraft Tire Company, a single accountability point of tire supply chain management has been established; production and fleet demands have been synchronized, resulting in streamlined effective support (on-time delivery 98 percent against 95 percent requirement with Zero back orders); and the USN no longer maintains a wholesale tire inventory, freeing up an estimated 280,000 cubic feet of DLA depot storage space" (DoD 2011).*

IV. Lessons Learned

The Department spends more than $170 billion on sustainment every year. A conservative estimate of the savings that could result from broadly transitioning to PBL sustainment across the DoD ranges from 10 percent to 20 percent annually. The Aerospace Industries Association recommended, in a separate white paper, that PBL sustainment contracts be expanded across all DoD systems to improve readiness and reduce costs by an estimated $17 billion to $21 billion per year (AIA 2012). This PBL initiative demonstrates in vivid terms the level of performance improvements and cost savings that are possible.

The current PBL contract expires in 2016. Currently, the Request for Proposal (RFP) for the next contract period is open (May 30, 2014 to August 31, 2014). See the box at the right for the full description. Given this upcoming RFP, the DoD and Congress should consider the following lessons for the renewal of this program and for future opportunities for savings. There is also some consideration within DoD of consolidating all of the department's aircraft tire programs within DLA. Care should be taken not to lose the efficiencies gained within this innovative program, that has clearly optimized the management of tires for Navy aircraft.

Navy Aviation Tire PBL Successor (TPS) Contract

"The current best estimated quantities (BEQs) will be listed in the Request for Proposal (RFP). The term will be a five (5) year base period and one, five (5) year option period. The total period of performance is not to exceed ten (10) years. Delivery will be in accordance with the requirements in the RFP.

All tires delivered under this contract will be manufactured and/or repaired by suppliers listed as qualified sources on the NAVAIR Qualified Products List (QPL)-5041 for new tires and QPL-7726 for repairable tires in accordance with specifications MIL-PRF-5041 and MIL-PRF-7726.

The Contractor shall supply tires in accordance with QPL-5041 for new tires and QPL-7726 for repairable tires and be responsible for management, stocking, handling, storage, transportation FOB destination to Continental United States (CONUS) and Outside of the Continental United States (OCONUS) destinations including beach detachments, retrieval and disposal of retrograde tires from CONUS and OCONUS locations, forecasting demand requirements, and meeting Supply Response Time (SRT) metrics throughout the contract. The Contractor will be required to submit with its proposal its plan to monitor and maintain the Navy aviation tire industrial base."

(Department of the Navy. Solicitation Number N0038314RTIRES. Posted May 7, 2014. Retrieved from https://www.fbo.gov/?s=opportunity&mode=form&id=fa261cd3b458baa36fc27bef4602464b&tab=core&_cview=0.)

Public-Private Partnering

It is essential to achieve the right public-private mix for each PBL program, with clearly defined and measurable expectations. In addition to satisfying the statutory requirements, using the strengths of the organic and contractor organizations can provide a better logistics solution. In summary, public-private partnerships (PPP) enable the compliance with statutory requirements, preclude the investment in redundant capabilities, and yet still maintain a single point of accountability.

With this initiative, the Navy actively produced a competitive environment among companies that regularly apply commercial best practices within their businesses by creating forums for dialogue among manufacturers and logistics providers. This dialogue allowed the three parties (Navy, manufacturer, and logistics provider) to align efforts and requirements to replace government processes with a state-of-the art commercial supply chain management system and 24-hour, 365 day a year support. This PPP achieved savings, improved efficiency, and maintains constant, reliable support for the warfighter.

Public-private partnering (PPP) has achieved cost savings and improved efficiency in other DoD programs as well. In the case of the FRC-East, Honeywell and Caterpillar Logistics depot PPP, the Navy captured $35 million in savings, eliminated backorders, and increased availability to 99 percent. In the case of the Defense Logistics Agency's, Tire Support Initiative contract, which is two and a half times larger than the Navy's program, the on-time delivery rate is 98.7 percent to the Air Force, Army, and some allied foreign militaries (GSA Business 2011).

Contracting Approach

This firm fixed-price PBL contract integrated competition and performance requirements to ensure best value, following the DoD's Business Case Analysis (BCA) guidelines. This contract resulted in a cost-effective, streamlined supply chain for aviation tires by creating a single point of accountability for requirements forecasting, inventory management, retrograde management, storage, and transportation. The contract used clear and simple metrics, which rendered the user's requirements, and also created the appropriate incentives for the contractor.

Systems Engineering Approach

Through the collaborative efforts of this team, the warfighter was able to maintain continuous mission readiness. This team approach facilitated the necessary communications, allowing issues to be addressed immediately.

Conclusion

The Navy's aviation tire PBL has demonstrated the benefits of a well-structure product support strategy. This innovative 15-year contract has virtually taken the Navy out of the business of buying and warehousing tires in support of 16 different aircraft. Supply availability is 98 percent versus a previous performance level of 81 percent, with savings of $46 million over 15 years. During this period of continued budgetary constraints, where appropriate this product support model must be applied to other DoD programs. The Nation deserves no less.

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