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# **An Evaluation of Mature Performance-Based Logistics Programs**

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16th Annual Acquisition Research Symposium  
Naval Postgraduate School  
May 9<sup>th</sup>, 2019



# Agenda

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- ➔ Introduction
- ➔ Cases
  - HIMARS
  - Navy Tires
  - Apache Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS)
- ➔ Conclusion
- ➔ Recommendations



# Introduction

- ➔ Since 2001 Performance-Based Logistics (PBL) has been DoD's preferred approach for product support
- ➔ When used, PBL has reduced system sustainment costs, while improving reliability
  - “the essence of performance-based logistics is buying performance outcomes, not the individual parts and repair the new focus is on buying a predetermined level of availability to meet the [customer's] objectives” (DAU)
- ➔ In spite of this performance the dollars obligated to PBL contracts peaked in 2013, and have decreased through 2016
- ➔ Our objective was to determine whether a “steady-state” PBL—one that generates continuous value to the customer—can be achieved, and if so, how to structure the optimal arrangement

**DoD is not aggressively pursuing PBLs**



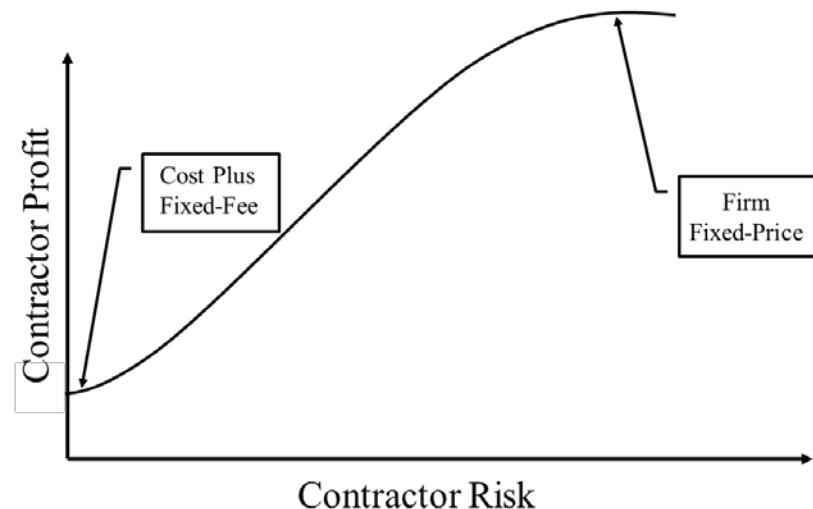
# Advantages of PBL

- ➔ Delineates outcome performance goal
  - Buy measurable outcomes based on warfighter performance requirements
- ➔ Ensures responsibilities are assigned
  - PBL metrics clearly define the suppliers' responsibilities.
- ➔ Reduces cost of ownership
  - Reduced inventories, improved supply chain efficiency, replacement of low-reliability components, and increased system availability.
- ➔ Provides incentives for attaining performance goal
  - Aligns the interest of the supplier with that of the customer, provides incentives for the supplier to improve design and processes and implement commercial best practices

# PBL Contract Trajectory, Cont.

## ➔ Life cycle of a PBL

- PBLs can be implemented at component, subsystem, or system level
- As program matures, transition from cost-plus contract to fixed-price
- Reliability appears to be correlated with the ownership of spare parts—when the supplier owns a larger portion of spare parts, reliability is higher





# Criticisms of PBL

- ➔ Initially, critics argued
  - Gov't loses some control, allowing contractors too much flexibility and contractors may become unreliable
  - Contractors may not support contingency operations, putting the operation at risk
- ➔ More recent belief that PBLs may offer diminishing returns once “low hanging fruit” has been picked

Can PBLs provide continuous value to the customer, over time?

# Case: HIMARS

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# HIMARS

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- ➔ The High-Mobility Artillery Rocket System (HIMARS) is a wheeled, agile, rocket and guided missile launcher fixed to an armored truck
- ➔ LM program office coordinates suppliers, depot repairs, inventory, and manages program database
- ➔ LM also employs 31 field service reps who operate with deployed HIMARS units and offer product support on the ground





# HIMARS PBL Strategy

- ➔ Three PBL contracts awarded to Lockheed Martin
  - Life Cycle Contractor Support (LCCS I and II), 2004 -2014
  - Life Cycle Launcher Support (LCLS), 2014 -2018
- ➔ LM was responsible for the full support responsibilities for the performance-based product support of the 420 HIMARS and 223 M270 A1 (MLRS)
- ➔ Performance metrics:
  - Customer Wait Time (CWT)—Time to fill and ship requisitions
  - Repair Turn Around Time (TAT)—Time required to perform repairs on items to restore them to a serviceable condition

## LRUs Covered for Both Systems



## Additional HIMARS Assemblies

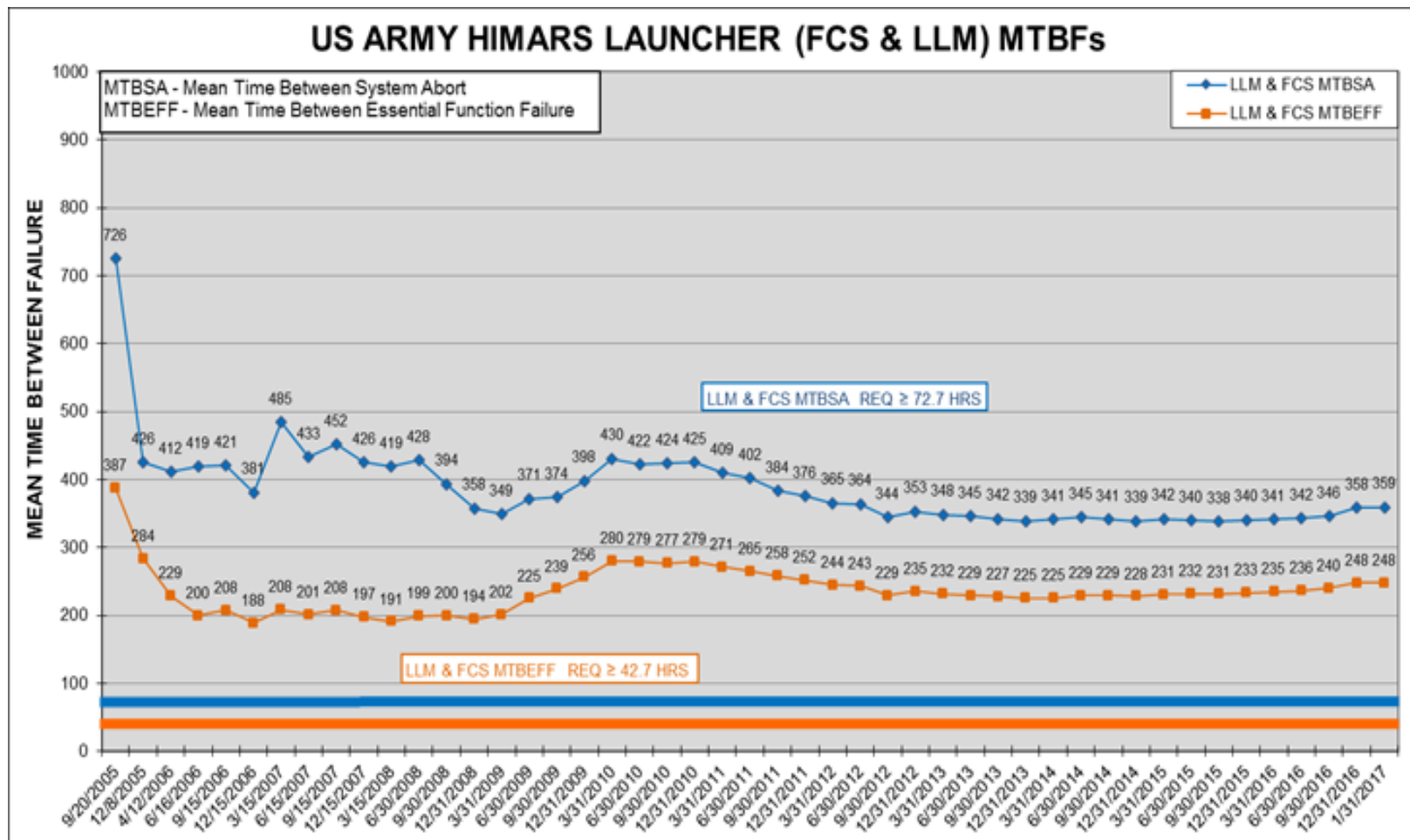




# Performance for FY 2017

<b>Customer Wait Time</b>						
<b>CONUS</b>						
<b>Issue Priority</b>	<b>Required (Hours)</b>	<b>Percentage Required</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>
1	48	Greater than 92%	99.6%	97.3%	99.1%	96.1%
2	72	Greater than 91%	100%	95.5%	98.9%	97.4%
3	96	Greater than 90%	100%	100%	100%	100%
<b>OCONUS</b>						
<b>Issue Priority</b>	<b>Required (Hours)</b>	<b>Percentage Required</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>
1	96	Greater than 92%	100%	100%	100%	100%
2	120	Greater than 91%	100%	100%	100%	100%
3	144	Greater than 90%	N/A	N/A	N/A	N/A
<b>Repair Turnaround Time</b>						
<b>Bands</b>	<b>Repair TAT in Days</b>	<b>Percentage Required</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>
Band 1	1-35 Days	Equal to or greater than 65%	78.4%	84.4%	74.8%	77.8%
Band 2	>90 Days	-25% per occurrence	0.0%	0.0%	0.0%	0.0%

# Program also Tracked System Reliability





# HIMARS PBL Performance

- ➔ The HIMARS PBL program met or exceeded all performance metrics
  - Deployed FSRs enabled a reduction in test units from 6 to 1, at each battalion
  - Also enabled a “fix forward” capability
  - 99% average system readiness rate
  - Mandated field analysis reports found that reliability peaked in correlation with the number of operational hours for deployed units
- ➔ HIMARS program transitioned to cost-plus fixed fee contract in 2014, transferring inventory management to government
  - The contract specifies “stock objectives”
  - Shifts risk back to the government—and limits the contractor’s flexibility to leverage economic efficiencies buying spares
  - Reduced incentives to invest in program improvements

# Case: Navy Tires





# Navy Tires Background

- ➔ Navy Inventory Control Point (NAVICP) managed aircraft tires as a commodity, maintained a 60,000 tire inventory, long lead-times, and high overall cost
- ➔ After success with PBLs to transform other supply chains, NAVICP adopted a PBL strategy for tire inventory management in 2000





# Navy Tires PBL Strategy

- ➔ 5 year FFP PBL contract (with two five year options) was awarded to Michelin in 2001
  - Michelin was prime contractor, manufacturer, and supplier
  - Lockheed served as a sub-contractor, handling supply chain services: demand forecasting, order fulfillment, and inventory management
- ➔ Initial Contract required:
  - 95% on-time fill rate—48 hours CONUS, 96 hours OCONUS
  - Reduce retail inventories to a 90-day operating level
  - Maintain a surge capability at a rate of up to twice the monthly demand rate of each tire type
- ➔ In 2016 LM was awarded a FFP contract, with the same requirements





# Navy Tires PBL Performance

- ➔ LM provided a service center the Lifetime Support Command Center (LSCC), that was available 24/7
- ➔ Contractor exceeded the on-time delivery metric of 95%
  - **On-time delivery of 98.2% CONUS and 98.7% OCONUS**
- ➔ Navy inventory of wholesale tires was reduced from 60,000 tires to zero
- ➔ High level of availability and reduced delivery timeframes reduced the need for local retail customer inventory levels—they were reduced by 66%
- ➔ Contractor also assumed responsibility for retrograde pick-ups and disposal of scrapped tires

# AH-64 Apache M-TADS/PNVS



# Modernized-Target Acquisition and Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) system

- ➔ AH-64 Apache is a high-powered attack helicopter
- ➔ Key to the AH-64 capability is M-TADS/PNVS system
- ➔ The M-TADS/PNVS is a modular system, requiring faulty components to be sent off-site for repairs
- ➔ The Army transitioned to PBL contract in 2007 to improve efficiency





# M-TADS/PNVS PBL Strategy

- ➔ Apache PBL program is made up of three major functions
  - **Repair operations:** performed at five special repair activities (SRAs)—Largest is a PPP with Letterkenny Army Depot
  - **Logistics operations:** oversee assets, distribution of repair parts, packing, handling, shipping, and transportation, and operation of storage facilities
  - **Continuous improvement areas:** Contractor does demand planning, obsolescence management, and work to improve reliability and maintainability
- ➔ PBL supports 670 aircrafts worldwide
- ➔ Performance is based on supply availability and FFP contract tied to number of flight hours in nine flight hour bands, separated by approximately 20,000 hours
  - Band 1 is maximum of 87,000 hours
  - Band 10 is a maximum of 240,000hrs



## M-TADS/PNVIS PBL Performance

- ➔ Under the Apache PBL program, LM decreased sustainment costs, improved supply availability, and lowered logistics and maintenance costs
  - As of August, 2018, supply availability exceeds 99%
  - Average time between system failures has increased by 70%
  - Annual sustainment costs dropped by 58%

**Program efficiencies enabled the Army to negotiate a price reduction of approximately 10% in the most recent contract awarded in 2016**



# Conclusions

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- ➔ PBL is still not being aggressively pursued throughout the DoD
- ➔ PBL contracts have the potential to dramatically reduce the costs of sustaining weapon systems, and incentivizing higher levels of performance throughout the system's life-cycle
- ➔ However, the power of PBL lies in affording the provider the discretion and flexibility to select the optimal mix of inventory levels, maintenance activities, and technology upgrades
- ➔ Shifting one or more of these functions to the government can distort the PBL paradigm and may lead to reductions in performance, innovation, and cost savings



# **Recommendation 1**

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- ➔ **Promote PBLs as proven strategy for weapons systems throughout the life-cycle**
  - The benefits of PBL contracts continue to accrue as systems age; technological refresh and modernization initiatives create new opportunities as systems age
  - PBL contracts may also be perceived as more expensive than support provided through a more traditional, transactional approach--however, aggregated at the fleet level, costs decrease as reliability improves
  - The DoD should renew its commitment to PBL in order to improve weapon system operations and reduce costs



## **Recommendation 2**

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- ➔ **Ensure acquisition workforce is educated and trained to execute successful PBL contracts**
  - PBL arrangements can be more challenging to develop and manage than the more traditional transactional contracts
  - It can be especially challenging to structure contracts with the appropriate incentives and penalties to motivate industry to provide superior support while reducing costs
  - The acquisition workforce must be trained on how to structure PBL contracts with suitable metrics and incentives to achieve program objectives





## **Recommendation 3**

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- ➔ **Structure PBL contracts appropriately**
  - Ensure proper alignment of government objectives and provider incentives
  - Consider scalability and usage requirements in developing product support strategy—when possible, PBL contracts should tie price to actual system usage
  - Use contract length to incentivize suppliers to improve reliability and reduce costs