Analysis of Contractor Logistics Support for the P-8 Poseidon Aircraft

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Naval Postgraduate School
**Analysis of Contractor Logistics Support for the P-8 Poseidon Aircraft**

**Naval Postgraduate School, Monterey, CA 93943**

**Approved for public release; distribution unlimited**

**5th Annual Acquisition Research Symposium: Creating Synergy for Informed Change, May 14-15, 2008 in Monterey, CA**

**Unclassified**

**Unclassified**

**Unclassified**
Agenda

• Background of the P-8 Program
• Thesis Problem (Logistics Support for the P-8)
• Cost as an Independent Variable (CAIV)
• Maintenance Perspective
• Operational Impacts
• Conclusions
Background: The Navy’s P-3C Problem

The end of service life of the P-3C Orion was quickly approaching with no replacement identified.

Source: Technical Data Analysis, Inc. Web Site. 28 May 2007
Background: The Navy’s Solution – P-8A

Boeing 737-800 ERX

Background: *Where is the program today?*

<table>
<thead>
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**Acquisition Milestones**
- **RRP**
- **PFR**
- **MSC**
- **FRP**

**Acquisition Phases**
- System Development and Demonstration

**MNI System**
- **POR**
- **CDR**
- **SSR**

**Contract Awards**
- **SOO Stage II Aircraft**
- **AP for LRIP #1**
- **LRIP #1 & AP LRIP #2**
- **LRIP #2 & AP LRIP #3**
- **LRIP #3 & AP FRP**
- **FRP**

**Test & Evaluation Milestones**
- **Ground Testing**
- **EOT**
- **OET**

**Initial Operational Test & Evaluation (IOT&E)**

**Production**
- **LRIP**

**Delivery**
- **SOO Stage I Aircraft**
- **SOO Stage II Aircraft**

**Background: On Time & On Budget**

### MMA Program Costs

**PB-06 (Constant 04$)**

<table>
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<tr>
<th>Category</th>
<th>Total (BY04 $M)</th>
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<td><strong>Engineering Change Orders</strong></td>
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<td><strong>Armaments</strong></td>
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<td></td>
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<tr>
<td><strong>CFE Electronics</strong></td>
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<tr>
<td><strong>GFE Electronics</strong></td>
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<tr>
<td><strong>Ancillary Equipment</strong></td>
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<td><strong>Non-recurring</strong></td>
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<td><strong>Total Flyaway</strong></td>
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- Airframe/Engine
- Engineering Change Orders
- Armaments
- CFE Electronics
- GFE Electronics
- Ancillary Equipment
- Non-recurring

**Meeting or exceeding ALL cost objectives**

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Remaining Decision: *Logistic Support*

1. Have the OEM provide complete CLS for the life cycle of the P-8?
   - Boeing’s estimated costs increased 400% by 2007

2. Continue with a traditional organic maintenance organization with Navy personnel?
   - Decision must be made soon. Cannot grow manpower over night

3. Is a hybrid combination of organic personnel with some CLS support a feasible option?
Thesis Problem

• Analyze the benefits and limitations of:
  – OEM-CLS
  – Traditional organic logistic support
  – Blended organic/CLS hybrid organization

• Areas for comparison
  – Cost as an Independent Variable (CAIV)
  – Maintenance perspective
  – Operational impacts

• Goal
  – Make a recommendation to NAVAIR of “Best Value” for the P-8 logistics plan
P-8 Maintenance: Cost Comparison

P-8 Maintenance: *What is a CMO?*

- Consolidated Maintenance Organization
  - All maintenance personnel removed from several collocated squadrons and placed into one command
- Concept currently being employed by P-3C community
- P-8 logistic acquisition based on CMO concept
CAIV: Basis of Analysis

• Analysis based on a combination of:
  – Personnel rates from the Office of the Deputy Secretary of the Navy, Manpower, Personnel, Training, Education (MPTE) (N10)
    • Given in FY09 dollars
    • Reduced to FY04 dollars at 3.0% per year
  – GAO Report 05-798
    • Figures in FY04 dollars

• Assumptions:
  – Numbers based on initial 885 personnel organic requirement
  – All totals are in constant FY04 dollars
CAIV: What is the real cost of a Sailor?

Rates Include:
• Base Pay
• Basic Allowance for Housing
• Basic Allowance for Subsistence
• Retired Pay Accrual
• FICA
• Uniform Allowance (Enlisted)
• Unemployment Insurance

Rates Do Not Include:
• Education Benefits
• PCS
• ROTC/JROTC
• Special & Incentive Pay
• Reimbursables
• Separation Payments
• Healthcare Accrual

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<td>36,383</td>
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N10 - Manpower, Personnel, Training and Education (MPTE)
## CAIV: N10 Costs Based on 885 Estimate (Officer)

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## CAIV: N10 Costs Based on 885 Estimate

*(Enlisted)*

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<td>180</td>
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<td>RANK COST</td>
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<td>$ 81,902</td>
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<td>$ 61,061</td>
<td>$ 49,993</td>
<td>$ 39,181</td>
<td>$ 30,826</td>
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<td>$3,030,374</td>
<td>$3,707,751</td>
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<td>$7,052,580</td>
<td>$8,477,150</td>
<td>$39,350,421</td>
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CAIV: GAO Report Applied Figures
(Included N10 Costs Subtracted Out)

Figure 2: The Allocation of Cash, Noncash, and Deferred Compensation Costs per Active Duty Servicemember in Fiscal Year 2004

Total cost to provide compensation was about $112,000 per active duty member—benefits made up about 51 percent of this cost.

Noncash benefits:
- Health care $8,829
- Installation-based benefits 3,700
- Subsistence in kind 2,453
- Family housing and barracks 2,211
- Education 466
- Other benefits 7,093
Total noncash benefits $22,765

Deferred benefits:
- Retired pay accrual $8,072
- VA compensation and pension 7,303
- VA health care 7,303
- VA other 771
- Health care accrual 9,643
Total deferred benefits $34,629

Cash compensation:
- Basic pay $33,502
- Housing allowance 8,507
- Subsistence allowance 2,360
- Special and incentive pays 3,021
- Other allowances 2,441
- Federal tax advantage 4,538
Total cash compensation $54,389

Source: GAO analysis.

Note: Over 100,000 mobilized reservists were paid out of total cash compensation. Accounting for those reservists, the average cash compensation was about $49,000 per servicemember. These costs reflect the average costs to the government to provide these components of compensation. For example, all servicemembers do not receive a cash housing allowance, because some servicemembers live on base in family housing or barracks. The cost presented represents the total amount appropriated for housing allowances divided by the number of servicemembers, thus, an average cost to the government.

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<tr>
<th>NON-CASH BENEFITS</th>
<th>AVG COST</th>
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<td>Health Care</td>
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<tr>
<td>Installation-Based Benefits</td>
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<tr>
<td>Family Housing and Barracks</td>
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<tr>
<td>Education</td>
<td>466</td>
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<td>Other Benefits</td>
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<td>VA Compensation &amp; Pension</td>
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<td>VA Health Care</td>
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<td>VA Other</td>
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<tr>
<td>Health Care Accrual</td>
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<td>Total</td>
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<td>3,021</td>
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<tr>
<td>Other Allowances</td>
<td>2,441</td>
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<tr>
<td>Federal Tax Advantage</td>
<td>4,538</td>
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<td>Total</td>
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Total GAO Compensation Per Person 55,865
**CAIV: Total Life Cycle Costs (Organic)**

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<th>O1</th>
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<td>$109,763</td>
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<td>$95,608</td>
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<td>$55,865.00</td>
<td>$55,865.00</td>
<td>$55,865.00</td>
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<td>$81,902</td>
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<td>51</td>
<td>153</td>
<td>143</td>
<td>180</td>
<td>275</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td>$926,424</td>
<td>$5,097,379</td>
<td>$6,556,866</td>
<td>$17,889,678</td>
<td>$15,137,694</td>
<td>$17,108,280</td>
<td>$23,840,025</td>
</tr>
<tr>
<td><strong>LIFECYCLE COST</strong></td>
<td>$23,160,600</td>
<td>$127,434,475</td>
<td>$163,921,650</td>
<td>$447,241,950</td>
<td>$378,442,350</td>
<td>$427,707,000</td>
<td>$596,000,625</td>
</tr>
</tbody>
</table>

**OVERALL TOTAL** | $2,307,813,375
CAIV: *Blended Organic/CLS Hybrid*

- Based on current NAVAIR estimates, 802 organic Navy personnel and 51 CLS civilians

- Using previous methodology, organic costs are $2.086B

- OEM-CLS portion are estimated to be $276M
  - Subtracted NAVAIR flat rate of 94k/person from $2.161B blended option estimate

- Total Life Cycle Cost: **$2.362B**
CAIV: Manpower Conclusions

- NAVAIR estimates are valid for organic and blended CMOs
- Organic CMO is the least costly to NAVAIR

CAIV: Something is Missing

• Totals do not include shore duty personnel required to support operational CMO (i.e., training pipeline & shore rotation billets)
  – 5/3 ratio required for E1-E6 personnel
  – 3/2 ratio required for E7-E9 personnel

• OEM-CLS provider does not have this obligation
CAIV: Costs Including Shore Billets

Using previous methodology

• Organic CMO pipeline costs
  = $1.320B

  Total cost = $3.497B

• Blended pipeline costs
  = $1.134B

  Total cost = $3.628B
CAIV: Conclusions with Shore Billets

- The OEM-CLS option is the least costly to the Navy
- Recommend further study into true costs and impacts of training and shore billets
Operations & Maintenance: Methodology

- Interviewed P-3C, operational “experts”
  - COs, former COs
  - All had combat experience
  - All had experience with direct civilian support
- Interviewed Air Force and Navy “experts” in CLS aviation contracting
  - VR squadrons (MOs/MMCOs)
  - Executive transport squadrons
Maintenance: **Governing Documents**

- **Naval Aviation Maintenance Program (NAMP)**
  - OEM-CLS still governed by NAMP

- **Continued Airworthiness Maintenance Plan (CAMP)**
  - Allows for commercial common part exchange with civil aviation
  - FAA certification of parts with A&P mechanics
  - Allows P-8 to utilize existing 737 logistic pipelines and reduce life cycle costs
Maintenance: “Above and Beyond” Costs

Costs not considered by previous CLS contracts (i.e., VR squadrons going to Afghanistan):

- Per Diem
- Rental cars
- Overtime salary
- Training
  - Chemical, Biological and Radiological (CBR)
  - Weapons
  - Combat
- Visas
- Deployment premiums
- Hazardous premiums
- Insurance
- Passports
- Immunizations
Maintenance: *Organic, CLS or Hybrid?*

Consensus of the interviewed experts:

- Those squadrons with CLS support are meeting or exceeding expectations
- All believe CLS is viable in combat squadron
- Hybrid organization provides the most flexibility and technical expertise
  - CAMP and NAMP requirements can be met and benefits reaped
Operational Impacts

• PBL contracts by definition ensure compliance with operational objectives
  – Assuming the right metrics are specified in the contract!

• How do you quantify intangible differences between logistic options?
Operations: *Biggest Concern - CMO*

Consolidated Maintenance Organization (CMO)
- Not enough time to prove itself
- Questions about efficiency at home
- Diametrically opposed missions
- Smaller footprint – can it meet objectives
- Intangibles
  - Pride in ownership
  - Esprit de corps / morale
  - Safety
  - Communication challenges between aircrew and maintenance
Operations: CMO Conclusions

• Most problems are leadership challenges that can be overcome
  – Morale, safety, pride in ownership, etc.

• Questions remaining are of valid concern
  – Is a CMO more efficient than traditional organization?
  – Can a CMO meet objectives with fewer personnel?

• Recommend NAVAIR sponsors further research to determine best course for P-8
  (CMO or traditional maintenance structure)
Operations: CLS Pros

• Virtually unanimous opinions
  – Every “expert” had positive past experiences
• All liked the technical expertise CLS provided
Operations: CLS Cons

• Concerns with intangibles
  – Pride in ownership
  – Esprit de corps / morale
  – Safety
  – Communication challenges between aircrew and maintenance

• Would a total CLS organization have the flexibility to surge or rapidly deploy?

• Could a CLS organization meet multiple operational requirements?

• What happens in a combat situation – would the CO have authority over civilians?
Operations: CLS Solution to the Cons

Consensus of the interviewed experts:

• Write the contract with enough **specificity**

• Write the contract with the proper **metrics** of performance

• Write the contract with the proper **incentives**

*** All tenets of Performance Based Logistics ***
Operations: *Organic, CLS or Hybrid?*

Unanimous consensus:

- Blended CLS/organic organization provides:
  - Enough organic personnel for flexibility
  - Civilian expertise
Conclusion: *Organic, CLS or Hybrid?*

The blended organic/CLS option provides the best value for the P-8:
- Virtually same cost
- Greater flexibility
- Captures existing 737 pipeline benefits
- Captures technical expertise and continuity of CLS

**O-Level Maintenance Dept Personnel Life Cycle Cost (CY04$M)**

- **OEM CLS**: $3,123 (Personnel: 598)
- **Organic CMO**: $2,036 (Personnel: 875)
- **Blended CMO Organic & CLS**: $2,161 (Personnel: 853)

Questions?