Outline

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Motivation:
Financial Perspectives

- **Contractor**
  - Cash flow
  - Return on Net Assets/Investment
  - Earnings
  - Sales

- **Government**
  - Reduced productions costs
  - Reduced lifecycle costs

Stakeholders are dependent upon each other for ‘win-win’ solutions
Cost-based pricing results in reduced profit levels when costs are reduced.

In the production of major weapon systems, cost reductions achieved through the implementation of lean practices are frequently “captured” by the government customer.

Cost reductions often occur before the contractor received adequate return on investment (ROI).
Definitions

- **Barriers:** Conditions or qualities that detract from processes and goal supporting a successful system procurement as viewed by both supplier and customer.

- **Enablers:** Conditions or qualities that enhance those processes and goals supporting a successful system procurement as viewed by both supplier and customer.

- **Incentives:** Implementation of contractual clauses, structures or provisions which allow the sharing of risk and cost savings generated through lean practices between supplier and customer. Incentives are the tools which are used to achieve program goals, to encourage desired behavior.
Key Questions

- What are the primary strategies, barriers, enablers and relationships of economically incentivized procurement of weapon systems in production?
- When production costs are reduced, how can contractors share in the benefits?
- What practices motivate defense aircraft contractors to invest more of their resources to become lean?
- What are the lessons learned in these studies are they transferable to other procurements?

Identify practices, strategies, enablers and barriers related to companies’ investments and sharing of cost savings
Data Sources

Interview of Experts
- 3 Airframe companies
- 2 Engine companies
- 3 Electronics companies
- 7 Government program offices (ASC)
- 2 Pentagon (SAF) offices
- 4 FFRDCs, universities

Case Studies
- 2 munitions programs
- 2 Airframe programs
- 2 Engine programs
- 1 Follow-up study (Airframe)

More than 150 people have been interviewed
Findings: Barriers

Munitions I
- Technical difficulties
- Cost overruns
- Adversarial relationship
- Decrease in order quantity
- Non value added oversight

Munitions II
- Technical difficulties
- Schedule slip
- Acquisition reform generated anxiety

Recovery from near loss of program vs. proactively design for program success
Findings: Barriers

**Airframe I**
- Increasing unit cost
- Technical difficulties
- Budget instability
- Adversarial relationship
- Technical requirements instability

**Airframe II**
- Budget instability
- Technical difficulties
- Lack of mission for aircraft
- Commercial practices generated anxiety

Rebuild highly contentious traditional procurement program vs. procurement of a major weapon system using commercial practices
**Findings: Barriers**

**Engine I**
- Budget instability
- Non-value added oversight
- Acquisition reform generated anxiety

**Engine II**
- Commercial practices generated anxiety
- Increasing unit price

Traditional procurement within context of acquisition reform vs. COTS
Findings: Summary of Barriers

- Technical difficulties
- Budget instability
- Cost over-runs
- Adversarial relationships
- Anxieties
- Technical requirements instability

Barriers are sources of program uncertainty
Findings: Enablers

Munitions I

- New effective leadership
- Jointly developed cost model
- Transition of risk from government to contractor
- Effective joint IPTs

Munitions II

- Advocacy and core joint IPTs
- Jointly developed cost model
- Pilot acquisition program
- Waiver of TINA
- Contractor investment to become lean

Supplier and customer are joined to reduce cost and share risk and reward
### Findings: Enablers

#### Airframe I
- New effective lean leadership
- Should cost exercise
- Effective joint IPTs
- Economic order quantity (EOQ) funding

#### Airframe II
- Effective leadership
- Effective joint IPTs
- Pilot acquisition program
- No military specifications

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**Top cover, program level leadership plus joint IPTs drive efforts to overcome barriers**
Findings: Enablers

**Engine I**
- Effective leadership
- Pilot acquisition program
- Contractor investment to become lean
- Effective IPTs

**Engine II**
- Effective leadership
- Should cost exercise
- Waiver of TINA
- Use of commercial practices

Effective (lean) leadership at program level essential to overcoming barriers
Findings:
Summary of Enablers

MUNITIONS
Supplier and customer are joined to reduce cost and share risk and reward

AIRFRAMES
Top cover, program level leadership plus joint IPTs drive efforts to overcome barriers

ENGINES
Effective (lean) leadership at program level essential to overcoming barriers

ENABLERS
REDUCE
UNCERTAINTY
### Findings: Incentives

#### Munitions I
- Implied USAF long term commitment
- Foreign military sales
- Reinvested government savings

#### Munitions II
- Implied USAF long term commitment
- Foreign military sales
- Reduced government oversight
- Contractor retains savings

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**Increased volume of sales over time period sufficient to generate cost savings and resulting sharing of savings**
## Findings: Incentives

<table>
<thead>
<tr>
<th>Airframe I</th>
<th>Airframe II</th>
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<tbody>
<tr>
<td>• Multi-year contract</td>
<td>• Foreign military sales</td>
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<td>• Performance based payments</td>
<td>• Use of commercial practices</td>
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<td>• NDAA competition</td>
<td>• Early sign-up provisions</td>
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<td>• Use of government tooling</td>
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Reduction of debt servicing and reduction of government oversight enable supplier to invest own resources to become more lean.
Findings: Incentives

Engine I
- Foreign military sales
- Incentive fees

Engine II
- Multi-year contract
- Use of commercial practices
- Performance based payments

Production of additional units drives improved performance and reliability; price may increase
**Findings: Summary of Incentives**

**MUNITIONS**
- Increased volume of sales over time period sufficient to generate cost savings and resulting sharing of savings

**AIRFRAMES**
- Reduction of debt servicing and reduction of government oversight enable supplier to invest own resources to become more lean

**ENGINES**
- Production of additional units drives improved performance and reliability; price may increase

**INCENTIVES ARE PATHWAYS TO GOALS**
Results: The Gains

- **U.S. Government**
  - Technically sound systems
  - Reduced cost
  - Most competitive product
  - More complete understanding of contractors goals and constraints
  - Potential for additional cost reduction

- **Contractor**
  - Reasonable-firm government commitment
  - Reward for accepting additional risk
  - Enhanced corporate reputation
  - Reduced debt service
  - Government assistance in becoming more lean
  - Share in cost reduction savings
High level senior commitment and support enhance program success

Information and risk, openly shared, precede development of economic incentives through delicate negotiations

Reasonably-firm customer commitment, over a finite time period, to the production program reduces mutual risk

Contractor investment of its resources to reduce unit cost enhance program success
Results:
Lessons Learned

- Innovative use of U.S. government of the following concepts can form foundation of risk-reward balance
  - Multi-year contract
  - Waiver of Certified Cost and Pricing Date (CCPD)
  - Performance Based Payments (PBP)
  - Economic Order Quantity (EOQ) Funding
  - Joint Cost Model (JCM)
  - Variations in Quantities (VIQ) options

- Leadership and use of IPTs increased communication and information flow goals and visions

- Mutual trust and respect enabled internalization of strategic goals and visions
Acquisition Prescription for Systems in Production

- Provide top cover
- Select effective leadership team (supplier and customer)
- Built mutual respect and trust
- Establish and use joint IPTs
- Develop joint cost model
- Establish additional markets (FMS)
- Eliminate TINA, CCPD, WGL, non-value added oversight, mil-spects
- Reduce debt servicing
- Provide long term customer commitment
- Buy commercially only tested systems
- Balance performance warranties and liabilities

Assumptions: stable budget and technical requirements
# Case Study Characteristics

## Munitions I
- Sole source, FPI
- Conventional acquisition program
- In production
  - > 5,000 units

## Munitions II
- Competitive, FPI/FFP
- Acquisition reform pilot
- In production

## Airframe I
- Competitive, CPIF (initially)
- Initially a conventional acquisition program
- In production
  - >50 units

## Airframe II
- Sole source
- Contractor developed
- Procured through commercial practices
- Not currently pass FAA certification

## Engine I
- Sole source, CPIF
- Acquisition reform pilot
- In production

## Engine II
- Sole source
- Contractor developed
- Procured through commercial practices
- In production
  - >200 units
- 95% identical to commercial engine
Results:
Policy Implementations

- Reduced government oversight through use of effective joint IPTs
  - CCPD
  - PBP
  - TINA

- Increased use of commercial practices
  - SPI
  - Performance warranties
  - Best value
  - One color of money
  - Flexible foreign military sales
  - Increased supplier stake