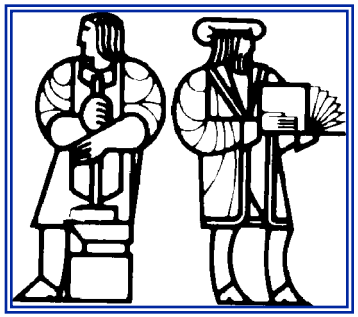
Lean Aircraft Initiative
Plenary Workshop

Economic Incentives Research



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Presented By:

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MIT

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Outline

- Premise & definitions
- Financial perspectives
- Key questions
- Research methodology
- Research parameters
- Conceptual framework
- Data sources
- Case study data
- Next steps
- Personal interviews insights

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Premise & Definitions

- **Economically incentivized procurements, in the past, have been more of an ad-hoc process than a systematic set of practices.**
- **Economically incentivized procurement is an arrangement between the government and the contractor, whereby both parties increase benefits in a declining acquisition environment.**
  - **The government benefits through declining acquisition costs.**
  - **The contractor benefits by sustaining returns on existing business base or gains the opportunity for increased sales and remains competitive.**

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Financial Perspectives

- **Contractor**
  - Cash flow
  - Return on Net Assets/Investment
  - Earnings
  - Sales
- **Government**
  - Reduced production costs
  - Reduced lifecycle costs

Stakeholders are dependent upon each other for 'win-win' solutions

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Key Questions

- **What are the primary strategies, enablers and barriers to economically incentivized procurement of production systems?**
- **When system production costs are reduced, how can contractors share in the benefits?**
- **What practices motivate defense contractors to invest more of their resources to become lean?**

Identify Practices, Strategies, Enablers, & Barriers Related To Companies' Investments and Sharing of Cost Savings

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Research Methodology

Literature review

- Compared existing models of economically incentivized contracting
- Set boundaries on study

Exploratory interviews

- Airframe, engines, & electronics sectors
- Revise boundaries on study
- Identify emerging barriers, enablers & metrics
- Establish criteria for selection of case studies
- Develop preliminary conceptual framework

Case studies

- Discern presence, necessity, relative priority, and interrelationships of primary enablers & barriers
- Apply conceptual framework to case study analysis

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Research Parameters

- Initial focus on systems in production
- In munitions studies, lifecycle costs managed during R&D phase
- Evaluated “successful” USAF programs
- Individual interviews selected to represent broad mix of users, implementors, and decision makers
- Case studies had to meet research standards

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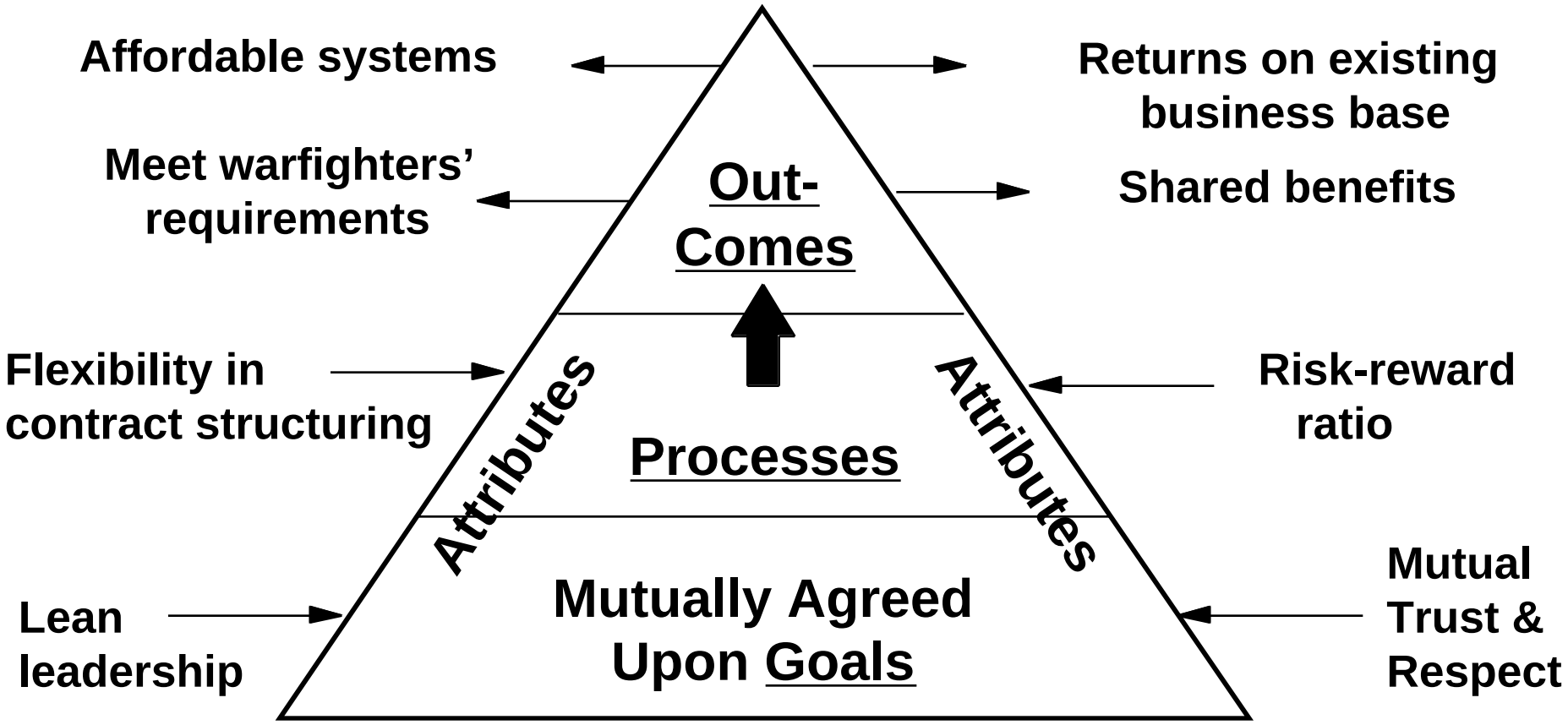
Conceptual Framework



Attributes are the sum of the processes and mutually agreed upon goals.

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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 (completed)
- 2 Airframe programs (in progress)
- 2 Engine programs (planned)

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Case Study Characteristics

Munitions I

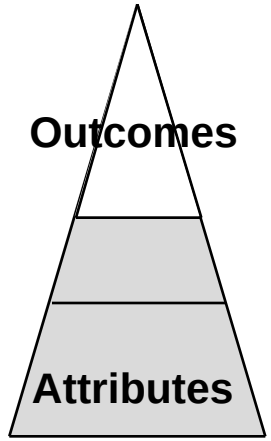
- Sole Source, FPI
- Conventional acquisition program
- Completed 4 LRIP contracts, in lot 2
- In Production > 5,000 Units
- ACAT Ic

Munitions II

- Competitive, FPI/FFP
- Acquisition reform pilot
- First LRIP contract
- Planned Production > 50,000 Units
- ACAT Id (?)

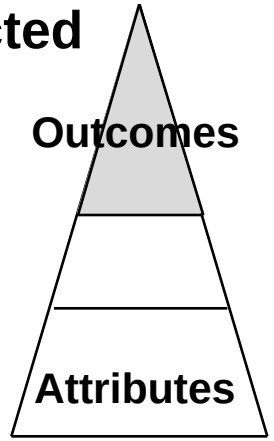
Major Attributes

- New, effective program *leadership* with agreed upon goals
- Effective IPTs
- Use of TINA to guide contractual discussions
  - used IPTs to eliminate some of associated overhead
- Mutually developed *cost model*
- Transition of *risk* from government to contractor
  - military specifications to performance specs.
- Possible markets outside U.S. (FMS) evolved
- Risk & rewards not shared with suppliers



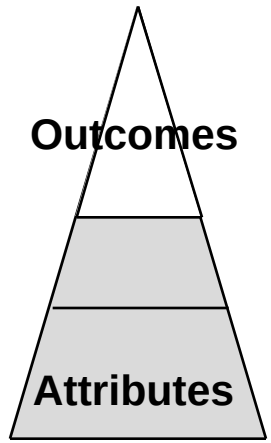
Outcomes

- Implied USAF long term commitment to program and product improvements considered sufficient for contractor to commit company resources to become lean throughout program
- Limited liability clause allowed contractor to commit to performance warranty
- Reduced effort & resource utilization for new contract development
- Government provided cost reimbursements for selected productivity enhancements
- Reinvested government savings
  - Accelerated production rate
- Enhanced contractor's reputation within USAF
- Achieved cost reduction
- Warfighters' requirements met



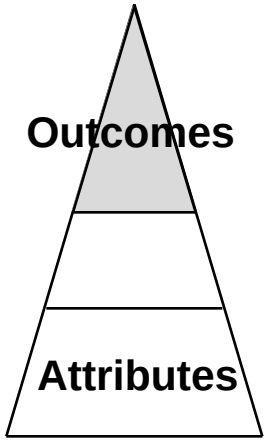
Major Attributes

- Effective lean *leadership*
- Novel use of effective *IPTs* with prescribed common goals
- Use of competition
  - Reduced price
  - Shifted risk to contractor
- Waiver of TINA
- Reduced government oversight
- Mutually developed *cost model*
- Risks & rewards shared with suppliers
- FMS opportunities identified early



Outcomes

- Implied USAF long term commitment to > 50,000 production units through annual contracts
- Contractor required to meet negotiated unit price curve
- Contractor retains savings
- Long term contractor investment to become leaner
- Contractor assumes all performance and warranty liability
- Significant projected unit cost reduction over program life
- Warfighters' requirements met



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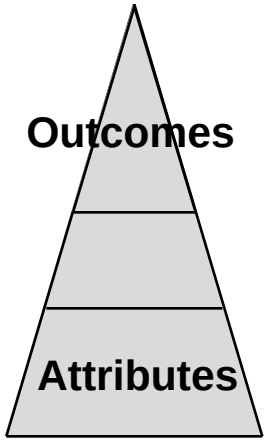
Case Study Similarities

Outcomes

- Implied long term USAF commitment
- Contractor commitment to invest to become leaner
- Projected reduction in price per unit
- Risk dealt with successfully
- Financial & performance goals achieved

Major Attributes

- Effective lean leadership
- Effective IPT structures
- Mutual trust and respect
- Agreed upon goals
- Common cost understanding & agreement



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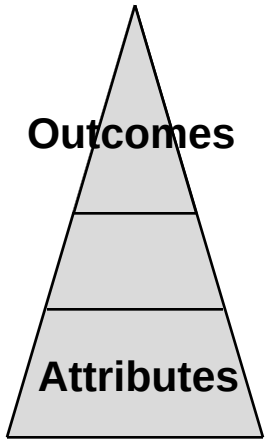
Case Study Differences

Outcomes

- Type of sharing of savings
- Reinvestment of savings



Major Attributes

- Risk-reward ratio
- Use of TINA
- Relationship between prime and suppliers

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Emerging Prerequisites & Practices

- Cultural factors
  - Leadership, mutual trust and respect
- Effective IPTs
  - Timely sharing & understanding of data & information (e.g. TINA)
  - Mutually agreed upon cost model
- Long term commitments
  - Implied USAF commitment to program
  - Contractor investments to become leaner
- Financial and performance goals achieved
- End item performance specifications preferred
  - Risk balanced through warranty & liability clauses
- Reinvestment or retention of cost savings

"One Size May Not Fit All." Solutions Appear Dependent Upon Technology Maturity and System Complexity.

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Initial Barriers and Enablers

Barriers

- Unbalanced risk-reward ratio
- Information asymmetry
- Excessive oversight
- Unnecessary military specifications

Enablers

- Lean leadership
- Mutual trust & respect
- Effective IPTs
- Agreed upon goals
- Long term commitment
- Flexible contract structure

Results Identify Emerging Practices, Strategies, Enablers & Barriers Which Answer Key Questions.

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Next Steps

- **Complete case studies**
  - **Airframe I complete by March 1997**
  - **Airframe II to be complete by June 1997**
  - **Engine case studies to be complete by Sept. 1997**
- **Fully answer key questions**
- **Policy change recommendations**
- **Present at executive board meeting**

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Personal Interviews Insights

- **Little predisposition to support or use available acquisition policy processes & procedures**
  - **Had to search long and hard to find examples of program managers taking "risks"**

- **Time/pain/retribution/perceived threat is excessive - no shield from above**

