



Continuous Competition as an Approach to Maximize Performance

The Limits of Competition in Defense Acquisition
Defense Acquisition University Research Symposium
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Outline

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- **Competition in Defense Contracting**
- **Continuous Competition Approaches**
- **Competitive Multi-Sourcing with Distributed Awards**
- **Implementation**
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Abstract

- **When competition is continually present, industry responds with their best team and more agility**
- **Continuous competition motivates contractor performance throughout the life of a program**
 - **Creates leverage to acquire more effective and affordable systems**
- **Introducing the concept of Multi-Sourcing with Distributed Awards**
 - **An acquisition strategy that enables continuous lifecycle competition under an applicable set of conditions and supporting business case**
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Competition in Defense Contracting

■ Law, Regulation and Policy

- Competition in Contracting Act of 1984
- Weapons Systems Acquisition Reform Act (WSARA) of 2009
- Better Buying Power (BBP) Memo of 2010

■ Current Environment

- >50% 2010 Major Defense Programs below performance/cost goals
- 32% Defense Programs have cost overruns after initial competition
- 66% Nunn-McCurdy cost threshold breaches from 1997-2011 related to engineering design issues

■ Renewed emphasis on competitive designs

- DoDI 5000.02 requires material development decision up front
- WSARA competitive prototyping before development start
- BBP invest in design to mitigate performance failure

Maintain competitive design, invest in alternatives

A Changing Competitive Marketplace – 1980's

- **1980's build up, many competitors for defense business**
 - **Dual Sourcing and Leader Follower contracting strategies**
 - **The Engine Wars, Missiles, Sonobuoys, components**
 - **Private investment for big pay off in production**

Engines – Fighter engine dual sourcing saved \$2-3B over 20-year life cycle, doubled reliability per 1000 flight hours

Missiles – 14 tactical missiles with dual sourcing saved 20% over life cycle, 1975-1995; Tomahawk saved \$270M, 17% reliability improvement

Systems - Joint Direct Attack Munitions – dual sourcing saved 33% in development time, 42% in development cost, 50% in the per-unit cost

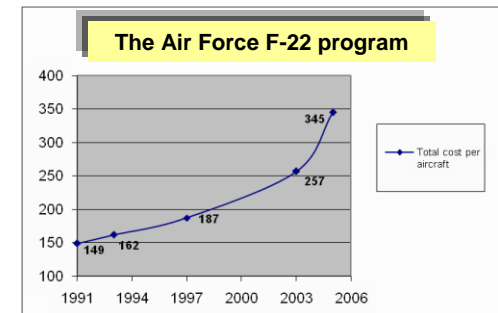
Sonobuoys – dual sourcing of annual buys brought prices down and improved performance

A Changing Competitive Marketplace - Today

- 1990's draw down at the end of the Cold War
 - Smaller budgets for Defense procurement
 - Mergers and Acquisitions, Joint Ventures
 - Less investment dollars for a second source

1990's - Ten aircraft programs overran their budget by 46%

1994-2000 – Patriot Missile PAC-3 cost increase of 77%, \$3B



- Today
 - JSF F-35 Second engine cancelled, not affordable
 - Same top four Defense contractors 1999-2011
 - Vendor Lock after initial competition

2011 - Air Force KC-135 Tanker single award for 179 aircraft, \$35B

2004 -Navy P-8 Poseidon single award for 117 aircraft, \$15B

2012 – Sonobuoys single award for 50,000 units to Joint Venture

Continuous Competition Approaches

Multiple Sources	<p>Commercial Competitive Development Model</p> <ul style="list-style-type: none"> • Continuous number of competitors, ready for production • Private investment for product development, big pay-off • Works well in IT or components 	<p>Competitive Ordering (Multiple Award IDIQ)</p> <ul style="list-style-type: none"> • Multiple qualified contracts who meet broad requirements • Post-Award competitive pressure • Severable tasks
	Few Sources	<p>Competitive Dual Sources</p> <ul style="list-style-type: none"> • Two or more sources develop and produce their designs • Continuously drive down prices through annual buys • Works well with high quantities, known technology
Sharing All Work		Partial Work Share

Competitive Multi-Sourcing with Distributed Awards

- Use of competition to motivate contractor performance throughout the life of a program drives incremental improvement and game-changing innovation
- The state of competition today rarely continues after initial award of either development or production – “vendor lock”

A Recommended Alternative Approach to Competition

The Government awards contracts to two (or more) sources, with a primary contractor receiving the majority of funding. A second receives significantly less funding than the primary contractor, but enough to gain program expertise and to develop plans and concepts to meet program requirements (e.g., a 90/10 split).

- ✓ Creates a continuous competitive environment
- ✓ Creates an insurance policy if the primary contractor fails
- ✓ Matures an alternative design for investment decisions

Benefits of Competitive Multi-Sourcing with Distributed Awards

- **Greater flexibility – the Government is not locked-in to a single solution**
- **Both contractors refine and mature their technical designs, allowing better investment decisions with cost estimates**
- **Low-level second source early in program could generate high pay-off in production and cost containment**
 - **Maintain pressure of price competition, prevent monopolistic behavior**
 - **Minimize transition to a second source already familiar with the program, shorter ramp up**
 - **Stimulate credible competitors, potential future business**
- **Reduces barriers to entry**
- **Alternative to traditional dual sourcing where continuous competition has been successfully applied in the past**

Competitive Multi-Sourcing with Distributed Awards - Application

- **Percentage-based Distributions (%)**
 - Set percentage of funding is allocated to each source
- **Partial Contractor-funded Development Model**
 - Funding cap for second contractor (\$\$)
 - Second contractor has choice to add private investment
- **Full Development with Scaled Production (Shared Production)**
 - Fully fund both sources to develop prototypes
 - Down-select for full scale production and limited production
- **Next Increment Prototype Model (Follow-on Competitor)**
 - Primary contractor maintains engineering capability
 - Secondary contractor builds prototype for next program increment
 - Positions both contractors to compete for follow-on work

Conditions for Use

■ Projected Pay Off in Production Phase

- High quantities with economic production rates
- Investment costs are low

■ Credible Competition

- Second source represents a real threat
- Prime contractor recognizes second source as a peer
- Contracting arrangements facilitate alternating sources

■ Technical Know-how

- Available technical knowledge and intellectual property
- Adequate technical and manufacturing readiness
- Close design maturity gap and technology readiness levels

■ Business Case Analysis

- Effective cost-benefit analysis, switching costs
- Potential to save in the long run, may require up-front funding

Challenges

- **Ensure second source represents a real competitor**
 - Known and respected in the marketplace
 - Evaluate level of independent investment in design
- **Coordinate activities between the two sources**
 - Evaluate contractors along the same path and milestones
 - Synchronize testing
- **Product maturity**
 - Relatively mature products, investment in technology advances
- **Savings will not be immediate**
 - Business case and cost benefit analysis needs to indicate timeline for return on investment
- **Supply chain risks**
 - Multiple primes with multiple sources – supply chain vulnerability

Measures of Success

- **Three main areas of concern: cost growth, schedule slip and performance failure**
 - **Ability to contain costs, measured against statistical cost growth percentages over the lifecycle, benchmarked against GAO, CSIS, and Nunn-McCurdy cost figures**
 - **Ability to reduce known causes for schedule slip in production, such as lack of alternative sources of critical suppliers, or unplanned engineering changes**
 - **Ability to improve performance by achieving or exceeding technical performance against key performance parameters that are part of program requirements**

Implementation

Scenario	Parameters	Products
Products with known dual sourcing success	<ul style="list-style-type: none">• Economic production rates• Willingness for shared public/private investment	Engines, Missiles
Products in highly competitive environments that typically result in a single award	<ul style="list-style-type: none">• Leverage technology from the non-selected competitor• Enable faster technology advances and higher TRL levels	Aircraft Systems, components
Programs with high cost overruns	<ul style="list-style-type: none">• Nunn-McCurdy breach analysis for engineering design problems• Develop alternative design to contain cost growth	Space Systems, components

Recommendations

Factor	Considerations
Best Fit	Apply the method under a clear set of conditions and expected measures of success
Business Case	Use a business case to support the value of an additional source to improve performance and control costs
Cost	Evaluate the cost of the additional source as an investment to improve decision making and enhanced life-cycle cost estimating
Risk	Develop risk/reward factors that clearly incentivize both the prime and the second source contractor
Contracts	Include clauses in the contract specifically to accommodate technology sharing and ease of transition from one contractor to another
Industry	Engage industry through clear direction and defined outcomes