



# How Systems Engineering Can Help Deliver Higher Value in a Budget Constrained Environment

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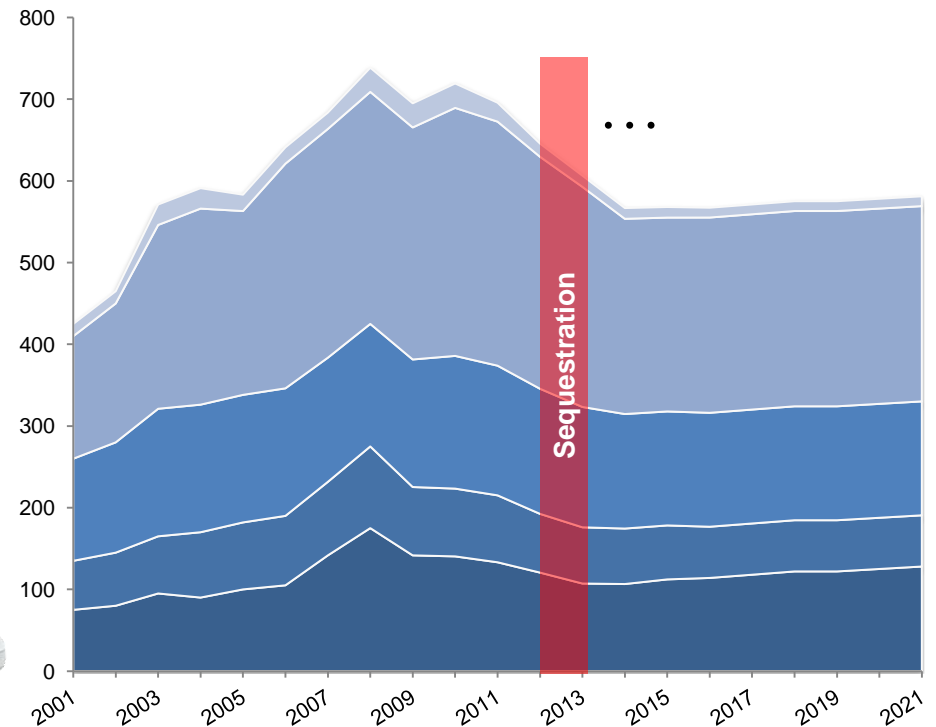
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# Headwinds are the headlines...



**DoD Topline Forecast:**  
*Twenty-Year Perspective (Including OCO)*



**...meeting the nation's mission needs in a budget constrained environment is the bottom line**

# Our Challenge as an Industry: Delivering Higher Value with Lower Cost



IMPROVED  
ON-TIME DELIVERY



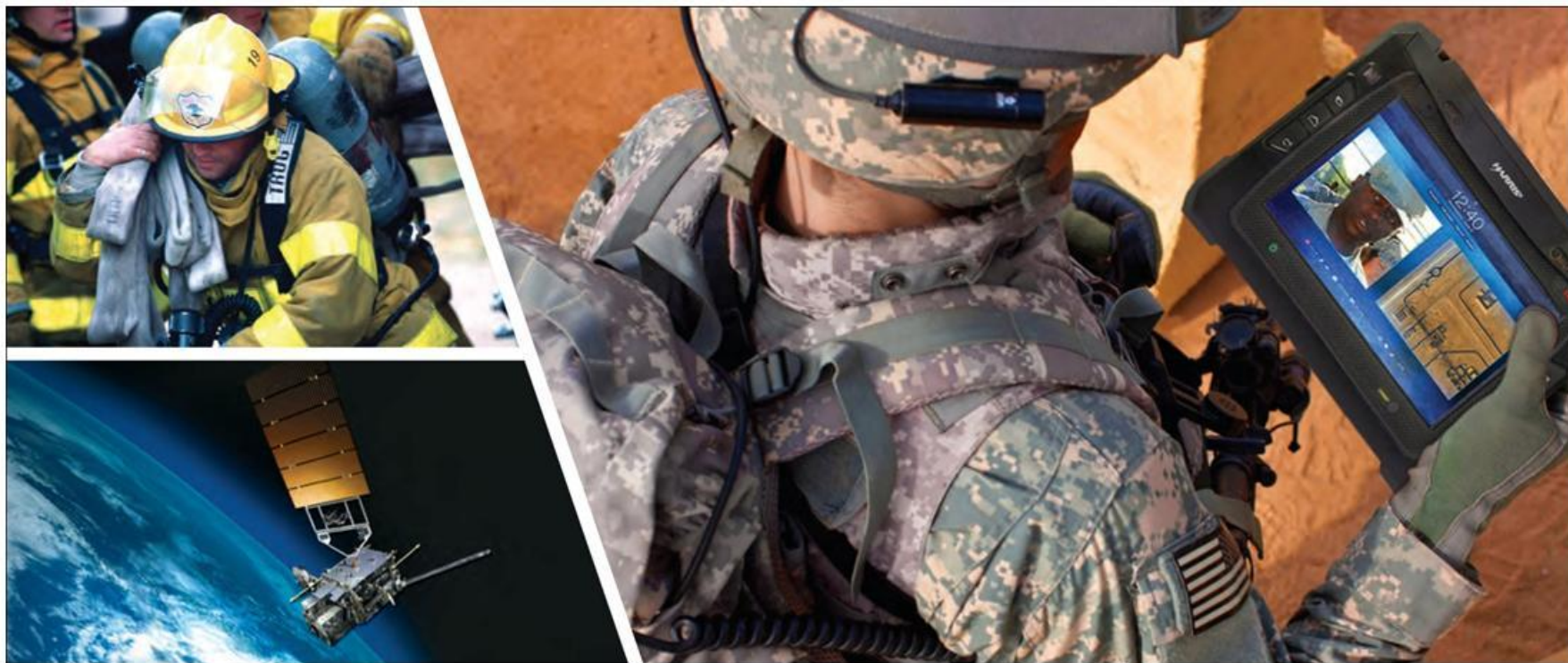
IMPROVED  
QUALITY



LOWER  
COST



CUSTOMER  
BENEFITS



BBP 2.0 Concepts	Systems Engineering in Practice
<b>Achieve Affordable Programs</b>	<ul style="list-style-type: none"><li>•Affordability trade-offs, training on the mindset</li><li>•Right-sizing requirements (and sticking to them)</li></ul>
<b>Control Costs Throughout the Product Lifecycle</b>	<ul style="list-style-type: none"><li>•Reliable estimates for predictable costs</li><li>•Design to Cost (DTC), Design for “X”</li><li>•Find issues early (design reviews, peer reviews)</li><li>•Proactive risk mitigation</li></ul>
<b>Incentivize Productivity &amp; Innovation</b>	<ul style="list-style-type: none"><li>•Improvement project portfolio prioritized by ROI</li><li>•Lean Six Sigma – better, cheaper, faster</li><li>•Efficiency savings re-invested</li></ul>
<b>Eliminate Unproductive Processes/Bureaucracy</b>	Better ways of doing business: <ul style="list-style-type: none"><li>•Process efficiency, integration (Eng, Mfg, ...)</li><li>•Model-Based Engineering</li></ul>
<b>Promote Effective Competition</b>	<ul style="list-style-type: none"><li>•New business models (services, leases, products, ...)</li><li>•Technology development (S&amp;T, IR&amp;D alignment)</li></ul>
<b>Improve Workforce Professionalism</b>	<ul style="list-style-type: none"><li>•Skills development (leadership, technical)</li><li>•Succession planning, mentoring, SMEs (BOOTS)</li></ul>



- Continuous improvement
- Customer satisfaction
- Business performance

### HBX results: Improved turnaround time

#### Malabar Avionics Depot Cell Implementation

**Goals**

- Eliminate bottlenecks

**Major Actions**

- Implemented consolidated depot cell for all avionics programs

**Results**

- Improved monthly shipment rates

**Customer Benefits**

- 10% improvement in turnaround time for customer-returned hardware

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### HBX results: Reduced risks

#### Aerospace Engineering & Operations Improvements

**Goals**

- Improve product quality through reduced defects, engineering change orders (ECOs), and open items

**Major Actions**

- Analyzed ECOs for root causes
- Conducted nearly 50 Failure Modes & Effects Analyses (FMEAs)
- Engaged all team members in identifying improvements
- Implemented updated process training

**Results**

- 65% and 45% improvement in Operations and Engineering defect density, respectively
- 70% improvement in Operations aged open items

**Customer Benefits**

- Increased quality, predictability and customer confidence

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### HBX results: Pass-through savings

#### FTI\* Network Upgrade Cycle Time Reduction

**Goals**

- Reduce cost to upgrade backbone circuit

**Major Actions**

- Analyzed different methods for design upgrades
- Converted FTI network to new model

**Results**

- Reduced hours to upgrade circuit from 94 to three
- Reduced hours for other daily network support activities

**Customer Benefits**

- Increased value-added support by more than \$1 million at no increased cost or headcount

FTI - Full Telecommunications Infrastructure

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**Innovation. Performance. Anytime. Anywhere.**

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