Achieve the Mission
Decrease Inventory
Decrease Cycle Time
Improve Reliability
Decrease Operating Expenses

Evolving a Fully Integrated Lean Six Sigma Continuous Process Improvement Systems Approach for Enterprise “End-to-End” Value Stream Excellence

presented to

NPS Acquisition Research Symposium

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NAVAIR AIRSpeed
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May 2007
Evolving a Fully Integrated Lean Six Sigma Continuous Process Improvement Systems Approach for Enterprise 'End-to-End' Value Stream Excellence

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Approved for public release; distribution unlimited

4th Annual Acquisition Research Symposium: Creating Synergy for Informed Change, May 16-17, 2007 in Monterey, CA
STRATEGIC MANAGEMENT SYSTEM - Phase 1
(AIRSpeed Case Example at Bottom)

**Strategic System Inputs**
- Data Gathering
- World Class Benchmarking

**Value-Added Analysis**
- Strategic Assessment
- Gap Analysis

**Output**
- Set Strategy

**Compare/Contrast**
- Create Desired To-Be Future State Vision
  - ID Key Areas, Organizations, Standards, Assessments etc.
  - Benchmark Best-of-the-Best

**Strengths / Weaknesses / Opportunities / Threats**
- Maximize Strengths to Opportunities & Minimize Weaknesses To Threats

**Need Productivity for Recapitalization**
- LSS is Best Practice (TWI, GE, R6S, ASQ…)
- AIRSpeed
- Process Waste & Variation Reduction
- LSS/TOC

**Voice of Customer**
- Voice of Strategy
- Voice of Employees
- Voice of Business
- Voice of Process

**Environmental Scan**
- Trend Analysis
- Value Stream Analysis
- Innovations
- Future Scenarios
- Models/Simulations
- Policy Review

**Major North Stars & Areas of Strategic Emphasis**
NAVAIR STRATEGIC MANAGEMENT SYSTEM - Phase 2
Our Fleet-Driven Metric: Aviation Units Ready for Tasking at Reduced Cost

- To Ensure Proper Strategic “Balance,”
  Map Business Ys to Balanced Scorecard

Business Ys = LSS/TOC

Financial
Intelligent Targets
SES Accountabilities
PR-09/IWP

Customer
NAE
FC, M&SCM CFTs

Learning & Growth
LSS GB/BB/MBB
NLDP
TFR

Internal Processes
AIRSpeed
N-ERP
NSPS

VISION

Major North Stars
& Areas of Strategic Emphasis
### NAVAIR Strategic Management System - Phase 3

<table>
<thead>
<tr>
<th>Business Y</th>
<th>Xs</th>
<th>State Objectives</th>
<th>ID Initiatives</th>
<th>ID Metrics &amp; Indicators (Quality/Cycle Time/Cost/Performance of LSS Alignment Diagnostic Rating 1-5)</th>
<th>Set Targets</th>
<th>Allocate Targets as Required</th>
<th>Determine Roles/Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSS/TOC</td>
<td></td>
<td>Projects Aligned to Strategic Ys</td>
<td>A&amp;LCS CFT</td>
<td>YSM Activity</td>
<td>&quot;Ys&quot; ID'd</td>
<td>90% Business Ys by Oct '06</td>
<td>A&amp;LCS CFT, Lvl 1s</td>
</tr>
<tr>
<td>Adherence to Recipe</td>
<td>100% Compliance</td>
<td>LSS Alignment Diagnostic</td>
<td>Plans Active</td>
<td>YSM Alignment Diagnostic AVG Score</td>
<td>90% Alignment by Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
<tr>
<td>Effective Program Management of Deployment</td>
<td>100% IMP/S</td>
<td>IMP/S</td>
<td>Granularity of Plan</td>
<td>Quality of Plan</td>
<td>IMS/MMF in Place Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
<tr>
<td>Deployment Strategy</td>
<td>100% Decision Mode</td>
<td>Deployment Kaizen</td>
<td>% in work</td>
<td>% Complete</td>
<td>90% Complete Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
<tr>
<td>Candidate Selection &amp; Retention</td>
<td>Processes Established</td>
<td>NLDP</td>
<td>% Budgeted/Planned</td>
<td>% in NLDP</td>
<td>100 NLDP per Yr</td>
<td>AIR 7.B</td>
<td>AIR 7.B</td>
</tr>
<tr>
<td>Financial Control</td>
<td>Process Demonstrated and Institutionalized</td>
<td>Deployment Team Initiative</td>
<td>$ TYPE I Planned</td>
<td>$ TYPE I to Date</td>
<td>$47M Type I by Oct '06</td>
<td>CCBUCPEO</td>
<td>Lvl 1s</td>
</tr>
<tr>
<td>Communications &amp; Change Management</td>
<td>Alignment</td>
<td>Comm Plan</td>
<td>Comm Plan Execution Status</td>
<td>Alignment Survey</td>
<td>Lvl 5 by Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
<tr>
<td>Project Realization</td>
<td>Demonstrate Type I Savings</td>
<td>Commander's Guidance</td>
<td>Type II Savings in Work</td>
<td>Type II SavingsAccrued</td>
<td>$52M Total Savings by Oct '06</td>
<td>CCBUCPEO</td>
<td>Lvl 1s</td>
</tr>
<tr>
<td>Training Confinement &amp; Support</td>
<td>1½ BB, 3 GB</td>
<td>LSS Training Program</td>
<td>% in Work</td>
<td>% Achieved</td>
<td>200 BB, 500 GB by Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
<tr>
<td>Project Mgmt &amp; LSS Deployment Tracking</td>
<td>Effective Project Tracking Systems</td>
<td>COTS DMS</td>
<td>DMS SS</td>
<td>COL PTT Utility</td>
<td>DMS in Place by Oct '06</td>
<td>Deployment Team</td>
<td>Deployment Champion</td>
</tr>
</tbody>
</table>

**Benefit**

- Prioritize the Xs supporting the key Business Ys

**Track Metrics to Allocated Targets**

- Supporting Business Y Stated Objectives

**When Target is Achieved, Business Y is Addressed & SMS Process Starts Over**
Multi-Strata “Enterprise-level” Value Stream Improvement

Strategic Enterprise Value Chain:
- Strategic Enterprise Value Chain:
  - Enterprise-level Opportunities
    - Impact Levers
      - Linkage to customers (feedback loops)
      - Strategic, policy, mission, organizational and process alignment and clarity
      - Culture change / momentum
      - Requirements definition

Operational High Impact Core Value Streams:
- Cultural Transformation, Standardization & Replication
  - Impact Levers
    - Step change improvement in business performance
    - Reduce complexity, variation and increase efficiency
    - Organizational alignment (Value chain stakeholders)

Tactical Project ID & Selection:
- Project-level Benefits
  - Impact Levers
    - Multiple tactical projects
    - Quality
    - Speed
    - Cost
    - Department productivity
    - Interdepartmental communication
The “HICVS” View

Acquisition High Impact Core Value Stream

Inputs
- RQMTS
- BUDGET
- AP

Outputs
- PRODUCT(s)
- COST
- CYCLE TIME
- QUALITY
- SAFETY

Identified Processes to “Improve,” “Replicate” and “Control”
HICVS Productivity Improvement System Approach

Business Intelligence

Integrated Analysis/Synthesis

Prioritized “Y” Thrust Areas

Strategic Thrust Area 1

Strategic Thrust Area 2

PEO/PMA Get-Well Pilots

Input Data

Decomposition

Project Portfolios (BB/GB/Kaizen)

Benefit/Effort Assessment

Approved Execution Roadmaps

Replicate Successes

Codify, Control & Train Process Updates

RESULTS
AIRSpeed Deployment Management System
(PowerSteering)

Initial Project List
(Future Phase)

Project Charter
Problem Statement, Goal Statement

Project Selected & Team assigned to project

Idea Tracking

Add Benefits & Effort

Dashboards & Reports

Financial & Non-Financial Metric Tracking

Project Documents

Project Status, Deliverables & Dates
Data Visualization: Accelerating the Data to Information to Knowledge Value Stream

Project Dashboard
- Quickly Review Multiple Portfolios or Only Those with Missed Milestones Requiring Action
- Choose From Predefined Layouts
- Sort on Any Heading
- Predefined Thresholds Provide Color-Coded Status
- Hyperlink Directly to Project Details

Graphic Reporting
- Cumulative Financial Benefit Planned vs. Actual
- Financial Benefit by Group, Unit, Etc.

Executive Review
- Display Projects on Your Own Defined X-Y Axis. Size and Color Displays the Financial Value and Status of Projects
- Three Clicks to Action... “Why Is My Most Valuable Project Yellow?” Click On the Bubble to View Project Details and Latest Status Report From the Project Owner
- Display Project Alignment With Corporate Initiatives
- Define Your Own Set of Portfolios... Each Tracks and Reports on a Different Sub-Set of Projects
Lean Aerospace Initiative (LAI) Enterprise Excellence Operating Model

**DEPLOYMENT**
- Enable Transformation
- Exchange Knowledge
- Measure Value

**Knowledge Exchange Events**
- Workshops, seminars, roundtables & tutorials
- A membership benefit via point system
- Available to customers, suppliers and consultants
- Events are self-supporting

**Educational Network**
- Learn from doing
- Research validated
- Impacts future research

**Transformation Events**
- Enterprise transformation focus
- Enterprise level training
- Roadmap for Enterprise transformation
- Fee for service model

**RELATIONSHIPS**
- Contributed SMEs
- Learn from doing
- Collaborations

**KNOWLEDGE CREATION**
- Conduct Enterprise Research
- Develop Transformation Products

**Enhance Membership**
- Benchmarking
- Sharing Lessons Learned
- Neutral broker
- Website
- Active community of practice
- Annual Conference

**APPLICATIONS**
- Access
- Knowledge transfer
- Collective action

**Expand Lean knowledge**
- Applied research
- Best practices
- Transformation strategies
- Change management
- Future enterprise design

**Products and tools**
- Publications
DoN Lean Six Sigma (LSS)  
Continuous Process Improvement Summary

• DoN is fully committed to deployment of LSS CPI  
  – Extensive 2 day SECNAV Leadership training (>1300)  
  – SECNAV Regular Guidance  
  – SECNAV Monthly Metrics Reporting  
  – SECNAV Monthly Strategic Management Reviews  
  – Tracking Progress to 3 Year LSS CPI POA&M

• LSS CPI contains all the necessary tools  
  – Lean, Six Sigma, Theory of Constraints  
  – Leveraging enabling IT  
  – Baselining DMAICV for existing processes  
  – Leveraging High Impact Core Value Streams

• Self-Sustainment to drive institutionalization & results

• Continuous Process Improvement for Continuous Process Improvement – Maximize ROIC
The DoN Wants:
1. “Best-of-the-Best” LSS CPI Knowledge/Capabilities
2. Fully Integrated LSS CPI Organizational System
3. Self-Sustainment & Cultural Transformation
4. Innovation for LSS CPI Transformation Acceleration
5. DoN Enterprise LSS/CPI Commonality
6. Maximized LSS CPI Value Proposition
7. Quality, Speed, Cost & Safety Results
Go to:  

a)  www.navair.navy.mil  

b)  DOING BUSINESS WITH US  

c)  OPEN SOLICITATIONS  

d)  N00421-07-R-0012  

DoN LSS CPI
Breaking the Barriers to Productivity & Effectiveness for our Sailors & Marines

QUESTIONS?
Contact Information

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Innovation is critical to everything:
1. how we collect data and what data we collect,
2. how we analyze and integrate data and information,
3. how we gain critical experience,
4. how we expand our knowledge,
5. how we create and institutionalize our future state processes,
6. how we apply and leverage breakthrough technologies,
7. how we replicate and maximize returns on our results,
8. how we collect and analyze our metrics, and
9. how we continuously assess metrics to improve the relevance and impact of the data we collect, and the quality and returns of the Value-Add Cycle of Continuous Improvement.
Value-Add Cycle of Continuous Improvement

• Data: Without high quality data systems, our ability to properly focus and apply continuous improvement is severely limited.

• Information: Our ability to generate, filter and leverage the right information is an essential component for effective continuous improvement.

• Experience: Complex decisions, plans and strategies often rely on a foundation of experience from multiple experts in their fields, providing key inputs which can then be synthesized into optimum, integrated solutions with all aspects and risks fully considered – leading to dramatic reductions in waste and costly rework.

• Knowledge: The synthesis of data, information and experience creates actionable knowledge for value-added application

• Processes: The application of process improvement, standardization and re-use enables extraordinary systemic improvements in efficiency and effectiveness to occur in a methodical, well-disciplined and synergistic manner.

• Technologies: Broad awareness and understanding of available technologies, their benefits, readiness/risks, costs and applicability to the Navy environment is a catalyst for success.
Value-Add Cycle of Continuous Improvement

• Metrics: Provide the critical insight to effectively manage, plan and continuously improve the Enterprise

• Leadership/Strategies: Leaders must excel in developing strategies to achieve excellence in productivity, quality and effectiveness - continuously improving and seeking operational perfection and organizational optimization.

• Methodologies & Tools
  – Including: DMAICV, DMADV, TRIZ etc.
  – Proactive identification and alleviation of system-level constraints to enable the system’s performance to meet customer requirements.
  – Mental models enable complexity to be simplified so that improvements can be identified and more effectively instituted.

• Learning: Application of knowledge and expertise through robust knowledge networks and knowledge communities to create new knowledge and apply that knowledge to maximum effect – an effects-based approach.
Continuous Improvement for Enterprise Excellence

- Develop Strategic Plan: Goals, Objective & Metrics; Decomposed, Allocated, Tracked
  - Base on Internal/External Scan, Benchmarking, S.W.O.T, Balanced Scorecard
- Reinforce AIRSpeed Commitment: Tools, Methodologies & Strategies
  - Apply HICVS End-to-End across NAE inc. linkage to DoN and Industry (87%)
- Converge, Align and Optimize Productivity Improvement Efforts – Integrated Roadmap
- Drive Variation Reduction & Concept of Std: Control & Improve Workflow Mgmt
- Comprehensive “Excellence” Training: Technical, Business, Leadership
- Deploy Knowledge Mgmt: Collaboration, Codification & Repatriation of Expertise
- Drive S&T/Innovation: Capabilities/Opportunities PEOs-driven w/Replication
- Industry win-win contractual incentive clauses for improvements (87%)
- Clean-up & Inter-connect Critical Data Sources: Business Intelligence (PR-09, ERP,…)
- Deploy Strategically Aligned Performance Measures & Incentives at All Levels
- Support NAE-related external work business development: Rates, Knowledge, Capital
HICVS: “Clipping the Peaks” of EVM Drivers & Productivity Barriers/Degraders

HICVS Focus Areas

Total Cost ($)
Impact

Round 1
Round 2
Round 3

Continuous Improvement Driving Down Total Cost Drivers

HICVS Processes

HICVS VOC/DATA
ERP ABC Labor Today
EVM Red Programs
T&E BOD

SCM NAE Costs
PR09 IWP Labor Budgeted
S&T Innovation Systems Impact
Acquisition Program Cost Growth

“Attacking the Cost Challenges with a Balanced Focus for Today and Tomorrow”

- Acquisition Costs (FYDP)
- PEO/PMA
  - Red Program Prototypes
  - Operational Focus
  - "Get Well" Plans
- HICVS
  - Strategic/Systemic Focus
  - "Root Cause Plans"
- + $M/day Cost Growth
- +$B Bow Wave
- Budget Baseline

Time

Today
NAE AIRSpeed – The Power of Replication

AIRSpeed’s return on investment increases rapidly as replication expands.

Feedback Loop for continuous improvement increases savings from existing projects over time.

Cumulative Project Savings

Cumulative Project Execution Costs

Project 1-5 Savings 5X

Project #1 Savings X

NAVAIR PEO/PMA Project

Replicate Cost Est Project Across PMA’s

Replicate Cost Est Project Across PEO’s

Replicate Cost Est Project with additional Industry

Replicate Cost Est Project with additional SYSCOMs

Savings/Project ~ Same
Goals Flow-down & Metrics Roll-up

Command-Level Business Y Driven Metrics

Command Initiative #1 Metrics
Lvl 1 Metrics
Lvl 2 Metrics
Lvl 3 Metrics
Interpreted

Command Initiative #2 Metrics
Lvl 1 Metrics
Lvl 2 Metrics
Lvl 3 Metrics
Interpreted

Command Initiative #3 Metrics
Lvl 1 Metrics
Lvl 2 Metrics
Lvl 3 Metrics
Interpreted

Roll-Up of Metrics
Flow-down
Allocations

Roll-Up of Metrics
Flow-down
Allocations

Workforce Business “Y” Metric - NSPS Performance Measurement Alignment
NAE AIRSpeed INDUSTRY/GOVERNMENT COLLABORATIVE OPPORTUNITIES AT THE SEAMS
“ATTACKING THE NON VALUE-ADDED WORK/PROCESSES BETWEEN THE CUSTOMER & THE SUPPLY CHAIN”

ACQUISITION LIFE CYCLE VALUE STREAM PROCESS IMPROVEMENT

GOVMT INPUTS
• RQMTS
• VOC
• VOS
• VOP
• VOB

INDUSTRY INPUTS
• RQMTS
• VOC
• VOS
• VOP
• VOB

ACQUISITION PROGRAM VALUE STREAM OUTPUTS:
• COST
• CYCLE TIME
• QUALITY
• SAFETY

“SWEET SPOT” FOR HIGH VALUE-ADD LSS/TOC

UNDERSTANDING & IMPROVING THE AEROSPACE END-TO-END “VALUE CHAIN”: FROM REQUIREMENTS & INNOVATION TO PRODUCT DELIVERY AND SUSTAINMENT