Agile Transportation for the 21st Century (AT21)
Focus

• What AT21 does operationally
• How we’re delivering AT21
  • BPM
  • Optimization
  • Corporate Services Vision
  • RDT&E Efforts
• Where we are programmatically
AT21 Operational Concept

AT21 Outcomes

Optimized end-to-end delivery of forces

Optimized end-to-end delivery of sustainment

Cognitive Enterprise Situational Awareness

Weather  Forecast Plan  Depot Stock Levels  Total Asset Visibility  Intel

Modal and Nodal Capacity

Transportation Network

Movement Requirements

Dynamic Global Deployment and Distribution Planning

Dynamic Re-planning

Transportation Course of Action Development  Dynamic Optimized Planning  Optimized Scheduling

Dynamic Re-planning

Optimized... Enterprise Executable Plan & Global Route Structure

Incident Management

Federal Departments & Agencies

Non-Governmental Organizations

Cognitive Alerting

Suppliers

OPTIMIZED... Enterprise Executable Plan & Global Route Structure
AT21 Business Process Management Approach
Enabling the Process-Centered JDDE

Lines of Operation
- TPFDD Movements
- SAAM Movements
- Courier Service
- Human Remains
- Patient Movement
- OSA/VIPSAM
- Sustainment
- Retrograde
- Direct Vendor Deliv.
- Foreign Mil. Sales
- H-H Goods/Hold Bags
- AAFES/NEX/DECA

Transportation Services
- Discrete Movements
- Capacity-Based Movements

Core Capabilities
- Manage Requirements
- Manage Capacity
- Optimize Delivery
- Publish Schedule

Outcome
- Optimized transportation solutions satisfying customer defined Time Definite Delivery at least cost

TIME
AT21 Process Improvement Results:
Special Assignment Airlift Mission (SAAM)

Old Special Assignment Airlift Mission (SAAM)
Validation Process

Customer Value

- Value Added: 17
- Non Value Added-Required: 30
- Non Value Added: 23
(Data Handoffs & Inspections)
**AT21 Process Improvement Results:**
Special Assignment Airlift Mission (SAAM)

**New Process Results**

<table>
<thead>
<tr>
<th>Process Cycle Time reduced 75%</th>
<th>(from &gt;1 day to &lt; 6 hrs)</th>
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<tbody>
<tr>
<td>Defects reduced 99%</td>
<td>(from 2.3% to &lt; .02%)</td>
</tr>
<tr>
<td>Workload reduced by 67%</td>
<td>(from 37.5 hrs to 12.5 hrs/wk)</td>
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</tbody>
</table>
Process Improvement Results: Strategic Surface Route Plan (SSRP)

SSRP Generates Routing and Consolidation Recommendations for Surface Sustainment Cargo

Old Process vs. New Process

Data Collection
15 Work Days Cycle Time
Instantaneous Cycle Time

Data Analysis
4 Work Days Cycle Time
20 Minutes Cycle Time

SSRP Production
42 Work Days Total Cycle Time
11 Work Days Total Cycle Time

5-26% Utilization Increase per Lane
$123 Million in Annualized Savings
**Improved Optimization Over Time**

**Near Term:**
- ~30 - 40% of all viable requirements/requisition types considered
- Initial itinerary development
- Notifications, alerts and visibility enabled by process management tool sets

**Long Term:**
- Lower Costs 10-15% | Inc. Velocity/Reliability Service Levels 15-25%
- All viable requirement/requisition types considered
- Global modal and nodal elements dynamically evaluated
- Dynamically updated business process management rules

**Short Term:**
- ~60-70% of all viable requirements/requisition types considered
- Dynamic itinerary updates
- Additional process management for workflow/ taskings, and replanning

**Next Generation:**
- Lower Costs 15-25% | Inc. Velocity/Reliability Service Levels 25-40%
- Global collaborative decision support
- Dynamic collaboration and cognitive situational awareness
- Living plan balancing requirements and capacity

**Use of advanced analytical tools and sophisticated algorithms**

**Use of current analytical tools and mathematical optimization algorithms**

**Use of basic BPMS tools and manual operations**

**Speed – Precision – Quality**
Composite Agile Development Teams (CADT)
Lean + Six Sigma + Agile Development

Lean / Six Sigma

- Define
- Measure
- Analyze
- Improve
- Control

Agile Software Development

- "MEASURE" generates stories to identify information needs
- Pre-Iteration Planning Meeting
- Document Lessons Learned from the Process
- Demonstrate Solutions to the Operator
- Deploy to Integration Environment (EIL)
- Develop/Test/Build
- Iteration Planning Meeting

- "IMPROVE" generates stories to provide improvement
- Monitor KPIs to achieve process "Control"
- Stories piloted during "Improve"

"The Engine That Delivers Capability"
CSV Architecture: Delivering Capability Through Services

**Business Features:**
- Corporately Controlled
- Process Focused
- Common Workflow Portal

**Corporate Mission Services**
- Transportation Feasibility Service
- Mission Service 2
- Air Mission Service 2
- New Mission Service 3
- Air Mission Service 1
- Unit Move Data Service 1
- Freight Mission Service
- Freight Mission Service 2
- Mission Service 10
- Data Service 5

**Tech Features:**
- Reusability of Services
- Standardized Exchanges
- Prescribed Common Computing Environment

**Providers**
- MilDep Apps & Services
  - Army
  - Air Force
  - Navy
  - Marines
- DPO Apps & Services
  - IRRIS
  - SMS
  - JFAST
  - IBS
  - TCAIMS-II
  - ICODES
  - WPS/GATES
  - Etc.
- Industry Apps & Services
  - FedEx
  - DTCI
  - CSX
  - Etc.

**Customers**
- COCOMS
- MILDEPs
- Agencies
- Internal
- Industry

**DPO Services-Oriented Common Computing Environment**

**Data Discovery**

**Metadata Repository**

**Data Warehouse**

**DPO Services Registry**

**BPM Suite**

**iDistribute.mil**

**Transportation Feasibility Service**

**Mission Service 2**

**Air Mission Service 2**

**New Mission Service 3**

**Air Mission Service 1**

**Unit Move Data Service 1**

**Freight Mission Service**

**Freight Mission Service 2**

**Mission Service 10**

**Data Service 5**
Silos to Synergy: Creation of the Common Computing Environment

CURRENT
15-25% Utilization
175-185% Unshareable, Unused Capacity
(Includes COOP requirement)

FUTURE
60-80% Utilization
All Excess Capacity
Shared

POTENTIAL ROI
2/3 Reduction in servers
Reduced overall energy Costs

✓ Enables Rapid Business Process Improvements
✓ Application Focused
✓ Provides “app store” via shared infrastructure
✓ Eliminates duplication among independent system silos
CSV/AT21 Delivery Methodology: In-Place and Delivering

Knowledge Management Lab (KML)  AT21 Enterprise Integration Lab (EIL)  Common Computing Environment

- Industry Partners
  - CDM Technologies, Inc.
  - DataFlux, A Xerox Company
  - IBM
  - Microsoft

- KML Consortium Lead
  - (CRADA)

- Academia Partners
  - Edwardsville
  - University of Maryland
  - Southern Illinois University Carbondale

Common Development Environment

- AT21 EIL
  - Government Owned & Operated
  - Lean 6 Sigma & Agile Enabled

- Common Integration & Testing
  - Process?
  - Performance?
  - Functionality?
  - Architecture?

- Security?
- Exchanges?
- Standards?
- Interoperability?

The DPO’s App Store

- Analytical Validation & Certification
- Delivery & Implementation

CRADA - Cooperative Research and Development Agreement
# Lessons Learned Applied to AT21

<table>
<thead>
<tr>
<th>DOD-Wide Lessons Learned</th>
<th>AT21 Strategies Underway</th>
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<tbody>
<tr>
<td>☒ Lack of High Level Support</td>
<td>☑ 4-Star Direct Involvement -- #1 Program</td>
</tr>
<tr>
<td>☒ Technology Driving Capability</td>
<td>☑ Ops Process-Driven, Technology Enabled</td>
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<tr>
<td>☒ System-Centric</td>
<td>☑ Web-Service Enabled</td>
</tr>
<tr>
<td>☒ Development not Keeping Pace with Requirements</td>
<td>☑ Agile Development Implemented</td>
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<tr>
<td>☒ No Pre-Production, Staging, &amp; Virtual Testing Environments</td>
<td>☑ Delivered AT21 Enterprise Integration Lab</td>
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<td>☒ Unresponsive Procurement</td>
<td>☑ Responsive Procurement Partnership</td>
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<tr>
<td>☒ Lack of Sound Operating Process and Metrics</td>
<td>☑ Executing Corporate Governance Process</td>
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<tr>
<td></td>
<td>☑ Adopted Process-Centered Culture (BPM)</td>
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<tr>
<td></td>
<td>☑ Producing measurable efficiencies and effectiveness results</td>
</tr>
<tr>
<td>☒ Limited or No Joint Support</td>
<td>☑ Joint Support from all COCOMs</td>
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QUESTIONS