USTRANSCOM
Operational and Technology Challenges Brief to Science & Engineering Technology Conference/DOD Tech Expo
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Approved for Public Release
Purpose

• Role/Mission

• Logistics Transformation Imperative

• Top Operational/Technology Challenges

• RDT&E Program Overview/Project Highlights
USTRANSCOM Transformation

1986 – Goldwater/Nichols Act

1990 – DESERT SHIELD/STORM

1993 – US Transportation Command Charter (Peacetime/Wartime Strategic Mobility)

2003 – Distribution Process Owner Established

2005 – Full Time US Transportation Command Commander

2007 – DPO lead for DOD Supply Chain RFID/AIT implementation

2011 – Global Distribution Synchronizer
USTRANSCOM’s End-to-End Mission

Leveraging S&T to Transform Logistics Support to the Warfighter and Ensure the Development of Affordable Solutions
Operating in a Global Environment...

Combatant Commander Plans...
- Rely on Austere Infrastructure
- Demand Rapid Force Projection
- Require Early Diplomatic Coordination
- Incorporate Civil-Military Support
- Pose Force Protection Threat

...that places a premium on Collaboration
DOD’s Logistics Strategic Vision

• DOD Logistics Goals
  – *Effective logistics support to current ops*
  – Effective management of contractors on the battlefield
  – Integrate life cycle management principles
  – *Integrate supply chain to point of consumption*

• **Deliver integrated joint logistics capabilities**

• **Network/Optimize the Joint Logistics Enterprise**

• **Ensure Rapid, Precise Response**

*Note: USTRANSCOM RDT&E program affects italicized areas*
Top Operational/Technical Challenges

- **Improve Point of Need Delivery**
  - High Speed Container Delivery
  - Helicopter Sling Load - JPADS
  - JPADS-Guidance/Navigation/Control

- **Ability to Sustain from the Joint Seabase**
  - Joint Universal Causeway Interface Module
  - Com’l Roll-on/Roll-off Interface Platform
  - Sea Base Enablers

- **Command & Control/Decision Support**
  - Situational Awareness & Collaboration
  - Computing Environment
  - AT21/Decision Support

- **Operate in Any Environment/Energy Conservation**
  - Unmanned Air Systems/Hybrid
  - Cyberspace/Security
  - Support Planning for Aerial Refueling

See USTCH60-2 for complete list

www.transcom.mil/rdte
### Program Summary

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<th>FY12</th>
<th>FY13</th>
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<td>Current Top Line</td>
<td>$43M</td>
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Leveraged over $285M in Service/OSD/Defense Agency RDT&E contributions (FY06-11) – 7:1 ROI

*OSD RDT&E budget exhibit submissions drives timeline
Future Focus Areas

Force Protection/Security

Humanitarian Airdrop Over Populated Areas

Sense and Respond Logistics

Improved Accuracy at Point of Need

Sea Based Enablers

Optimization

Rapid/Automated Landing Site Detection

Port Efficiency Enhancements

Collaboration and Integration

Suitable Landing
Marginal
Unacceptable
USTRANSCOM Technology Transfer Activities
(Office of Research and Technology Applications)

Knowledge Management--Service-Oriented Architectures

Over $7.5M of Industry Investment

Cloud Computing and Data Quality

Remotely Piloted Vehicles For Cargo Transport

Wind Farm Effects on Radar Performance

Science, Technology Engineering & Mathematics

Airships and Hybrid Airships

Satellite RFID

Advanced Decision-making Tools for the Supply Chain
We Measure Success Through the Eyes of the Warfighter & the Taxpayer!
Backups
Selected Benefits (completed efforts)

• End to End Distribution Model
  – Halved MCRS-16 simulation run-times; simulate all portions of deployment & distribution
  – Provided the data to support USAF decision to retire 22 C-5A
• Joint Modular Intermodal Container: $16M/yr savings w/cardboard uni-pack
• Defense Distribution Expeditionary Depot
  – Significant reduction in military inter-theater airlift for DLA managed items
  – Customer Wait Time reduced from 19.8 days to 10.8 days
• Coalition Mobility System: 100% ROI within 2 years and $2.3M/yr thereafter
• Common Operating Picture (Deployment and Distribution)
  – ID of top 100 heaviest airlifted items saving $54M annually in transportation costs
  – Delivered initial iDistribute.mil capabilities (i.e., workspace mgmt, collaboration, etc.)
• En Route Patient Care Module
  – Less people managing more patients/continued intervention in absence of skilled caregiver
  – Closed loop system provides ~40% reduction in O2 use over current manual methods
• JPADS – Mission Planner: 80% reduction in recovery ops/cost & saves lives
• JPADS Next Generation Guidance, Navigation & Control
  – Enhanced accuracy (< 50 meters) integrated into 2K JPADS assets; Reduce DZ by 20%
  – Reduce IED exposed convoys, safer recovery ops, increased personnel survivability
• Low Cost Low Altitude: Reduce airdrop asset recovery/improves safety (less grnd convoys)
Selected Benefits (completed efforts)

- **Wireless Gate Release System**
  - Doubles C-130 delivery capacity (FOC 4QFY11) (saving fuel/acft wear & tear/assoc costs)
  - Eliminates bundle damage due leap frogging (effects 20% of airdropped bundles)

- **Joint Recovery and Distribution System**
  - 101st Sustainment Brigade employing three 40T vehicles - completed < dozen missions in Afghanistan to date
  - USMC to deploy four 34T vehicles (per HQMC current trailer is unsuited for Afghan rugged off road conditions-- looking to purchase another 10 to fill Urgent Universal Needs Statement)

- **Seabasing**
  - Joint Universal Causeway Interface Module: Universal connector (vice spending $246M to replace Army Modular Causeway System and Improved Navy Lighterage System)
  - Commercial Roll-on/Roll-off Interface Platform: Provide non-existent capability to off-load commercial RO/ROs at sea – enhanced operational flexibility/could reduce sealift recap bill
  - Shipboard Selective Access and Retrieval System
    - 67% reduction in manpower required to move vehicles and containers (typically 6 to 2)
    - Improved storage (omni-directional access/movement) of mission assets
    - MHE fuel usage is cut by 67% for RO/RO operations and 100% eliminated for flat-deck operations (due use of battery/hybrid diesel/electro-hydraulic drives)

- **Next Generation Autonomic Logistics/Predictive Analysis**: Will improve sustainment forecasting and enable best cost transportation solutions
Selected Benefits (ongoing efforts)

• **Cyber**
  – Computer Adaptive Network Defense-in-Depth: Provided DOD the ability to continue critical network operations in a contested NIPR/SIPR network environments via secure enclaves
  – Cross Domain Collaborative Information Exchange: Provide bi-directional transfer across NIPR/SIPR domain for the Joint Deployment & Distribution Enterprise

• **Humanitarian Assistance Visibility Experiment/Humanitarian Expeditionary Log Project**
  – Qualified ROI is a cost savings of $147,000 ($15.00/hr x 35 hours x 70 operating days x 4 sites) and a twelvefold improvement in data visibility (from once every 12 hours to once every hour)
  – Historical example from 2008 Hurricane Ike - capability would have resulted in a cost avoidance of $5M to the taxpayer in one incident in which 450 truckloads of ice were procured and destroyed because resource visibility was nil

• **Next Generation Wireless Communications:** Army G4 draft BCA determined break even point in 2 years and ~33% out-year lower costs over current $619M-10 yr aRFID solution

• **Support Planning for Air Refueling:** Potential $265M/yr savings at $3/gal
Selected Benefits (ongoing efforts)

- **AT21/Living Plan: Combined (TWCF/RDT&E) $884M (FY07-26) cost savings**
  - Movement Requirements Visibility-Theater: Better utilization of common user movement assets in theater is expected to provide at least a $16.7M annual cost avoidance
  - Distribution Process Nodal Model: Improve Time Definite Delivery by 10 – 15%
  - End to End Distribution Modeling: Reduce model setup and runtime by 20%; Economic Analysis states breakeven year to be FY17 (AT21 enabler)
  - Global Mission Scheduling: TACC tool to dynamically re-plan (est. cost avoidance of $6.38M/yr due more efficient use of assets/fuel savings/reduced mission support requirements/etc.)
  - Cognitive Visualization, Alerting and Optimization: Reduces time to generate multiple COAs and develop optimized solution among multiple stakeholders
  - Situational Awareness & Collaboration: Better warfighter support via improved organizational unity of effort and efficiencies thru common operational SA and networked collaborative capabilities for JDDE stakeholders
  - Enterprise Integration Lab: Mitigate technical risk and accelerated capability fielding via comprehensive functional and certification/accreditation testing
  - Dynamic Re-planning Nodal Management Air
    - Provide standard, objective, repeatable method to assess airport capacity and flow requirements
    - $0.9M/yr savings/cost avoidance (conservative estimate)
    - Could realize similar savings from seaport – providing additional $400K in FY13 to explore/assess
Selected Benefits (ongoing efforts)

- **Point of Need Delivery:** No costs savings/just better warfighting capability
  - JPADS Helicopter Sling Load: Increased operational flexibility/agility – enhanced safety (crew/helo as well as reduction in ground convoys)
  - High Speed Container Delivery System: Enhanced aircrew/aircraft survivability (70% reduction in exposure to ground threat due fast ingress/egress) while increasing accuracy of resupply (due delivery at lower altitude and higher airspeed) as well as volume (from < 2200 lbs to > 16,000 lbs)
  - Autonomous Technologies for Unmanned Air Systems: Ability to provide precision delivery (via sling load) in anti-access/austere/urban environments (minimizes risk to ground troops, eliminates pilot/aircrew from resupply equation, provides field retrograde capability). Hand-held beacon to eliminate need for forward air controllers/ground stations.

Minimum 7:1 ROI – Program Pays for Itself