



# DEFENSE LOGISTICS AGENCY

AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY



## Research and Development Enterprise Supplier Conference

Matt Hutchens  
Logistics R&D Division  
August 24, 2010



# Agenda

- **DLA R&D Overview**
  - **FY 10 President's Budget**
    - **Logistics R&D**
    - **Manufacturing Technology R&D**
  - **Industrial Base Innovation Fund (IBIF)**
- **A Closer Look**
  - **Castings and Forgings Assistance**
  - **Veteran Owned Business Initiative**
  - **Lean Supplier Initiative**



# FY 10 President's Budget R&D Portfolio

Subsistence	Clothing & Textiles	Medical	Energy	Const / Equip	Maritime	Land	Aviation
<b>Combat Rations Network</b> \$1.8	<b>Customer Driven Uniform Mfg.</b> \$3.9	<b>Medical Logistics Network</b> \$2.6	<b>Energy Readiness</b> \$2.0	<b>Castings \$2.5</b>			
	<b>Tent Network</b> \$1.0			<b>Forgings \$1.1</b>			
				<b>Weapon System Sustainment \$5.2</b>			
				<b>Microcircuit Emulation \$10.1</b>			
				<b>Battery Network \$1.0</b>			
<b>Supply Chain Enablers</b>							
<b>Supply Chain Management \$2.7</b>							
<b>DDC/DRMS: Strategic Distribution and Reutilization \$3.3</b>							
<b>DLIS: Defense Logistics Information Research \$2.1</b>							
<b>0708011S - Industrial Preparedness</b>				<b>0603712S - Generic Logistics R&amp;D Tech Demo</b>			



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# Strategic Distribution & Reutilization

**R&D Challenge:** Technology for global distribution, reutilization & retrograde

**Objective:** Demonstrate improved capabilities for military and humanitarian missions worldwide

**Accomplishments:**

- Baseline Expeditionary Depot operational
- Node Management fielded by Army
- R&D roadmap drafted

**Plans:**

- Stock Positioning Extended – right material, right time for expeditionary ops
- Conduct Expeditionary Depot operational assessments in theater
- Fill operational gaps via R&D - Combatant Command collaboration
- Expeditionary Defense Reutilization and Disposal Capability



\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Strategic Distribution & Reutilization	3.440	3.309	3.601	3.684	3.750	3.815	3.881





# Weapon System Sustainment

**R&D Challenge:** Technology & analysis for improvement of logistics processes

**Objectives:**

- Inventory management optimization
- Product technical & quality management process development



**Accomplishments:**

- Peak policy pilot for infrequently demanded items
- Analysis of backorder reduction via tech data package scrubbing
- Product quality deficiency analysis tool

**Plans:**

- Next Generation Inventory Model pilot

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Weapon System Sustainment	5.400	5.214	5.637	5.729	5.804	5.903	6.005



# Energy Readiness

## R&D Challenges:

- Posture DOD for emerging energy solutions
  - Reduce fully burdened cost of fuel
  - Reduce energy logistics footprint
  - Reduce carbon footprint
  - Increase energy independence



## Objectives:

- Demonstrate synthetic fuel and alternative fuels
- Demonstrate renewable energy solutions

## Accomplishments:

- Joint Air Force – DLA synthetic & renewable fuel engine test and certification
- Assessed cold weather additives for biodiesel

## Plans:

- Supply Chain improvement
  - Product, infrastructure, processes
- Partner with Military Services, Industry, and Academia to research new energy solutions
  - Alternative fuels, renewable energy, infrastructure, delivery methods

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Energy Readiness	1.691	2.016	2.179	2.215	2.243	2.282	2.322



# Defense Logistics Information Research

## R&D Challenge:

- Automated capture of commercial and engineering data into the Federal Logistics Information System (FLIS)

## Objective:

- Improve the quality, speed, and cost of logistics data acquisition and management



## Accomplishment:

- Model Based Enterprise pilots with USAF A-10 and Oshkosh MRAP.

## Plans:

- Provide tools to military activities via DoD Eng'g Drawing & Modeling Group
- Award 4-5 short-term project contracts: tech data mining

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Defense Logistics Info. Research	0.271	2.135	2.304	2.341	2.373	2.414	2.456





# Medical Logistics Network

## R&D Challenge:

- Improve labor-intensive, manual, and sub-optimal medical logistics business processes

## Objective:

- Create innovative software, hardware, or business solutions to improve commercially based Class VIII supply chain operations

## Accomplishments:

- Developed web service infrastructure & pilots to enhance Enterprise data-sharing
- Developed new passive packaging concepts for temperature-sensitive materiel over all required temperature ranges

## Plans:

- Mature web service development, integrate with data sources, and deploy for users as part of new \$5B prime vendor contract
- Eliminate three major manual business processes and move to IT-based automated approach



\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Medical Logistics Network	2.864	2.628	2.837	2.880	2.920	2.970	3.020



# Tent Network for Technology Implementation (TENTNET)

## R&D Challenges:

- Difficulties in meeting surge requirements
- Lack of standardization
- Antiquated manufacturing technologies

## Objective:

- Improve capability of tent supply chain through government/industry/academic collaboration

## Accomplishments

- Developed a simulation tool to optimize inventory investments for improved surge
  - Currently in transition phase
- Developed automated manufacturing module to increase surge capability
  - Currently testing on production floor



## Plans:

- Increase ordering of MILSPEC tents by improving e-commerce capability

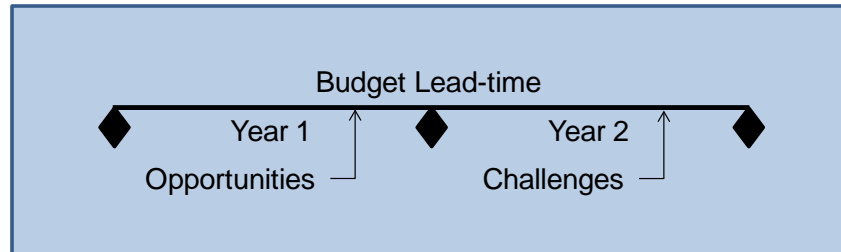
\$ in Millions	2009	2010	2011	2012	2013	2014	2015
TENTNET	0.000	0.982	0.979	0.976	0.973	0.970	0.967



# Supply Chain Management

**R&D Challenge:** Rapid response to emerging needs

**Objective:** Meet opportunities and problems as they arise and carry them into the budget cycle



**Accomplishments:** Reduced initiation times for Node Management and Deployable Depot Advanced Concept Technology Demonstration, Battery Network, Tent Network, and Standard Unit Pricing project

**Plans:**

- Strategic Material Management Strategy – Automate buffer stock management of raw materials
- Others to be determined

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Supply Chain Management	3.067	2.660	3.005	3.108	3.080	3.201	3.189



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# Advanced Casting Technology (PRO-ACT)

## R&D Challenges:

- Disproportionate share of unfilled orders
- Fragile supply chains – hidden sole sources

## Objectives:

- Improve responses to solicitations
- Improve casting technology

## Accomplishments:

- 22K tools in database & \$1.5M/mo of solicitations pushed to foundries w/tooling
- Developed digital radiography standard for steel investment castings
  - Eliminated use and storage of x-ray film
- Developed & tested mechanical properties of beryllium-free cast aluminum alloy

## Plans:

- Finalize new digital radiography standards with the American Society for Testing and Materials International
- Publish guidelines for selecting filler metals & welding parameters to reduce corrosion



\$ in Millions	2009	2010	2011	2012	2013	2014	2015
PRO-ACT	2.546	2.453	2.607	2.626	2.644	2.690	2.736





# Forging Advanced System Technology (PRO-FAST)

## R&D Challenges:

- Disproportionate share of unfilled orders
- Fragile supply chains – hidden sole sources

## Objectives:

- Improve responses to solicitations
- Improve forging technology



## Accomplishments:

- Tooling database with 62,000 part numbers or National Stock Numbers
- Developed new software for Lean Manufacturing capabilities at forge shops
- Developed machine to make forge tooling faster, better

## Plans:

- Metal and Process Optimization project to evaluate production methods and materials as a decision making guide

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
PRO-FAST	1.182	1.145	1.230	1.252	1.268	1.290	1.313



# Material Acquisition - Electronics

## R&D Challenge:

- Microcircuit commercial life cycle is 18 months
- Military life cycle can be decades

## Objective:

- Design and produce MIL-qualified form, fit, function microcircuits in US based foundry



## Accomplishments:

- 100,000 parts in 350 different systems – \$600M cost avoidance  
– zero reported failures

## Plan:

- Develop increasingly higher performance capability

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Material. Acquisition - Electronics	10.372	10.065	10.839	11.030	11.172	11.364	11.560



# Battery Network for Technology Implementation (BATTNET)

## R&D Challenge:

- Leverage advanced technologies to benefit Defense battery logistics.

## Objectives:

- Lower Defense battery supply chain costs, address material shortage issues, improve domestic battery manufacturing and surge capabilities, and streamline logistics practices by mobilizing industry partnerships and implementing best practices.



## Accomplishment:

- Program established in 2010 with Defense battery community of technical experts and industry partners.

## Plan:

- Award five projects 2010



\$ in Millions	2009	2010	2011	2012	2013	2014	2015
BATTNET	0.000	0.981	0.978	0.976	0.973	0.970	0.967



# Combat Rations Network (CORANET)

## R&D Challenges:

- Quality rations in varied environments
- Surge requirements

## Objectives:

- Improve quality of rations through process, packaging, and formulation improvements through collaborative research
- Improve producibility of rations by introducing enhanced or new production equipment design with likelihood of transition to industry



## Accomplishments:

- Wet pack fruit improvement by using fresh fruit vs. re-packaging canned fruit
- Non-destructive seal tester saves >\$700K annually in destroyed group tray rations
- Ultrasonic sealing technology estimated to save >\$300K annually in destroyed and reworked ration pouches that result from traditional heat seal technology

## Plans:

- Meal, Ready-to-Eat (MRE) assembly improvement
- Extended shelf life domestically produced shell eggs
- Non-hydrogen ration heaters

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
CORANET	1.725	1.817	1.924	1.958	1.984	2.018	2.051



# Customer Driven Uniform Manufacturing (CDUM)

## R&D Challenge:

- Clothing and Individual Equipment (CIE)
  - Unique and proprietary materials
  - Military-unique design, limited industrial base

## Objectives:

- Supply Chain Process Reengineering
- Shared Asset Visibility
- Manufacturing Methods for Product Performance and Quality Improvement

## Accomplishments:

- Successful demonstration of supply-chain wide, integrated RFID tagging at pallet, case and item level
  - Inventory discrepancies reduced from 4.9% to 0.2%
- Fabric color measurement technology development

## Plans:

- Extend asset visibility to fabric and component suppliers
- Implement color measurement



\$ in Millions	2009	2010	2011	2012	2013	2014	2015
CDUM	3.857	3.946	4.220	4.294	4.350	4.423	4.501





# Small Business Innovation Research (SBIR)

## R&D Challenge:

- Innovative manufacturing processes

## Objective:

- Lower cost spares for older weapon systems

## Accomplishments (since FY 07)

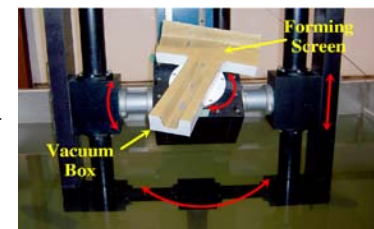
- 26 Phase I awards
- 6 Phase II awards

## Plans:

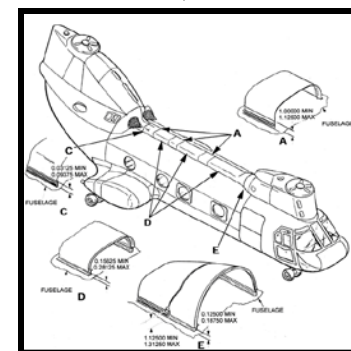
- Continued focus on manufacturing



Reclaiming Carbon Fiber



Water-based slurry



Low Cost Cowlings



CH-46

\$ in Millions	2009	2010	2011	2012	2013	2014	2015
Small Bus. Innovation Research	3.230	TBD	TBD	TBD	TBD	TBD	TBD



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# IBIF

## FY 2010 Congressional Language

2010 Language\* (\$20.0M)

“The committee directs that DLA, jointly with the Deputy Undersecretary of Defense for Industrial Policy, continue to make investments in manufacturing research that address defense industrial base shortfalls especially related to surge production requirements and diminishing sources of defense material.”

\*NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2010 – Senate Report 111-35, page 96



# IBIF Awards

- FY 2010
  - 120 Proposals Received on Broad Area Announcement (BAA)
  - 48 Metals
  - 46 Electronics
  - 26 Composites
  - Awards planned Sept 2010
- FY 2009 – 21 projects awarded
- FY 2008 – 25 projects awarded



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# DLA Castings and Forgings Assistance

## **MetaLFACT:**

Land & Maritime  
Supply Chains

Dwayne Porter

[Dwayne.Porter@dla.mil](mailto:Dwayne.Porter@dla.mil)

614.692.8857

## **AFCAT:**

Aviation Supply  
Chain

Dale Roberts

[Dale.Roberts@dla.mil](mailto:Dale.Roberts@dla.mil)

804.279.3866

Dean Hutchins: [Dean.Hutchins@dla.mil](mailto:Dean.Hutchins@dla.mil), 804.279.5033



# The Teams

- Aviation Forging & Casting Assistance Team (AFCAT)
- Maritime & Land Forging & Casting Assistance Team (MetaLFACT)
- Supported by:
  - American Metalcasting Consortium (AMC)
  - Forging Defense Manufacturing Consortium (FDMC)
  - Cast and Forge Industrial Associations - Partners
  - On-site DLA support services
- We are a resource available to:
  - Contractors:
    - Bidding on open DLA solicitations
    - With active DLA contracts (w/Contracting Officers' approval)
  - DLA Personnel: Product Specialists, Buyers, Planners, etc.
  - Engineering Support Activities (ESAs) - Army, Navy, & Air Force



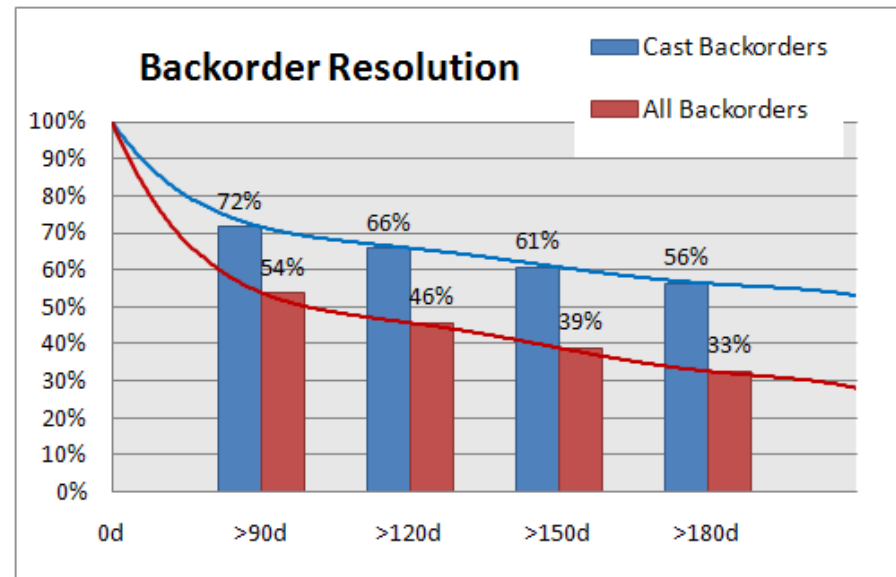
# Castings and Forgings (C&F) are Prevalent in DLA Procurements

- Some products 10+% of NIIN's (or parts) in WIP (work in process) are C&F confirmed/suspected
- 32,790 confirmed C&F NIIN's identified in purchase order text (POT)
- 60,000 suspected NIIN's identified in POT
- Increasing suspected NIIN's by 19,500
- Total known C&F population approaching 112,000 NIIN's



# Castings and Forgings (C&F) are a Backorder Problem

- Estimates are ~3% of DLA solicitations contain castings or forgings
- C&F backorders are a challenge to resolve
- Why?
  - No C&F suppliers
  - No tooling
  - Obsolete drawings and specifications
  - Low volume - no response to solicitation





# C&F Acquisition Issues

## Supplier Issues

- Complex manufacturing. Fractured supply chain. Special tooling required
- Embedded C&F component difficult to identify in solicitations
- Can't secure available Tooling / Source in time to bid. Risky bid.
- Can't bid without waiver. Solicitations only allow "bid without exception"
- Small production quantity not economical; Impacts bids & production schedule

## DLA Issues

- Pre-award: Unfilled Orders, No-Bids, Backorders
- Post- award: extended PLT, cancelled contracts, material and process waivers = risk and expense
- Waivers: Change of process / material "iffy". 30 to 180+ days for approvals (often 1-time only) "if" granted. 339 requests increase lead time & add cost





# Improving C&F Solicitation Success

- Identify C&F items and insert note in text of solicitation
  - Informs supplier up-front that special tooling/source may be required
  - Contact information to find tooling and sources

## **Suspected C&F Content**

“Casting/Forging may be required to manufacture this NSN. If a Casting/Forging is required, tooling is typically involved. The government may not have this special tooling. For additional information...”

## **Confirmed Casting Content**

“A metal casting process was identified as a means to manufacture this item. Tooling is required to produce a casting...”

## **Confirmed Forging Content**

“A forging process was identified as a means to manufacture this item. Tooling is required to produce a forging...”



# How We Help

- Sourcing – Notify suppliers of casting/forging opportunities within government
  - Forging Industry Association RFQ Service,
  - Non-Ferrous Founders' Society (NFFS) Directed Solicitations
- Tooling – Point machine shops or government buyers to foundry / forge with possession of tooling
  - NFTD & NFFS Tooling Database
- Technical Field Support - to foundry / forge to resolve quality/production issues
- Training Seminars



# Seminars

- Available to Government personnel and suppliers (on a case by case basis)
  - Introduction to Metalcasting
  - Introduction to Forging

**Manufacturing  
Processes**

**Quality**

**Reverse  
Engineering**

**Acquisition**

**Post Processing**

**Procurement  
Support**

**Design**

**Rapid  
Prototyping**

**Current R&D  
Advances**

**Let us know your needs!**



# Tools You Can Use

- Mailbox assistance requests
  - <http://www.dscr.dla.mil/ExternalWeb/UserWeb/aviationengineering/SupplyChainAssistance.asp>
  - [DSCC.Cast.Forge@dla.mil](mailto:DSCC.Cast.Forge@dla.mil) [DSCR.AFCAT.Forge@dla.mil](mailto:DSCR.AFCAT.Forge@dla.mil)
- Non Ferrous Foundry Society (NFFS) database to locate existing patterns and suppliers
  - <http://www.defensetooling.net>
- National Forging Tooling Database (NFTD) available through I.H.S. Haystack© to locate forging dies
  - <http://aero-defense.ihs.com/products/procurement/haystack-logistics/>



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# Veteran Owned Business Initiative (VINS)

- Develop processes that will improve the ability of Service Disabled Veteran Owned Small Businesses (SDVOSBs) to match their capabilities to DLA and DoD procurement opportunities.
- Utilize a network of management specialists, business consultants, and lean manufacturing experts to help SDVOSBs compete in the government contracting environment.
- Utilize existing and augment as required small business training programs offered through the Services' Small Business Offices, Procurement Technical Assistance Centers (PTACs), and Small Business Administration (SBA).
- Point of Contact: Brenda L. McClrath Dilts, [bdilts@arinc.com](mailto:bdilts@arinc.com), 410-266-4885



# Information Material and Training

- Identify best practices with the DLA, PTACs and SBA training programs, modify or develop information as applicable and outline available training resources
- Initial topics (further topics will be added as required)
  - Database registration and definition
  - Finding procurement opportunities
  - Understanding contract types and requirements
  - Registration and status maintenance
  - Getting paid
  - Solicitation process
  - Responsible offer requirements
  - Financial opportunities
  - Training opportunities





# Marketing

- Multiple facets
  - Identifying SDVOSB (Central Contractor Registry and Dynamic Small Business)
    - Maryland
    - Across industry
  - Identify and market to DoD tier 1 Prime Contractors and Original Manufacturers
  - Provide recommendations on federal small business training and outreach events that are specific to marketing SDVOSB capabilities
  - Market DoD and DLA opportunities to SDVOSBs
  - Industry day



# Direct Business Support

- Identified capabilities to support SDVOSB Pilot Companies
  - Business plans and capabilities
  - Customer base and marketing approach
  - Lean analysis
  - Databases and small business program registrations
  - Opportunity searches
  - Proposals
  - Partnering
  - Understanding the contract and contract clauses
  - Required and recommended database registrations
  - Engineering support (when necessary)



# Current Project Status

- Maryland (MD) SDVOSB Identified – 927 Dynamic Small Business and 1005 CCR
  - Coordination for industry day participation
- 4 MD SDVOSB Pilot Companies directly supported
  - Trifecta Industries LLC
  - Tactical Technology Group LLC
  - Bezalel Designs
  - Trusant Technologies
- 2 SDVOSB Pilot Manufacturing Companies directly supported
  - Gateway Tools and Cuttery
  - Aircraft Engineering and Installation Services Inc
- 1 closed but not awarded Land & Maritime opportunity case study
  - Westbrook Manufacturing
- 4 Gap Analysis in progress
  - Database
  - DLA Small Business Training Programs
  - DLA SDVOSB Identification and opportunity set aside process
  - Procurement Technical Assistance



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# Lean Supplier Initiative

- Improve OEM supply chains by applying lean concepts
- Leader: Wisconsin Manufacturing Extension Partnership (WMEP)
  - Part of the National Institute of Standards and Technology (NIST) MEP network
  - 19 other MEPs supported WMEP
- 2004 - 2011
- 24 OEMs & 381 Suppliers
- Point of Contact: your regional MEP <http://www.nist.gov/mep/>



# Performance Impacts

- 94% (183 out of 195) of suppliers completed the program
- 56% improvement: customer reported on-time delivery
- 26% improvement: customer reported as-delivered quality
- 44% reduction: manufacturing critical path time (MCT)
  - MCT definition: the typical amount of calendar time from when a customer creates an order, through the critical-path, until the first, single piece of that order is delivered to the customer



# Lean Supply Chain Projects by State

• Wisconsin	197	• Ohio	9
• Illinois	31	• Texas	7
• Minnesota	30	• California	5
• Connecticut	29	• Georgia	4
• Iowa	19	• Missouri	4
• Dakota	12	• New York	3
• Pennsylvania	11	• North Carolina	1
• Indiana	9	• Kansas	1
• Michigan	9		





# 93 Suppliers of Oshkosh Truck

- Average MCT Current State 86.5 days
- Average MCT Future State 39.5 days
- Average Leanness Gap 47.0 days
- Average MCT Potential Reduction 54%
- Average MCT Achieved Reduction 49%



## 21 Suppliers of United Technology – Sikorsky, Pratt & Whitney and Hamilton Sundstrand

- Average MCT Current State 188 days
- Average MCT Future State 98 days
- Average Leanness Gap 90 days
- Average MCT Potential Reduction 50%



# Plans

- Expand OEM base
- Educate other MEPs about the project
- Attempt to leverage each MEPs unique capability so all can share individual expertise



# Questions?

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AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY

