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# ***OSD Manufacturing Technology***

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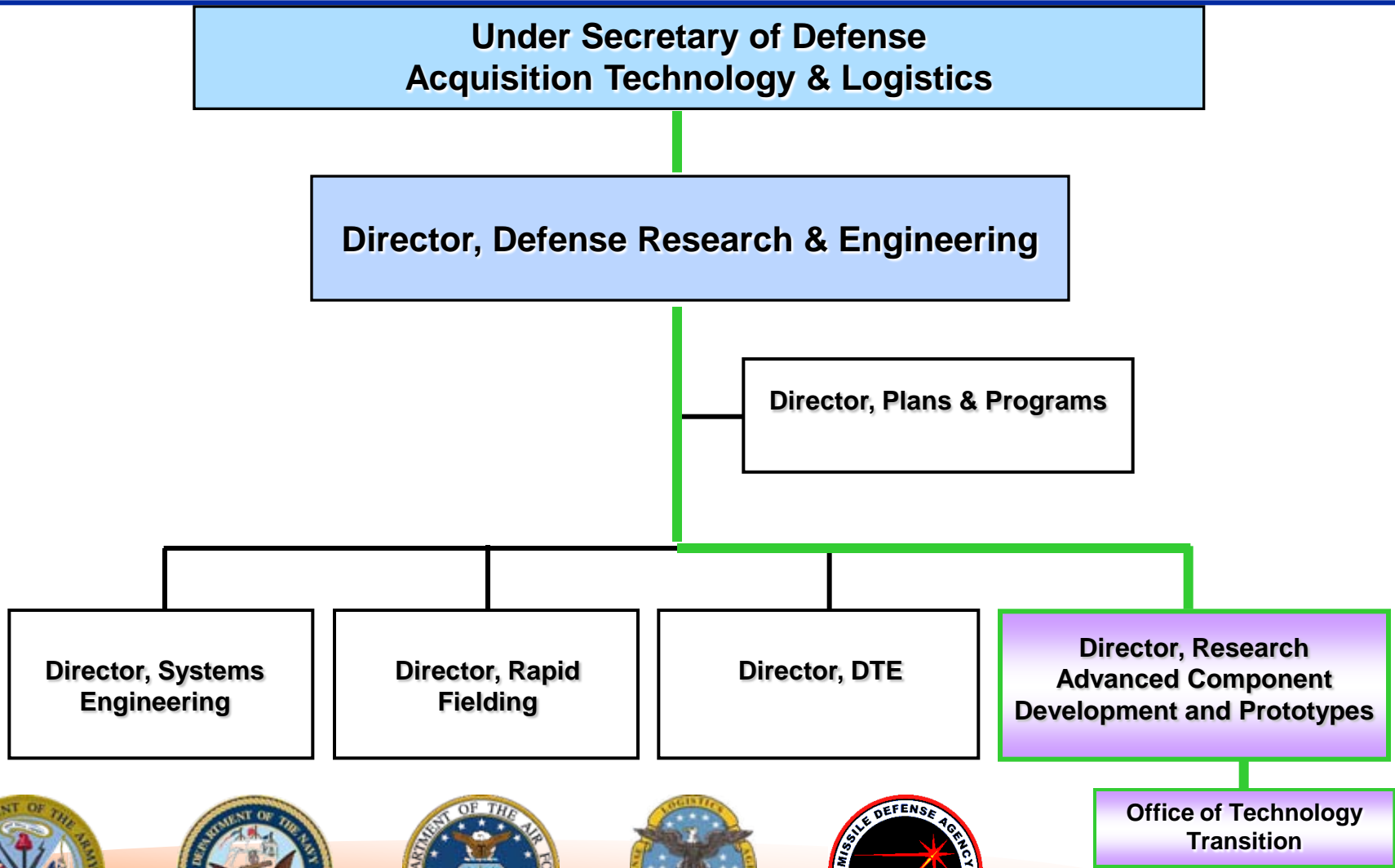
# Agenda



- I. Organization**
- II. Manufacturing Technology (ManTech) Overview**
- III. Joint Defense Manufacturing Technology Panel**
- IV. Manufacturing Activities**
  - Man Tech Strategic Plan
  - Manufacturing Readiness Levels (MRL)
- V. ManTech Components**
- VI. 42<sup>nd</sup> Annual Defense Manufacturing Conference 2010**



# AT&L Chain of Command





# Manufacturing Technology Overview



- *ManTech is critical for moving **disruptive technologies** into **disruptive capabilities***
- *If you can't build it, build it affordably, reliably, and in a timely manner, you don't have IT.*
- *To have true capability, must be able to **move beyond the prototype***  
*“One-Off”*
  - **Operates Under Title 10 (Section 2521)**
    - **Manufacturing process** investments that provide product performance, operational, & affordability improvements
  - **All About Affordable & Timely Equipping of the Warfighter**
    - Defense essential needs **beyond normal risk** / interest of industry
    - **Pervasive needs** across systems, platforms, or components
  - **Transition of Validated Technology**
    - Scale-up of processes for S&T, ATDs, IR&D, & ACTD products
    - Focus: Manufacturing **process investments**, not **product** design

**The ManTech program has been the Departments investment mechanism for staying at the forefront of defense-essential manufacturing capability.**



# Manufacturing Technology Overview



***ManTech carries out its mission through programs in the Military Departments, participating Defense Agencies and OSD.***

## ManTech Mission:

*ManTech anticipates and closes gaps in manufacturing capabilities for affordable, timely, and low-risk development, production, and sustainment of defense systems.*

## Defense Manufacturing Vision:

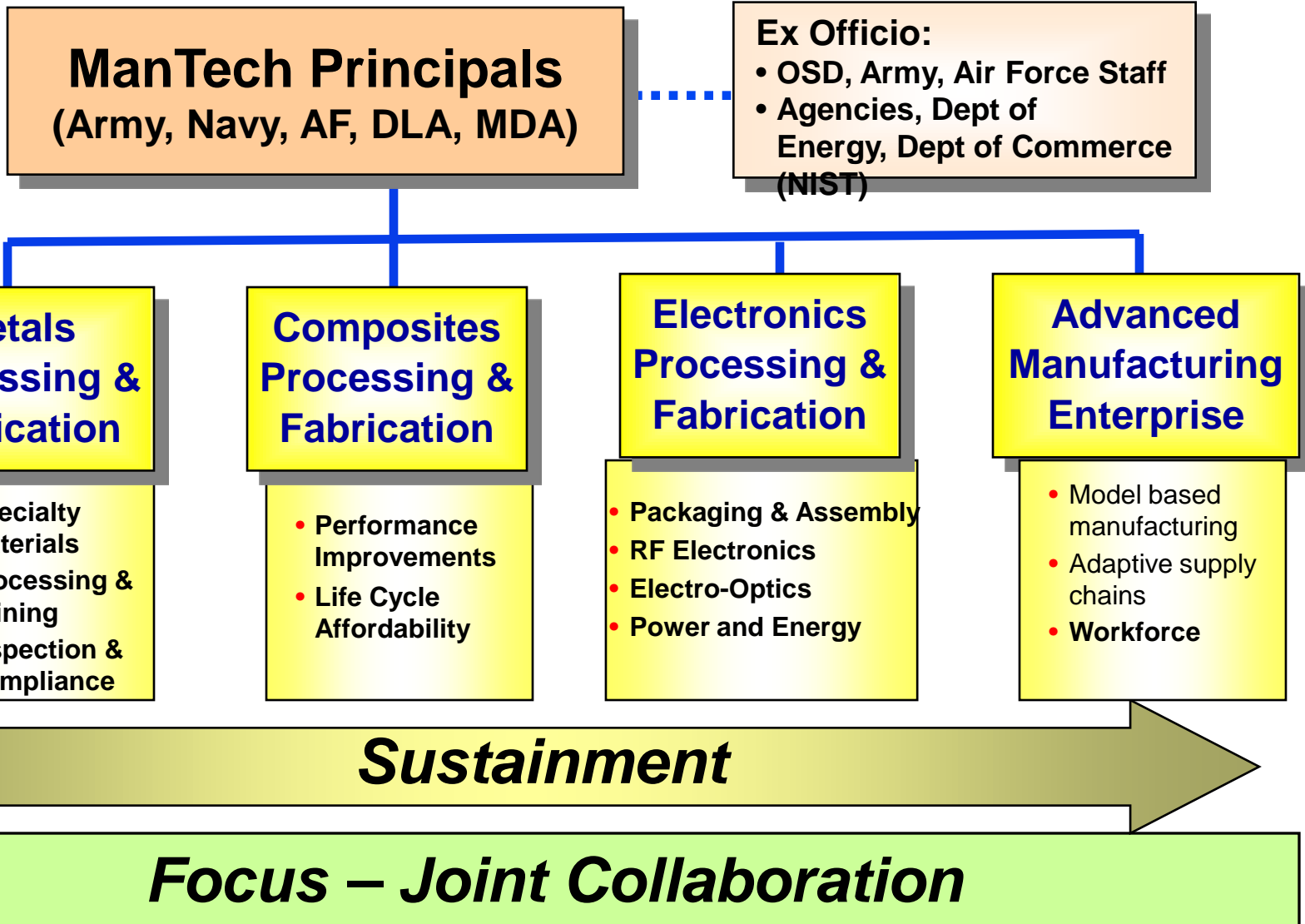
*A responsive, world-class manufacturing capability to affordably and rapidly meet warfighter needs throughout the defense system life cycle*





# ManTech Overview

## Joint Defense ManTech Panel (JDMTP)





# ManTech Strategic Plan



- **The DoD ManTech Strategic Plan**

- The Strategic Plan congressionally directed by NDAA (Section 238) 2008 language was signed by AT&L on March 2009

- **Strategic messages include:**

- Strong, positive support for ManTech program in all camps;
- Affordability remains an overarching concern;
- Workforce concerns are pervasive;
- Institutional focus on "Manufacturability" is strategically critical ;
- Important--keep championing Manufacturing Readiness



*Report can be found at [www.dodmantech.com](http://www.dodmantech.com)*

**The Strategic Plan reinforces ManTech's critical role in defense acquisition and sustainment.**





# Manufacturing Readiness Levels Background



*Immature technology & unstable manufacturing processes are major acquisition drivers*

- Recent GAO study of 72 programs: RDT&E costs up by 42% with schedule slippage of 20%

## *Manufacturing Readiness Levels (MRL) Developed*

- Common Standard and framework for identifying, communicating, and managing manufacturing risks
- Establish and promote manufacturing risk management as a basic principal of technology development and acquisition programs
- Establish DoD standard for manufacturing readiness to support decision makers at key milestones
- Support the development and maintenance of necessary knowledge and skills within the DoD workforce to support this best practice already used by key U.S. defense industries

*Equip the DoD Enterprise with Knowledge Based Approach to Manufacturing Risk Management - Standard, Tools, and Training*





# Manufacturing Readiness Levels (cont.)



- **Updates in the Defense Acquisition Guidebook (DAG) – Signed Dec 09 by AT&L**
  - Chapter 2:** To identify manufacturing readiness as part of Acquisition Program Documentation on Technology Development Strategies, Acquisition Strategies, and Acquisition Program Baselines
  - Chapter 3:** Inputs on manufacturing as a consideration during the Analysis of Alternatives (AoA)
  - Chapter 4:** To Address Manufacturing Readiness
- **New MRL Deskbook v1.0 Draft- December, 2009**
- **MRL Policy is in coordination**
- **Production, Quality & Manufacturing (PQM) Functional IPT**
  - Incorporate MRLs into DAU curriculum
  - Develop MRLs Continuous Learning Module (CLM)
- **Partnering with Systems Engineering - Mission Assurance to incorporate Manufacturing issues in Systems Engineering Management Plan Preparation Guidance, and Technical Design Review Checklist Questions**

All Manufacturing Readiness products available at [www.dodmrl.org](http://www.dodmrl.org)



# Defense-Wide Manufacturing S&T



## Mission:

- Cross-cutting defense manufacturing needs – beyond ability of a single service -- early development of manufacturing processes concurrent with S&T development

## Budget:

- Approx. \$20M/yr

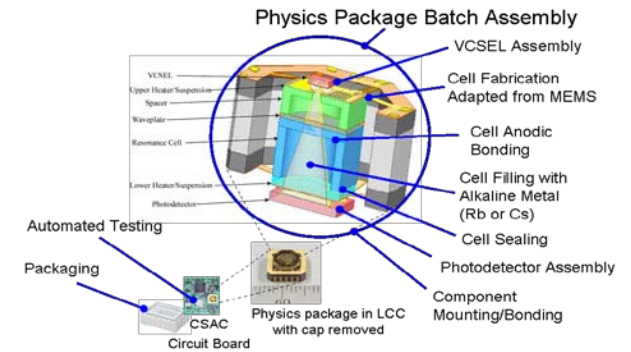
## Out-Year Considerations:

- Metals
- Electronics
- Composites
- High Performance Mfg
- Model Based Enterprise
- Additive Manufacturing

**Proposal process: Request to JDMTP for cross-cutting candidates on FY11 New Starts (May- Nov 09) - candidates evaluated / selected - BAA / RFP released (Fall 10)**

## POC:

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Chip-Scale Atomic Clock (CSAC) - extremely stable frequency source to enable C4ISR systems to operate in GPS denied environment – small form factor allowing it to be used in handheld systems



# Army ManTech



## Mission: Industrial Preparedness

- Supports reduction of costs and risks to manufacturing technologies that enable affordable production and sustainment of weapons systems

## Budget:

- Steady Pace of Investment: \$69M/Yr

## Program Management - 27 projects

- Cost, Schedule, Performance, Transition
- Transition Planning is Central to Successful Implementation
  - Technology Transition Agreements (TTA) use MRLs



## Investment Areas:

- Armor/Survivability
- Electronics/Power Systems
- Precision Munitions/Armaments
- Sensors
- Flexible Displays
- Aviation

### *Army MT Enhanced Combat Helmet-*

- Thermoplastic - Increased ballistic protection by over 30%
- 30-50% reduction in touch labor
- 15-20% weight reduction
- Cost avoidance is estimated \$83M

**Proposal Process Initiated 1st Qtr Each Year - Proposals are submitted through labs and Research, Development and Engineering Centers and approved by RDECOM**

## POC:

Mr. Brian Johnson (RDECOM)  
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# Navy ManTech Program Focused on Shipbuilding Affordability



## Mission: Industrial Preparedness

- Develop enabling manufacturing technology -- new processes and equipment -- for implementation on DoD weapon system production lines

## Budget:

- Stable at approx. \$56M/yr

## Addressing affordability on 4 ship platforms:

- VIRGINIA Class Submarine (VCS)
- CVN 78
- DDG 1000
- Littoral Combat Ship (LCS)

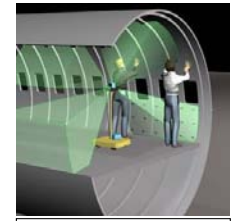


Illustration of Laser Image Projection applied to aircraft

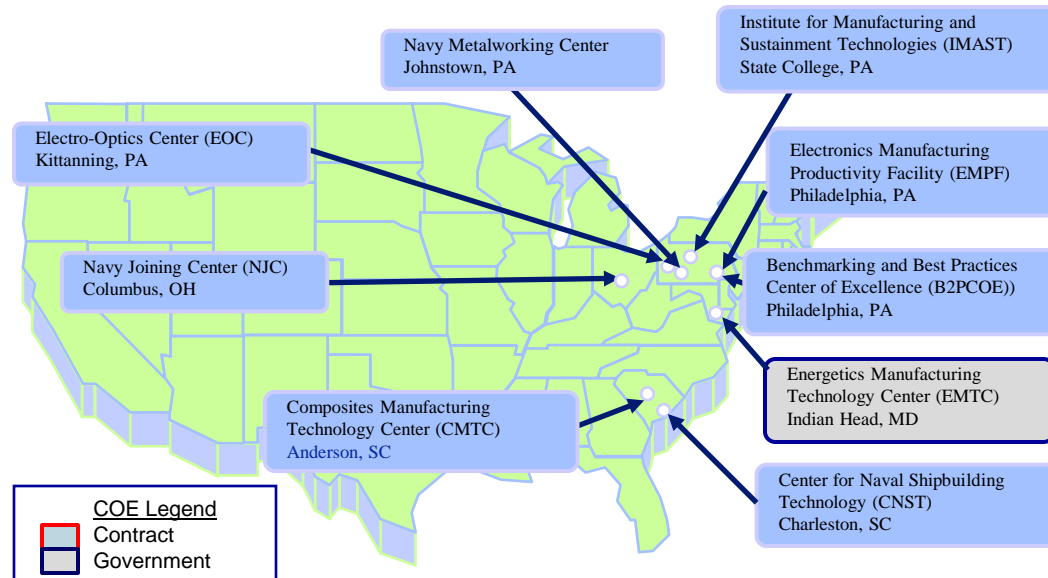
**Navy MT – Shipbuilding Affordability for VCS \$32.2 million per hull cost reduction**

## Execution:

- Nine Centers of Excellence (COEs)
  - 8 Contracted, 1 Government

## POC:

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 Director, Navy ManTech  
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# Air Force ManTech



## Mission:

- *Strengthening Defense Manufacturing Capabilities* – an agile next generation manufacturing industrial base

## Budget:

- Approx \$40M/Yr

## Four Strategic Thrusts:

- Moving manufacturing to the left
- Cradle to cradle digital thread for manufacturing
- Responsive, integrated supply base
- Factory of the future

## ManTech technology roadmaps :

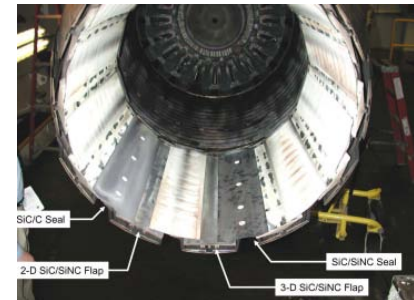
- C4ISR
- Aerospace Structures
- Propulsion Systems
- Armament Systems
- Sustainment/Readiness
- Advanced Manufacturing Enterprise

## POC:

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***Advanced Manufacturing Propulsion Initiative (AMPI) projected to decrease production and maintenance costs by over \$3B for the F135, F136 and T700 by using advanced composites in the hot section of the engine***





# MDA Producibility & Manufacturing



## Mission:

- Responsible to the Director, MDA, for BMD system-wide producibility and manufacturing risk assessment and mitigation. Supports the BMDSE Elements by identifying and helping to mitigate risks impacting mission assurance, cost, schedule and performance

## Budget:

- FY10 approx. \$ 33.8 M

## Opportunities: Open Solicitation # HQ0147-09-ATI-BAA

- SBIR Manufacturing Topics
- DMSMS Tools (Lead Free, Counterfeit Parts, Part Obsolescence)
- Advanced Materials for Missiles
- Batteries (Thermal, Li-Ion, etc.)
- Missile Propulsion Technology
- Common/Scalable/Modular Missile Components
- Radiation Tolerant Devices

## POC:

Steve Linder

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**MDA Improves Production Process of Mission-Critical Missile Batteries for Greater Reliability**



# DLA ManTech



## DLA Mission:

- Effectively and efficiently provide the Warfighter with the Food, Clothing and Individual Equipment, Medical supplies, Spare Parts, Fuel, Warehousing, and Information Services

## DLA ManTech President's Budget:

- \$20M/year

## DLA ManTech:

- Strengthen six critical, DLA supply chains



Individual Equipment



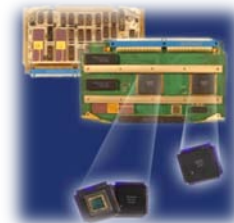
Combat Rations



Castings



Forgings



Microcircuits



Batteries

**Ongoing R&D project nomination process - projects vetted by R&D board quarterly on new starts or re-competes**

## POC:

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# 42<sup>nd</sup> Annual Defense Manufacturing Conference



**DMC  
2010**

"Achieving an Innovative, Responsive and Sustainable National Security Industrial Base"

Nov. 29 - Dec. 2, 2010  
The Venetian, Las Vegas, Nevada

DMC brings together leaders and technical specialists from government, industry and academia to exchange perspectives and information about the Department of Defense (DoD) Manufacturing Technology Program and related defense industrial base transformation initiatives.

[www.dmc2010.com](http://www.dmc2010.com)



**Questions?**