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# ***OSD Manufacturing Technology***

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

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**MBE & TDP Summit**

***Defining the Future of Manufacturing***

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# We are a Nation at War

## Department of Defense

**Soldiers, Sailors,  
Airmen, Marines**

**DoD Mission:**

- Provide the military forces needed to deter war
- Protect the security of our country

- Over 1.3 million active duty men and women
- Over 684,000 civilians
- Over 1.1 million Guard & Reserves

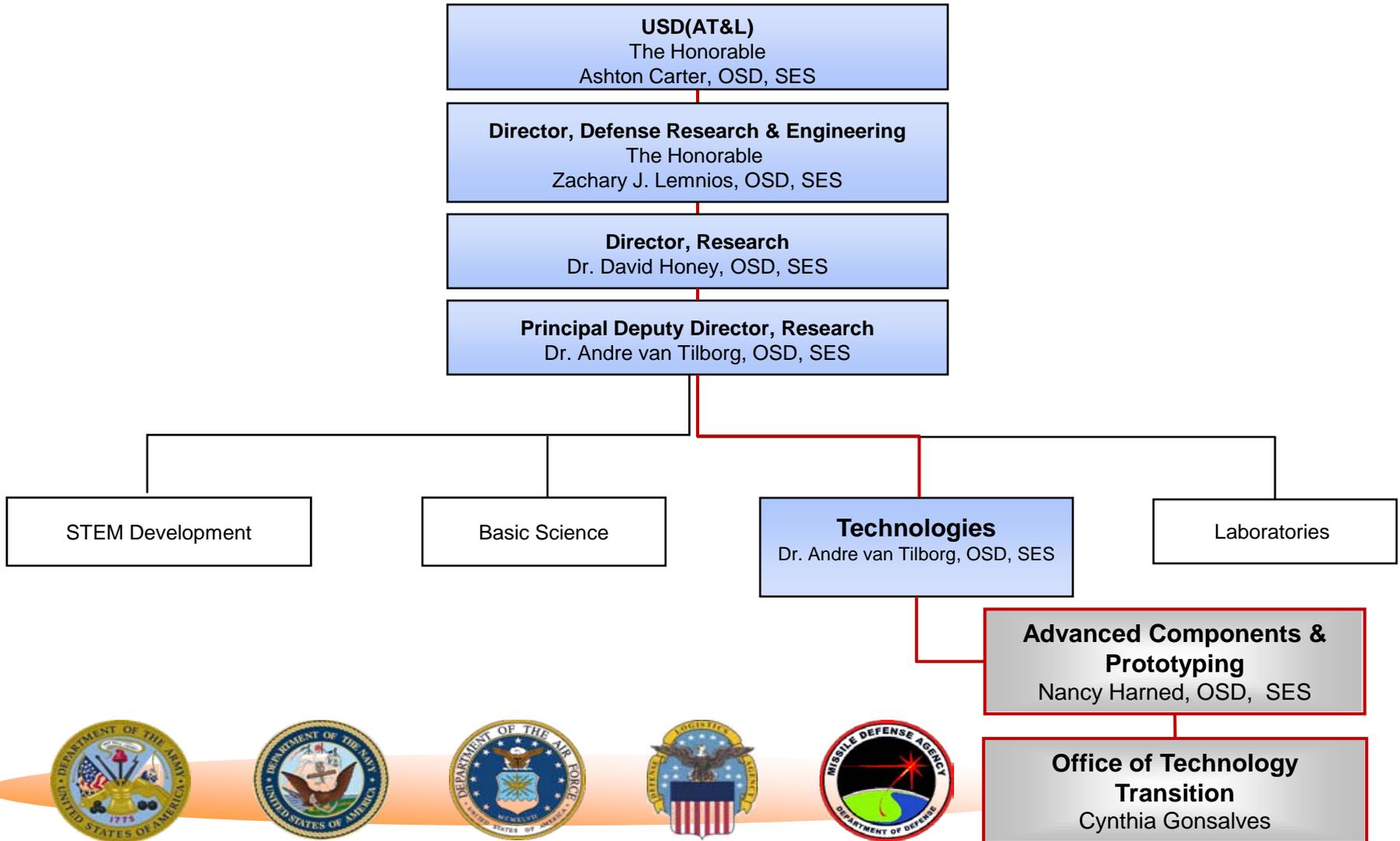




# I. DoD ManTech Program Overview



# Research Directorate





# ManTech Program Foundation and Purpose



- ***Congressionally Mandated Mission***

- Crucial transition link between technology invention and industrial applications
- Program looks beyond the normal risk of industry
- Key to affordable and timely acquisition and sustainment of weapon systems and components
- Broad R&D investment portfolio focused on cross-cutting, multi-system benefit to Def Industrial Base

**ManTech Mission:**

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

- ***Key Metrics***

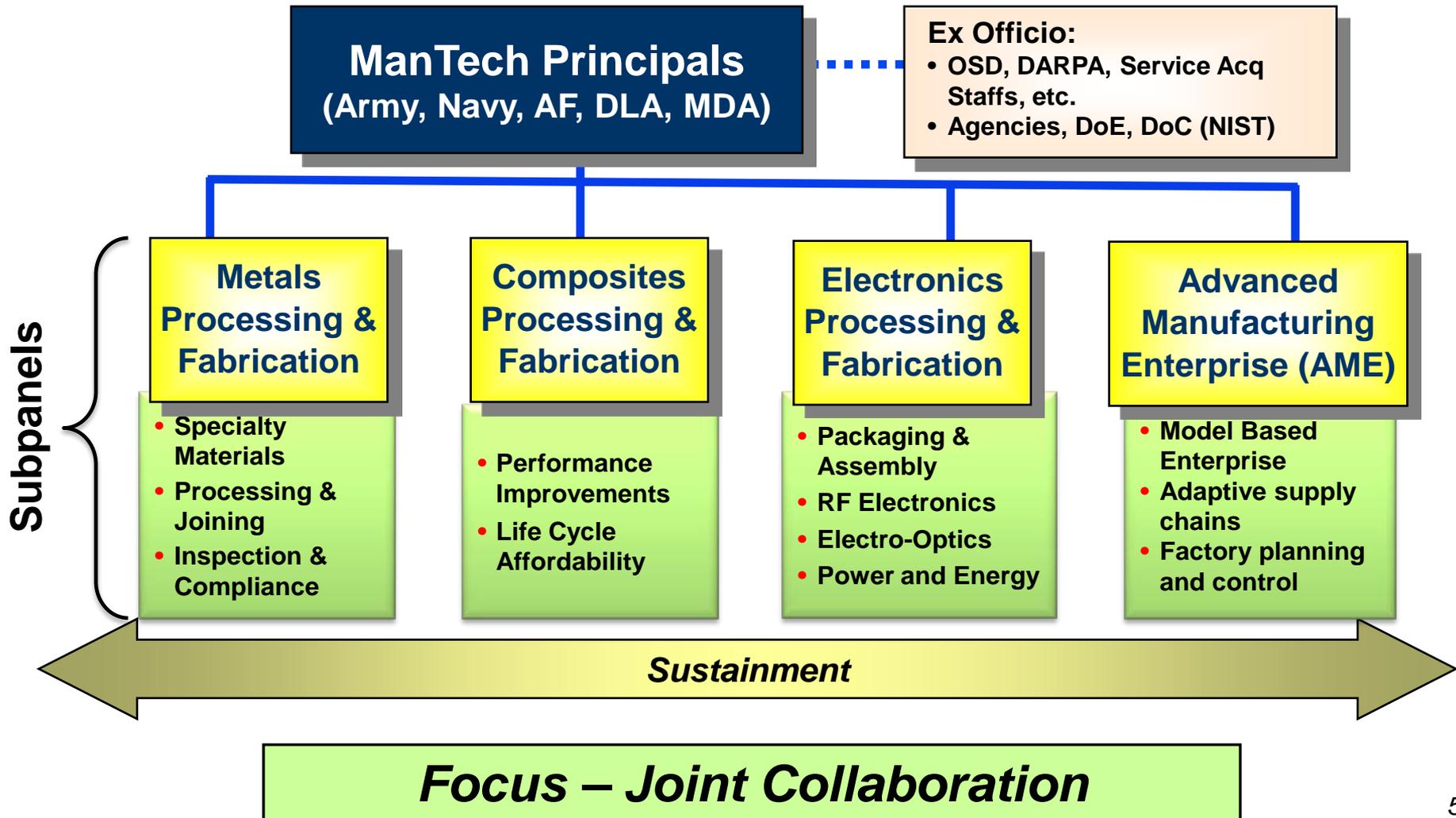
- Increased affordability, producibility, reliability, and predictability of performance
- Decreased cycle time, manufacturing cost, system life cycle cost

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





# Joint Defense Manufacturing Technology Panel (JDMTP)

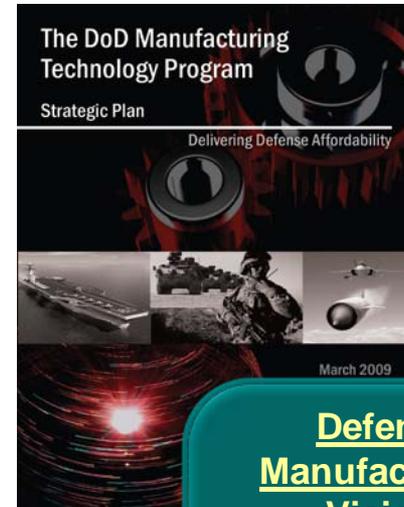




# ManTech Program Strategy



- ***The DoD ManTech Program Strategic Plan***
    - Congressionally directed
    - Current plan issued March 2009
  - ***Strategic messages include:***
    - Growing imperative to resolve DoD's weapon system affordability challenges
    - ManTech investments carry high leveraging potential
    - Strategic importance of creating/sustaining a DoD-wide culture focused on "Manufacturability"
- Pervasive need for revitalization & sustainment of manufacturing infrastructure and workforce – across both DoD and Industry



## Defense Manufacturing Vision:

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

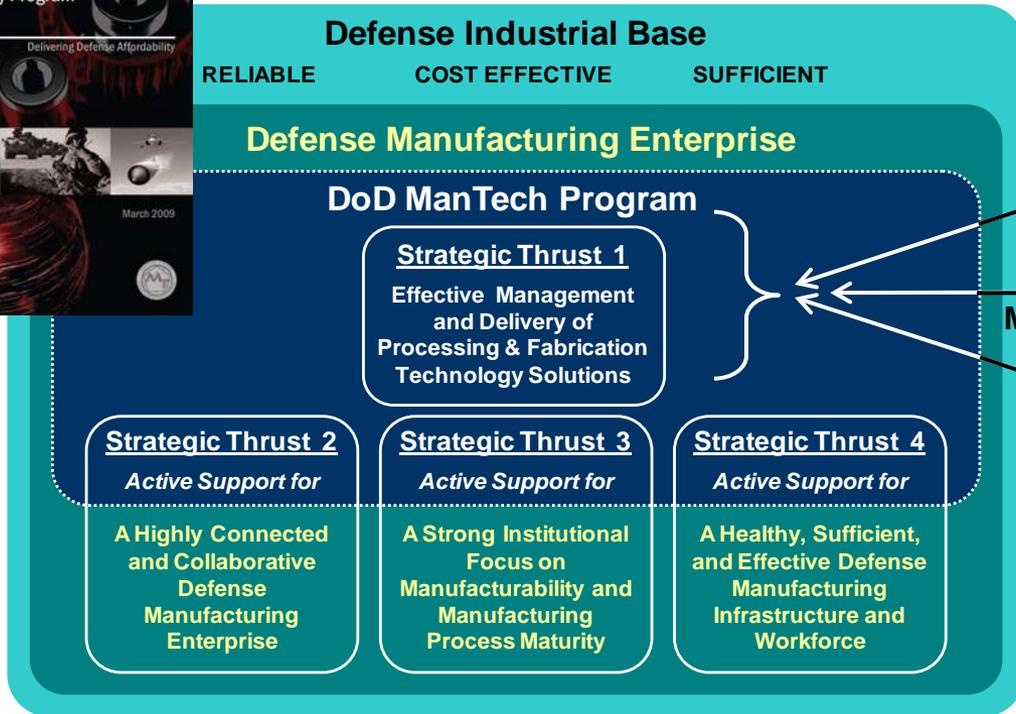
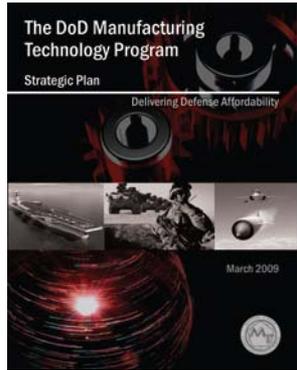
***The Strategic Plan and Vision reinforce ManTech's critical role in defense acquisition and sustainment.***



## **II. ManTech Strategic Thrust 4: Support for Widespread Adoption of A Digital Thread**



# JDMTP Subpanel Alignment with the DoD ManTech Strategy



## JDMTP Subpanel Structure

Metals

Composites

Electronics

AME

Strong, Traditional JDMTP Focus on Material Transformation (Strategic Thrust 1)

AME Subpanel Primarily Focused on Strategic Thrusts 2, 3, & 4

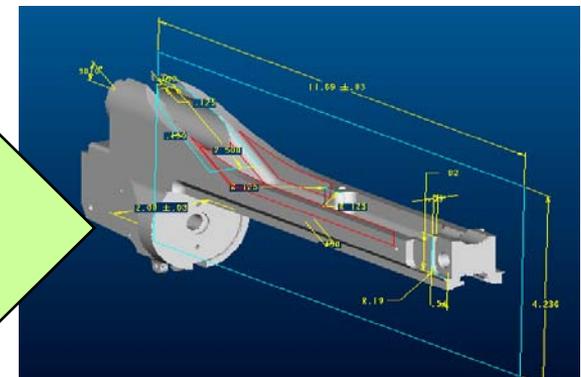
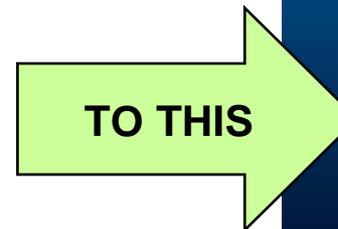
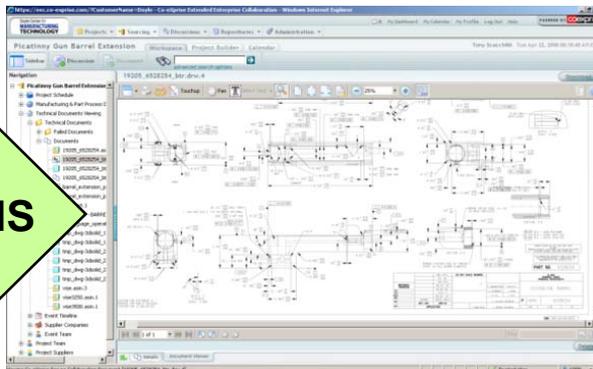
**JDMTP Subpanel structure enables a balanced investment focus on all four Strategic Plan Thrusts**



# Model-Based Enterprise: Establishing the “Digital Thread”



- **Life-cycle Model-Based Enterprise:**
  - Future State of Practice in Industry and DOD
  - Fully Annotated 3D Models are the *Certified Master*
  - Reuse models for production activities such as machining, line layout, work instructions
- **Cost Modeling and Analysis:**
  - Integration and portrayal of cost information to support design trades and risk analysis
- **Advanced Visualization Environments:**
  - CAD and analysis tool integration to support collaboration and virtual prototyping
- **Supply Chain:**
  - Modeling of supply chain material flows and schedule integration to support prediction and analysis of risk





# Model-Based Enterprise

## Model-Based Enterprise Process

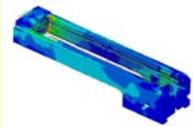
- Customer Requirements Received
- 3-D Solid Model Developed
- M&S – Component and Manufacturing Analysis
- Prototype on Production-ready Processes
- Production Knowledge Captured
- Models and Manufacturing Data Transferred to Depot, Arsenal or Commercial Source
- Full Scale Production at Depot, Arsenal or Commercial Source



**Customer:** PM IEDD  
**Solution:** Extension Brackets for Mine Rollers & Rhino  
**Platforms:** RG-33/RG-33L Plus, HMMWV, Cougar A1/A2, MG-31  
**6 weeks: Requirement to Theatre**

**Customer:** DLA  
**Solution(s):** Small Arms Consumable Parts (e.g. M2 Barrel Extensions)

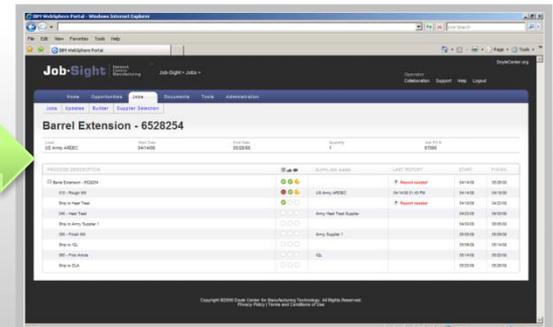
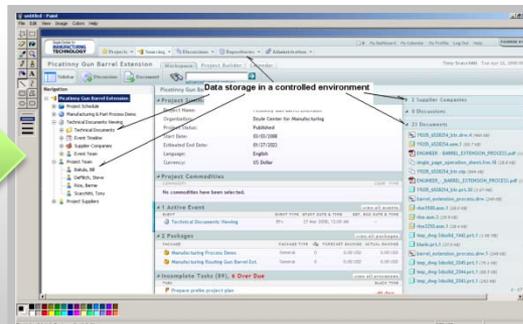
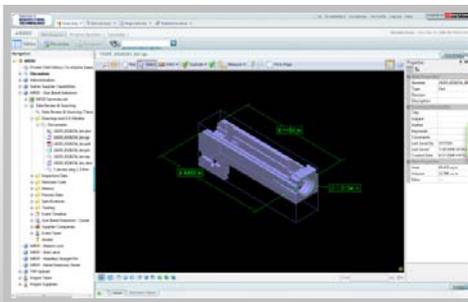
*Rapid response in supplying legacy spares  
 59% Reduction in Lead Time*



3-D "Modern data"

Manufacturing Knowledge Portal

Supply Chain Visibility





# A Challenge



- **Develop robust standards within 9 months that support the model based enterprise:**
  - MIL STD 31000 (Tech Data)
  - MIL STD 973 (Configuration Management)
- **Benefits:**
  - Lower sustainment costs
  - Increased affordability, producibility, reliability, and predictability of performance
  - Decreased cycle time, manufacturing cost, system life cycle cost
  - Moving DoD technical data into 21st Century



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