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Manufacturing Technology Introduction

February 2011

Manufacturing Technology Division
AFRL/RXM

AF ManTech
UNITED STATES AIR FORCE

Outline

- Charter/Mission/Roles
- Organization/People
- Planning Process
- Major Projects
- Vision/Strategy
- Key Takeaways

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AFRL/RX Manufacturing Portfolio Overview

Partnerships for Strong Industrial Base Capability for the Warfighter

Warfighters

Objectives

- ***Reduced Costs*** **for Acquisition & Sustainment**
- ***Reduced Time*** **for Tech Transition / Manufacturing / Maintenance**
- ***Reduced Risk*** **when introducing** ***New or Improved System Capabilities***
- ***Increased Availability*** **of technologies, materials, or components through shaping of industrial base**

Manufacturing & Industrial Readiness Core Competencies for the USAF

Title X Est.

AF ManTech

UNITED STATES AIR FORCE

+ Ind Base Assess • OSD Mfg S&T • DPA Title-III • DPAS

PA Clearance # 88 ABW-2010-3260

AF ManTech Mission

Strengthening Defense Manufacturing Capabilities!

U.S.C. Title 10, Section 2521: Manufacturing Technology

- **"…development and application of advanced manufacturing technologies and processes for use to meet manufacturing requirements that are essential to the national defense..."**
- **" …reduce the acquisition and supportability costs of defense weapon systems and reduce manufacturing and repair cycle times across the life cycles..."**

Enduring Priorities:

- **Manufacturing Assurance: Ensure aerospace industrial and manufacturing readiness for affordable, quality, reliable products to the warfighters**
- **Affordable Sustainment: Develop manufacturing technologies to increase affordability and performance of sustainment systems; transition S&T**
- **Affordable Acquisition: Shift manufacturing considerations earlier in the acquisition framework; work pervasive affordability issues; transition S&T**
- **Manufacturing Innovation: Pursue game-changing manufacturing technologies which transform aerospace industrial base capabilities**
- **Quality People & Infrastructure: Develop and maintain a right-sized workforce for core competencies; build more efficient business practices**

PA clearance #88ABW-2011-0736

ManTech Investment Selection Criteria

1. Is it ManTech? *(a Go/No-Go Decision)*

- Enhances Manufacturability / Producibility / Repair of a Process or Component
- Beyond Reasonable / Normal Industry / Depot Risk
- Requirement Is Defense-essential or Defense-unique
- R&D Feasibility Established
- Current TRL/MRL

By:

- **Improving an Existing Manufacturing Process**
- **Establishing a New Manufacturing Process**
- **Exploiting Business Practices**
- **Expediting Transition of Emerging Tech**

2. Warfighter Impact

- Significance to Warfighting Capability (e.g. Svc Core Functions)
- Magnitude of Impact: Capability, Cost, Cycle Time
- System Level Impact, Business Case

3. Stakeholder Support/Customer Motivation

- Commitment to Implementation Plan; Cost Share?

4. Pervasiveness: Multi-PEO / Multi-command / Multi-system

Strategic fit/balance with core ManTech Vision

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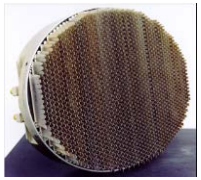
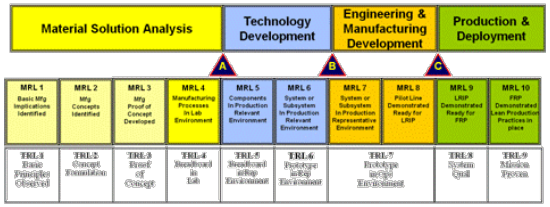
Major On-going Programs
AF ManTech & Industrial Base

AESA Radar



- *Increased affordability for current/next gen AESA and conformal arrays*

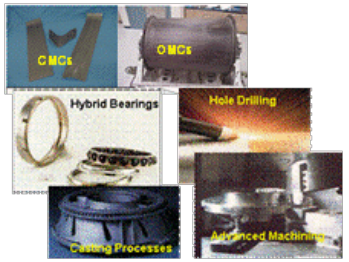
Mfg Readiness Assessments



Relationship to Technology Readiness Levels

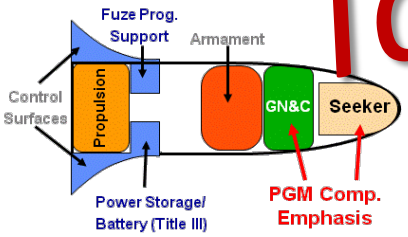
- *Common language/standard for assessing manufacturing maturity – enables rapid affordable production*

Advanced Propulsion



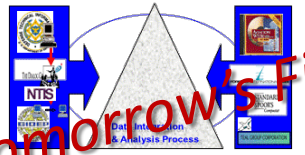
- *Fundamentally changing cost, weight, capability of turbine engines*

Prec Guided Munitions



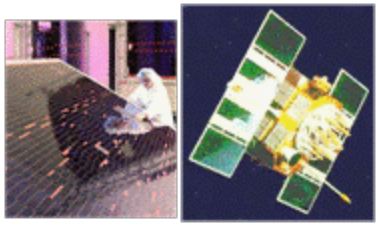
- *Lowering costs and accelerating availability of advanced IMU & seeker technology to the warfighter*

Industrial Base Assessments



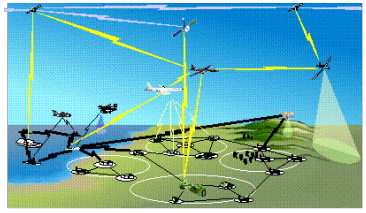
- *Characterize IB for acquisition and technology decisions/investments*

Solar Cells



- *Increased affordability and sustainability – new industrial base capability*

Datalinks Components



- *Increased affordability and production capacity of net centric warfare for ISR, weapons, and space*

Today's Fight ... and Tomorrow's Fight

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Vision & Supporting Strategic Thrusts

Moving Manufacturing Left

- Sponsor early development of game-changing mfg technologies and partner with academia and small business on high risk/high payoff opportunities
- Develop tools and methods that promote early consideration of mfg implications during concept development

Cradle To Cradle Digital Thread

- Increase digital density across life-cycle and ensure wide access to the same computer-based technical data/description of the product
- Enable increased reusability of materials and components, and optimize impact on the environment

Next Generation Agile Manufacturing

Responsive, Integrated Supply Base

- IB capabilities and risks are known, available, and integrated into product development
- 21st century supply chain mgmt principles
- Capability for rapid formation of global partnerships

Factory of the Future

- Next gen mfg technologies developed with process and cost models -- drive the factory and feed the Digital Thread
- Lean & agile, lot size insensitivity
- Green wrt the factory footprint
- Robotics and next gen automation
- Advanced/ wireless factory C2

AF ManTech Vision and Strategy

Key Takeaways

- US industrial base capability at risk -- AF must proactively shape and advance industrial base and efficient manufacturing capability
- ManTech is the only corporate program working strategic issues and opportunities in manufacturing and industrial readiness
- Proven track record of impacts to lab, acquisition, sustainment -- cost, schedule, performance
- Strategic plan in place to promote an agile, next generation manufacturing industrial base

A Multiplier for Capability and Affordability

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