402nd MXW Unfunded Technology Requirements

8 November 2005

By
Greg Sutton and MXW reps

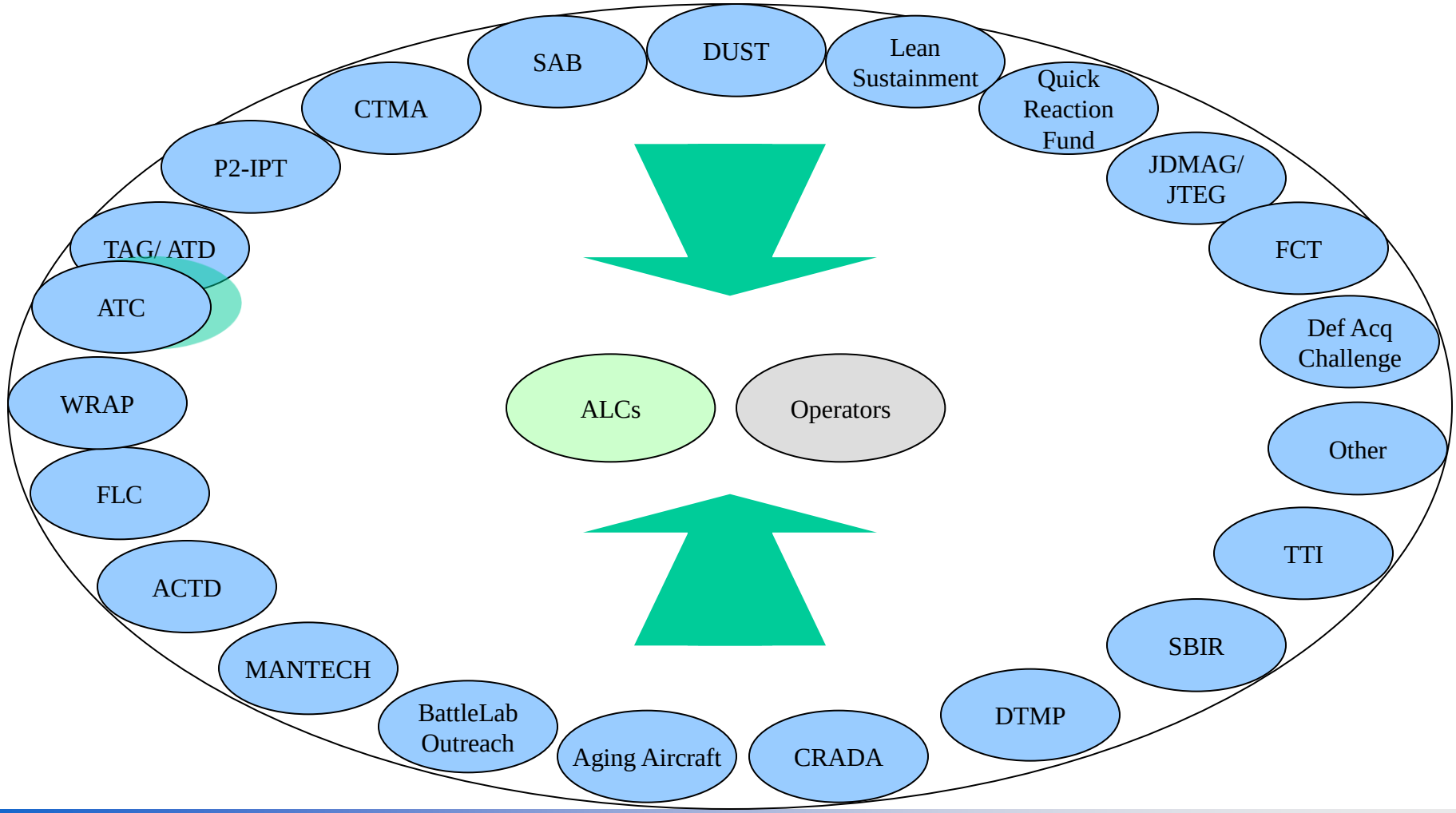
Overview

- How to Do Business with the Government
- Strategic Plan Development
- WR POC's for Proposal
- List of MXW Projects
- #1-5 Project Reviews

How to Do Business with the Government

- 18 Technology Programs
- Unsolicited Proposals
- Requirements Symposia

Technology Programs



Strategic Plan Development

- Challenges
  - Age, Costs, Ops Tempo, Shortages Increasing
  - Funding Steady or Decreasing
  - Improved Maintenance Methodologies
- Vision
  - Center Focus, Competitiveness, New/Improved Competencies, More Available Aircraft
- Method- Center Strategic Technology Plan
  - Needs Generation
  - Rank across Wings then Center
  - Executive Support to Secure Funding
  - Develop then Implement
  - Continuous Updates

WR POC's for White Papers

- Please Send all 1 Page White Papers to: technology.proposals@robins.af.mil
- Please Contact the Topic POC for Specific Questions
- EN to Receive White Papers then Vet with Topic POC
- If Chosen, Formal Presentation in early CY06

MXW Top Unfunded Strategic Tech Needs

1. Reduce Coating Removal Time
2. Development of Special Coatings
3. Depot Technology Insertion
4. Maintenance Shop Improvement
5. Aircraft Subsystem Diagnostics
6. Develop Materiel Handling Equipment
7. Environmental Compliance
8. Manufacturing Best Practices

#1 Rated MXW Strategic Unfunded Technology Need

- **Reduce Coating Removal Time**
  - **Reduce paint removal time and cost while improving worker safety and reducing environmental concerns.**
    - » Depaint Access for Coating Removal on Large Aircraft
      - – Emphasis on Under Wing
      - – Emphasis on Under Fuselage
      - – Emphasis on Tail
    - » Versatile Facility/Equipment Depaint Technology
    - » Radome/Composite Paint Stripping
    - » Improved Aircraft Coatings
    - » Improved Aircraft Paint and Depaint Techniques

- **Need Date**: 2010

#1 Rated MXW Strategic Unfunded Technology Need

- **Technology Transition Plan**
  - Efforts are Basically All New Developments that are Somewhat Notional, but on the Near Technological Horizon.
    - » Basic Research, Feasibility Study and Literature Search – 1 year or less
    - » Developmental Research – 1 year or less
    - » Prototyping – 6 months
    - » Testing (Laboratory and Service) – 6 months
    - » Implementation/Deployment upon Successful Test Results
    - » Transition into Existing Infrastructure

- **Points of Contact**

Mark Cundiff, 478-222-2945,
mark.cundiff@robins.af.mil

#2 Rated MXW Strategic Unfunded Technology Need

- **Development of Special Coatings**
  - The Air Force invests millions of $ per year addressing corrosion issues. Specialty coatings such as advanced primers, top coats, and Corrosion Preventive Compounds (CPC) can reduce these costs and the associated maintenance man-hours.
  - Potential Benefits
    - » Increased Mean-Time Between Maintenance (MTBM)
    - » Increase Service Life
    - » Improved Visual Inspection Methods
  - The Air Force spends many maintenance man-hours performing visual inspections for cracks. Where the recurring inspections hours are short to probability of detection (POD), special coatings such as smart paints may increase the POD and increase flight hours between inspections.
- **Need Date**: 2010

#2 Rated MXW Strategic Unfunded Technology Need

Technology Transition Requirements

- Feasibility and Research Study
  - » Smart Paints, CPCs, Top Coats, Primers - 1 to 2 Years each
- Qualify Products
  - » 2 to 4 years
  - » AFRL releases preliminary data and recommendations
- Technology Demonstrators Secured, Prototyped, and Tracked
  - » 3 to 5 years
- Data Collection Analyzed
- MAJCOM Evaluation and Buy-in
- Concurrent Insertion Effort Based on System and AFRL Data
  - » Changes to PDM spec
  - » Changes to -6 Work cards
  - » Changes to job guides

Points of Contact

Mark Cundiff, 478-222-2945,
mark.cundiff@robins.af.mil

#3 Rated MXW Strategic Unfunded Technology Need

- **Depot Technology Insertion (DTI) Project**
  - The WR-ALC Depot Technology Insertion Project is a partnership to develop an organic capability for quick turn re-design, low rate production, and qualification of re-designed obsolete circuit card assemblies
- **Three Parts**
  - Insertion of FPGA
  - Insertion of Surface Mount technology
  - Test and Qualification of Re-designs
- **Obsolescence**
  - Currently at 27% of parts in AVCOM

#3 Rated MXW Strategic Unfunded Technology Need

- **Threads**
  - Thread one is intended to gain assistance in improving the design capability by using continuous process improvement methodologies and current industry standard design tools.
  - Thread two is intended to have an independent analysis of the printed wiring board manufacture process to identify process inefficiencies, decrease the variability, and improve the manufacturing throughput to achieve competitive advantage.
  - Thread three is intended to improve the qualification testing process through an integration of available resources in the area to eliminate wasted effort and non value added wait time.
  - Thread four is intended to integrate new static health monitoring and detection technology into the newly designed CCA's.
- **Points of Contact**

John Shawhan, 478-926-4881,
john.shawhan@robins.af.mil

#4 Rated MXW Strategic Unfunded Technology Need

- **Maintenance Shop Improvement**
  - Improve capabilities of the maintenance shops to more efficiently repair, remanufacture and manufacture components.
  - **Method**
    - » Automate routine tasks and upgrade equipment..
  - **Threads:**
    - » Develop data collection to determine machine health and determine maintenance schedule based on usage rather than time.
    - » Update machine shop with more automated and flexible tools.
- **Need Date**: 2009

#4 Rated MXW Strategic Unfunded Technology Need

Technology Transition Requirements

- Many tools to put this application in place are available. The research will deal with a detailed study of the maintenance shops and the equipment utilized. A system will be tailored to meet the needs of 402d CMXG
  - » Part and equipment study – 6 months
  - » Design and manufacturing of the Acquisition System – 6 months
  - » Installation and startup of System – 6 months
  - » Training and application startup – 2 months

Points of Contact

Desi Maldanado, 478-468-8867,
Desi.Maldonado@robins.af.mil

#5 Rated MXW Strategic Unfunded Technology Need

- **Aircraft Subsystem Diagnostics**
  - Provide improved capability to identify and locate electrical system failures and degradation reviewing aircraft as a complete entity.
  - Air Force weapons systems are currently experiencing significant downtime and expending significant maintenance man-hours to troubleshoot aircraft electrical system and electrical related component failures (e.g. wiring and connectors, relay panels, switches, etc).
  - Needs
    - » Define and acquire wiring diagnostic systems for aircraft use.
    - » Develop on board smart diagnostics for aircraft.
    - » Expand to Airframe and Systems Health Monitoring.
- **Need Date**: 2008

#5 Rated MXW Strategic Unfunded Technology Need

- **Technology Transition Requirements**
  - Commercial wiring diagnostics testers are limited
    - » Capabilities beyond open/short/fault location are often unreliable.
  - Identify weapons system specific requirements.
  - Requires weapons system specific development of Test Program Sets (interface test adaptor cables and test software) for each specific test case (wire harnesses, etc)
  - After development, evaluation, and testing, Transition into Existing Infrastructure

- **Points of Contact**

Jan Ewing, 478-926-5532,
jan.ewing@robins.af.mil