



WARNER ROBINS AIR LOGISTICS CENTER



330th ASW Unfunded Technology Requirements

8 November 2005

By

Greg Sutton and ASW reps



Overview



WARNER ROBINS AIR LOGISTICS CENTER

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



How to Do Business with the Government



WARNER ROBINS AIR LOGISTICS CENTER

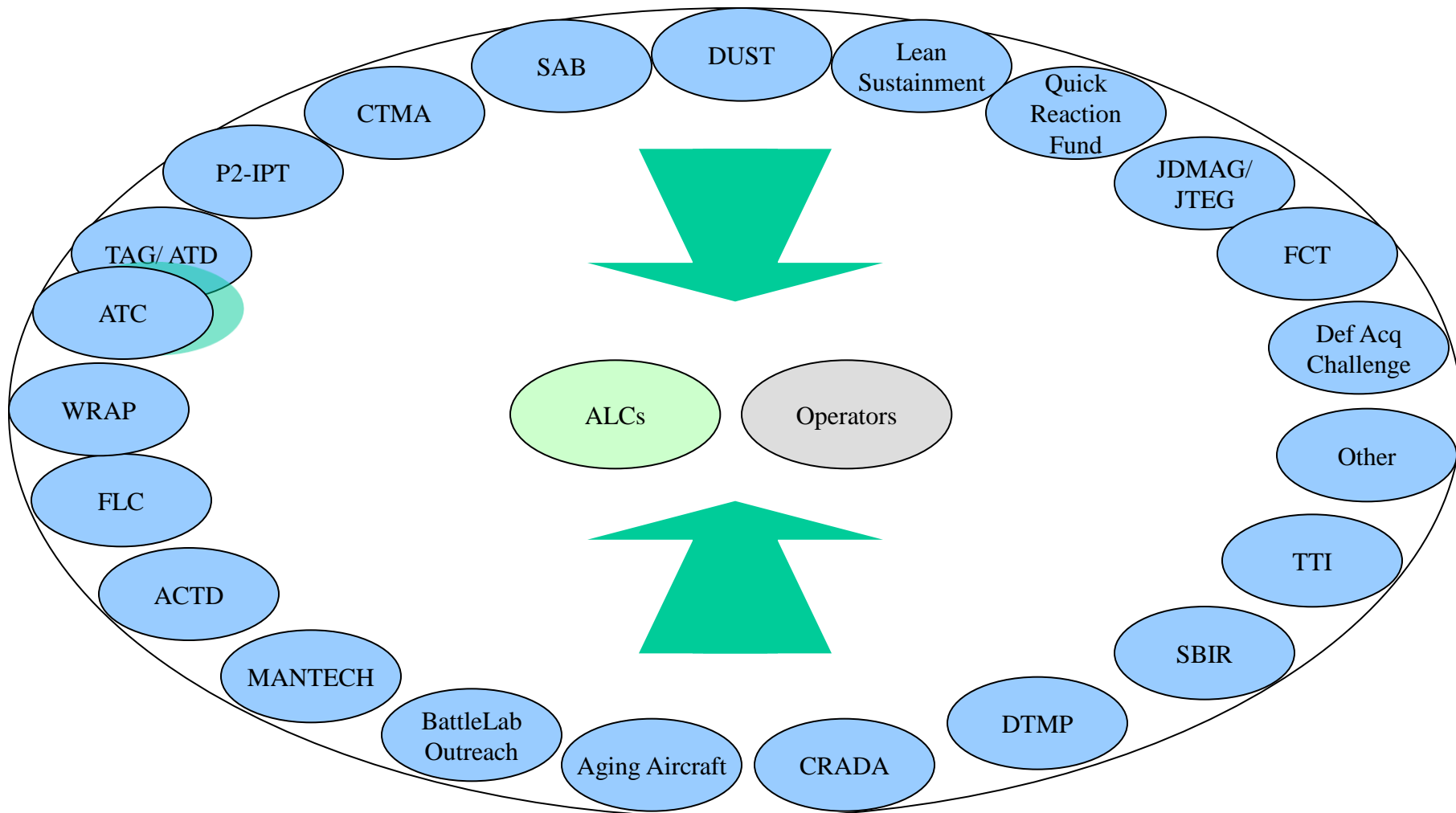
- 18 Technology Programs
- Unsolicited Proposals
- Requirements Symposia



Technology Programs



WARNER ROBINS AIR LOGISTICS CENTER



People First...Mission Always



Strategic Plan Development



WARNER ROBINS AIR LOGISTICS CENTER

■ Challenges

- Age, Costs, Ops Tempo, Shortages Increasing
- Funding Steady or Decreasing

■ Needs

- 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



WARNER ROBINS AIR LOGISTICS CENTER

- 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



ASW Top Unfunded Strategic Tech Needs



WARNER ROBINS AIR LOGISTICS CENTER

1. Crack and Corrosion Detection
2. Aircraft Subsystem Diagnostics
3. Bonded Repair Technology
4. Development of Special Coatings
5. Obsolescence Management
6. Airframe Inspection Tools
7. Bonded Repair: Common Prepregs & Adhesives
8. Accurate Holes in Thick Structures
9. Rapid Molds for Composite and Metal Bond
10. Bonded Repair Improvements
11. Improve repair of Aircraft Structural Components
12. Corrosion Prevention
13. Aircraft Modification Methods



#1 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

- Crack and Corrosion Detection
 - Expansion, improvements and development of crack and corrosion inspection techniques are required to better predict aircraft structural service life, assure flight safety, improve inspection capability, better manage part replacement and reduce overall inspection costs.
 - Current Needs
 - » Expand current MOI inspection techniques
 - » Improve ultrasonic inspection techniques for second layer cracks
 - » Develop smart coatings that can indicate changes in stress

- Need Date: 2008



#1 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

- **Technology Transition Requirements**
 - Expansion of MOI
 - » Research, Prototyping, Testing - 18-24 months
 - » Transition into Existing Infrastructure
 - Improvements in Ultra-Image capability
 - » Research, Prototyping, Testing - 24-36 months
 - » Transition into Existing Infrastructure
 - Development of Smart Coatings
 - » Research, Prototyping, Testing - 18-24 months
 - » Transition Dependant on Intended Maintenance Level

- **Points of Contact**

Dennis Keene, 478-926-4489,
dennis.keene@robins.af.mil



#2 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

- **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**



#2 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

- **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



#3 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

- Standardized Bonded Repair Processes
- Bonding in primary structure applications, with universal application C-130, C-17, C-5 and F-15
 - Quantitative method of determining bond strength
 - » On-aircraft inspection and monitoring,
 - » Minimize requirement for complex calibration standards,
 - » Accommodate metal, composite, and sandwich construction,
 - Uniform process for on aircraft bonding of steel
 - » Verify durability of bond
 - » Have a wide processing range, temperature, Vacuum bag
 - » Comply with health, safety and environmental guidance
 - Repair of 350°F composites
 - » Select resin systems with universal applicability
 - » Have a wide processing range, temperature, Vacuum bag
 - » Wide commercial applicability to promote long term availability
 - » Prepregs for unitape and woven high modulus materials
- Need Date: 2011



#3 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

■ Technology Transition Requirements

- Very Notional
- Basic research, feasibility study and literature search
~ 2 years
- Developmental Research ~ 2 years
- Prototyping ~ 1 year
- Testing (laboratory and service) ~ 3 years

■ Points of Contact

Rod Coulter, 478-926-4228,
rodney.coulter@robins.af.mil



#4 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

■ 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



#4 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

■ 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
- Demonstrators prototyped and tracked
 - » 3 to 5 years
- Data collection analyzed
- MAJCOM evaluation and buy-in
- Concurrent 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



#5 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

■ **Obsolescence Management**

– **Capability Description**

- » Identify policies, procedures, practices, methodologies and tools for proactively determining avionics, structures and other mechanical and non-mechanical flight systems material requirements and implementing upgrades to those aircraft/systems while ensuring OSS&E is maintained and followed as required by AF regulations.

– **Objective**

- » To automate the processes by which obsolescence in aircraft and aircraft systems is managed by utilizing all field and depot maintenance data sources to determine the current and future sustainment needs for each platform/system. Possible data sources include REMIS, LDMS, EDW, D200, AFTOC, DLA parts inventory database and DoD DMSMS database.

■ **Need Date: 2Q07**



#5 Rated ASW Strategic Unfunded Technology Need



WARNER ROBINS AIR LOGISTICS CENTER

■ Method

- Develop integrated automated system and process to determine current and future sustainment needs for each platform/system.

■ Threads

- Implement a center wide depot data gathering and extraction entity to automate the process by which information on repair histories, parts ordering, AWP & surge, shop floor tracking, MDC, WIP, parts consumption and systems configuration control is managed.
- Develop a Unique Item Identification process and/or system by which all depot parts are inventoried and tracked.
- Develop an automated Sustainment tool that can: predict force structure reduction and mission degradation; perform depot repair assessment, reliability analysis and inventory assessment; estimate sustainment cost; and highlight a probable sustainment action to implement technology insertion.
- Utilize the DoD DMSMS center of excellence databases for capturing manufacturer currency and parts commonality between other DoD agencies systems.
- Electronically link the WRALC obsolescence management system with other DoD obsolescence management systems and automate the process for efficiently managing system reliability and maintainability throughout the system's life cycle.

■ Points of Contact: technology.proposals@robins.af.mil