



US AIR FORCE

MTI'S SERVICES/PRODUCTS UNDER THE SUBCONTRACT

MTI provided the Air Force with Human Factors (HF) studies related to the CAPS controller – workstation interaction issues. The HF engineering processes used on EPS CAPS are identical to those employed on FAA projects investigating the HF impacts on Air Traffic Control (ATC) workstation improvements, Unmanned Aerial System (UAS) workstation design, or commercial aircraft cockpit design. MTI served as a subcontractor to NGC to perform the human engineering tasks. MTI received one of two awards for excellence from the Air Force as a result of this effort.

Technical Support for System Analysis:

MTI conducted the following system analysis tasks in support of the CAPS program.

- Applying user-centered design principles for new/developing systems
- Performing front end analysis work for a new system
- Assisting in defining the architecture, workflows, and information requirements
- Conducting mission, task, and function analysis
- Working with users to interpret user needs and requirements (multiple methods)
- Conduct job/task analysis
- Conducted applied research methodologies for developing prototype UI's
- Worked on the systems engineering IPT and software IPT for decision support UI design
- Conducted usability testing in the lab and in the field (Schriever AFB)
- Analyzed human interaction needs of the CAPS segment and developed the Human Engineering design for all aspects of the CAPS segments that required human interaction.
- Developed the Test & Training Element (TTE) HMI design.



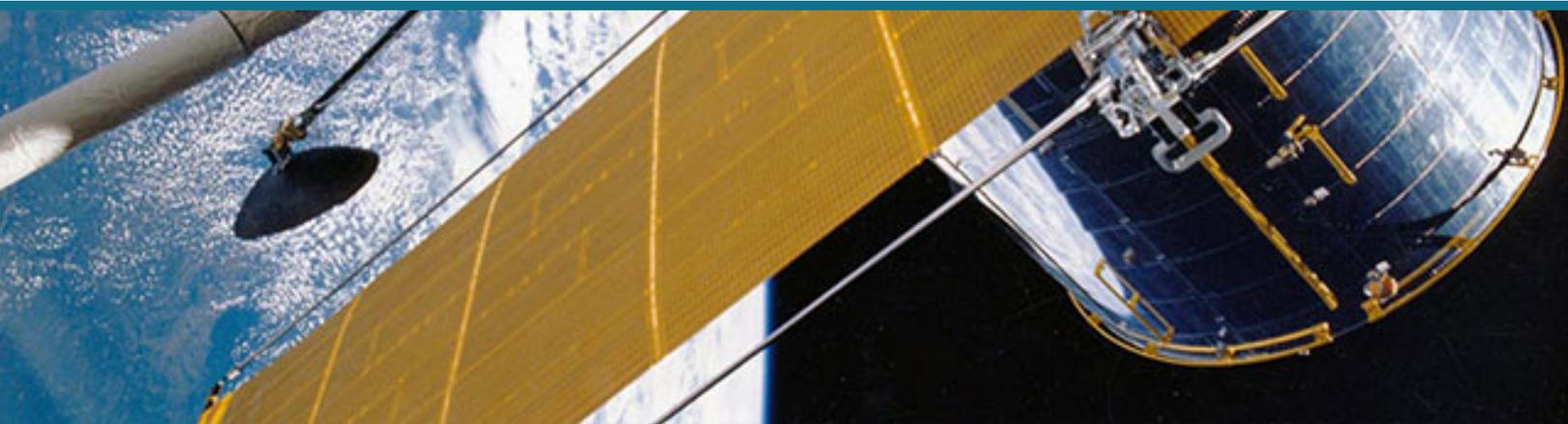
AUS WEDGETAIL

Commonwealth of Australia (CoA)

MTI has served as an “above the line” contractor – a similar role to a SETA (Systems Engineering Technical Assistance) contractor in the US – for the Commonwealth of Australia (CoA) since 1999 on the AIR 5077 Wedgetail AEW&C (Airborne Early Warning & Control) program. MTI systems engineering, human factors engineering, and subject matter experts have been continuously providing technical support to the CoA in Australia, and at Boeing project facilities in Seattle and Oklahoma City, ably representing the CoA’s interests on a wide variety of technical issues, ensuring that the CoA is getting avionics systems on the Wedgetail aircraft to work the way they are supposed to work and meet the contractual performance requirements. MTI has supported the CoA in both prime and subcontractor roles over the past 18 years.

MTI provided multiple technical personnel to the Australian RPT (Resident Project Team) in Seattle from 2001 through approximately 2011 when the CoA shut the RPT down. MTI continues to provide this technical support to the CoA in Seattle after the closure of the RPT, as the sole Seattle-based technical support activity on the Wedgetail program, reporting directly to the Wedgetail SPO (System Program Office) at RAAF Base Williamtown, NSW, Australia. As Boeing began to move its military programs from Seattle to Oklahoma City, MTI expanded technical support to include an office at the Boeing facility in Oklahoma City, where we continue to provide direct technical support to the CoA on the Wedgetail program.

MTI has also provided direct Wedgetail program support in Australia. This work began in September of 2000, where MTI provided technical personnel, human factors engineering expertise and SME support in Adelaide, South Australia, at the DSTO (Defence Science & Technology Organization) facility, where MTI personnel assisted the CoA in the development of Wedgetail performance specification documents. MTI provided further assistance directly to the Wedgetail SPO at RAAF Base Williamtown from 2005 through 2007, where MTI provided engineering and SME personnel, specifically assigned, in country, for two years to support the Wedgetail program.



EPS-CAPS

Enhanced Polar System Control & Planning Segment (EPS-CAPS)

EPS provides space-enabled, secure communications capabilities to polar users in support of national objectives. CAPS provides telemetry and control, mission planning, and cryptographic planning for the EPS payload. EPS provides continuous coverage in the polar region for secure, jam-resistant, strategic and tactical communications to support peacetime, contingency, homeland defense, humanitarian assistance, and wartime operations.

The system includes Extremely High Frequency (EHF) satellite communications (SATCOM) payloads hosted on satellites operating in highly elliptical orbits, modified Advanced EHF communications terminals, a Gateway to provide connectivity into other communication systems and the Global Information Grid (GIG), and CAPS to provide independent EPS payload planning and control for military SATCOM users.

The EPS network replaces the current Interim Polar System and serves as a polar adjunct to the Advanced EHF system for protected SATCOM services for the United States Department of Defense users.

CAPS is the primary means for commanding and receiving telemetry for the EPS payloads. CAPS provides execution of essential mission functions required for military tactical and strategic forces and other users for operations around the northern polar regions.

With mission planning and configuration commanding from CAPS, EPS provides connectivity to Combatant Commander Command and Control (C2) centers operating in non-polar regions via the GIG.



NASA AMES

NASA Ames Rotary Wing Engineering, Modeling, and Simulation (REMS)

MTI won this competitive, small biz set-aside award and successfully executed 78 task orders for NASA Ames – managing a team of 20+ subcontractors from 2007–2014. MTI won the follow-on 5-year award in 2013 (\$20M ceiling), with 34 task orders awarded, and managed a large group of subcontractors performing, R&D, modeling & simulation, test planning and execution (wind tunnel), and other engineering services.

During the first 5-year contract, NASA ran between \$1M and \$2M per year in task orders through this contract. The current contract allows MTI to subcontract 100% of technical tasks that fall in technical areas outside of the four specific technical areas that MTI bid specific technical expertise. The current REMS base contract ended in February 2018, but task order performance continues through the end of the calendar year. The follow-on Vertical Lift Technology Development (VLTD) proposal has been submitted to NASA (with an anticipated start date of June 1, 2018) and a ceiling of \$24M.

The following broad categories describe the scope of the follow-on VLTD effort:

- Aeronautical vertical lift technology development in engineering, research, and development;
- Vertical lift aeromechanics modeling and analysis;
- Simulation facility hardware and software development for experimental research and feasibility assessments including human-in-the-loop simulation research and development, test and evaluation, and training;
- Aircraft performance, handling qualities, cockpit displays, and flight control systems analysis and evaluation;
- Mission effectiveness analysis, modeling and simulation, and program analysis and management; and
- Air traffic management development and assessment of new operating procedures and interfaces integrating vertical lift aircraft in an efficient, productive, and safe manner.



NASA AMES

NASA Ames Rotary Wing Technology Development (RWTD)

After holding the REMS IDIQ task order contract for several years, MTI bid on the full and open version of this contract. MTI assembled a team of 16 innovative subcontractors, both small and large business.

MTI was awarded one of five RWTD contracts (\$40M ceiling) with an ordering period that goes to December 2019. The other awardees are Boeing Helicopter, Sikorsky Helicopter (now Lockheed), Bell/Textron, and the Georgia Tech Research Institute (GTRI).

Task orders are competed among the five awardees under this MAC IDIQ contract in the following general areas:

- Assessment of Advanced Rotorcraft Technologies
- Assessment of Rotorcraft Requirements in the Next Generation Air Traffic Management System
- Prognostics and Health Management Assessments
- Research Flight Testing
- Wind Tunnel Test Stands
- Hardware Gear Testing Components
- Advanced Rotor Technology/Configuration Assessments
- Drive System Sensitivity Studies for Rotorcraft
- Avionics Processor Equipment and GPS Upgrades
- Health Usage Monitoring Systems (HUMS) Technology Assessments and Demonstrations
- Engineering Analyses of Advanced Concepts
- Subject Material Expert Review
- Advanced Cockpit Crew Station Research Cancel