

FCS Update & Testing

Bud Irish
SAIC Vice President
FCS Integrated Phases, Simulation
& Test Deputy IPT MGR

Army Leadership's View

“Future Combat Systems is the core of our modernization effort and will provide our Soldiers an unparalleled understanding of their operational environment, increased precision and lethality, and enhanced survivability.”

“We believe it’s affordable and we believe it’s an investment that we have to make.”

*The Honorable Pete Geren - Secretary of the Army
Senate Armed Services Committee
February 26, 2008*



**The Honorable Pete Geren
Secretary of the Army**

“We’re listening to our soldiers and commanders in the field, and we are giving them the capabilities they need – as fast as we can so that they can win in the current fight.”

*General George Casey, Jr. – Chief of Staff, U.S. Army
U.S. Army News Release
June 26, 2008*



**Gen. George W. Casey, Jr.
Chief of Staff, U.S. Army**

“Future Combat Systems is exactly the full-spectrum system that we need for our future.”

*General George Casey, Jr. – Chief of Staff, U.S. Army
Senate Armed Services Committee
February 26, 2008*

“Modernization is not an option.”

“FCS is more than a program, it is an Army imperative.”

*The Honorable Dean Poppo - Acting Assistant Secretary of
the Army for Acquisition, Logistics and Technology
February 2, 2008*



**The Honorable Dean Poppo
Acting ASAALT**

FCS – Army’s #1 Modernization Priority

Delivering a Versatile 21st Century Army



Non-Line of Sight Mortar (NLOS-M) XM1204

Infantry Combat Vehicle (ICV) XM1206

Mounted Combat System (MCS) XM1202

Non-Line of Sight Cannon (NLOS-C) XM1203

Armed Robotic Vehicle – Assault Light (ARV-A(L)) XM1219

Non-Line of Sight Launch System (NLOS-LS) XM 501

Medical Vehicle Treatment (MV-T) XM1208

Medical Vehicle Evacuation (MV-E) XM1207

Field Recovery and Maintenance Vehicle (FRMV) XM1205

MULE-T XM1217

MULE-C XM1218

Multifunctional Utility/Logistics and Equipment Countermine and Transport

Reconnaissance and Surveillance Vehicle (RSV) XM1201

Command and Control Vehicle (C2V) XM1209

Small UGV (SUGV) XM1216

Tactical and Urban Unattended Ground Sensors

Class I Unmanned Air Vehicle (UAV) XM 156

Class IV Unmanned Air Vehicle (UAV) XM 157

Communicate See Understand Act

Recent Program Accomplishments

- ✓ Completed Non-Line-of-Sight Cannon P1 Prototype delivery and testing to support NLOS-C Milestone C
- ✓ Completed Spin Out 1 Tactical Field Test, Field Demonstration, Test and Evaluation, and Preliminary Limited User Test
- ✓ Completed all System and Platform Preliminary Design Reviews, including Class I and IV UAVs, MULE UGV, Manned Ground Vehicles and Network
- ✓ Completed Integrated Mission Test One
- ✓ System of Systems Common Operating Environment 2.0 Deliveries/Testing
- ✓ First successful Active Protection System (APS) End to End Test
- ✓ Airborne Standoff Minefield Detection System Captive Flight Test



Executing to Support Army Modernization

Combined Test Organization (CTO) Established 2004 - Charter



Charter Unit of Action Combined Test Organization

PURPOSE

The Combined Test Organization (CTO) has been established as a partnership between the Program Manager, Unit of Action (PM/UA), the Army Test and Evaluation Command (ATEC), the Lead System Integrator (LSI). This partnership is designed to integrate the efforts of its members. This charter establishes the UA, CTO, and identifies the primary responsibilities of the CTO. The guiding principle of the CTO is to "plan together, test once, share the data".

MISSION

The CTO partnership exists to manage the integration of both the contractor and government efforts in the Army's UA Test program, while preserving the charter of the PM/UA and associated responsibilities and authorities, for operational test (OT) independence, and being responsive to the needs of the independent evaluation for the UA program.

CONCEPT OF OPERATION

The CTO functions as a three-way partnership, requiring agreement by all partners on major decisions. In the event that agreement cannot be reached within the CTO, the decision will be elevated to Commanding General, ATEC, the PM/UA, and the LSI PM. The CTO has the authority and responsibility for integration of UA technical platform integration, and field testing. The CTO will coordinate with ATEC, the PM, and the LSI to identify all test data requirements, and will manage the integration of technical and operational testing in accordance with guidance of the UA acquisition strategy and the acquisition program baseline. The CTO will document this plan in the Test and Evaluation Master Plan.

Tests may be executed by Army test organizations or by the LSI and its subcontractors at either government or contractor facilities. The CTO will select the appropriate test organization taking into consideration the Army's considerable investment in test and evaluation (T&E) infrastructure. System tests under CTO signature include: Integrated Qualification Testing, Integrated Testbeds Testing, Integrated Mission Testing, Technical Field Testing, Live Fire Testing, and some Specialty Testing. ATEC retains responsibility for all aspects of OT in accordance with DOD 5000.26 and Title 10 US Code, as the Army's Operational Test Agency. The Developmental Test Command retains its responsibility for providing Safety Reviews and Safety Confirmations for UA, non-systems. Human use test approval considerations will reside with the test organization selected.

The CTO will manage, at the top level, the following UA T&E functions: test strategy development, test planning, design, and integration; test data reduction, test data management and reporting; test tool verification and validation; test resource and facilities upgrade, development, and utilization planning. Active management of these functional areas will capitalize on resources and data sharing to conduct "integrated testing" as appropriate, fully coordinated between the government and the LSI, along with its

Page 1

sub-contractor. The CTO will monitor and ensure these integration activities, and the data generated will be made available to the CTO and its partner organizations.

ORGANIZATION

The CTO structure is depicted in Figure 1. The CTO will primarily consist of individuals from the UA Program Management Office (PMO), the LSI, and ATEC. It is further supported by members of the US Army Training and Doctrine Command (TRADOC). The CTO is composed of management positions into divisions. Integrated teams composed of PMO, LSI, and ATEC personnel will carry out these functions. A TEC OT mission, execution, and reporting will be in accordance with independently developed plans and in accordance with Title 10 US Code.

Lines of effort will be sustained by: Program Project Office (PPO), White Sands Missile Range (WSMR), the Electronic Proving Ground (EPG), and the Joint Interoperability Test Command (JITC), the Unit of Action Master Plan Lab (UAMPL), and Fort Belvoir (Operational Test Command) (OTC) and the Combat Technical Support Facility (CTSF).

The senior PM/UA representative functions as the CTO Director, representing the PM in all test activities performed by the PMO charter, and provides for day-to-day management of the CTO, acting as the sole "contracted partner" within the CTO. The other two CTO Divisions are supported by their parent organizations, and provide ATEC and LSI expertise and senior experience in the UA Test mission. The CTO Technical Director is a PM core position and has the leadership and overall responsibility for coordinating all technical integration activities of the Test Program and ensuring synchronization with P&C software engineering processes. The CTO Operations are the primary measurement team and have responsibility for managing all aspects of the UA test program. The Director ensures coordination of some areas of the CTO partner organizations.

The UA PMO will program and budget for all T&E activities, and provide contract oversight. ATEC personnel will provide feedback for PMO UA to participate in the CTO activities. LSI participation in the CTO is funded via the Other Transaction Agreement. Each organization represents its members to represent the joint capabilities, position, but leadership will reside over PM/UA issues with the PM or delegated via P&C personnel.

DISTRIBUTED OPERATIONS

The main office of the CTO will be located at Aberdeen Proving Ground (APG), MD. Other CTO offices will be located at the National Center Supercomputing Center, West, MD, St. Louis, MO; Redstone Arsenal, AL; Ft. Monmouth, NJ; Fort Belvoir, IL; Ft. Belvoir, AZ; WSMR, NM; Ft. Belvoir, TX; Ft. Cavaz, KY, and other locations as requirements dictate.

ATEC will provide building space and basic services support (such as IT, telecommunications, and utilities) for the CTO main office at APG and other where ATEC is the primary systems element.

The LSI will provide building space and basic services support for offices located at LSI sites such as St. Louis, MO; Huntsville, AL; the MCR, and other locations as requirements dictate.

Page 2



Figure 1. CTO Structure

STAFFING

The PMO will progressively assign core PMO CTO personnel. These personnel will report to the CTO Director for organization, testing, and program management. A TEC will identify and staff PMO test ATEC personnel to the CTO. They will be responsible to the CTO Director for day-to-day guidance and administrative matters, but will remain under ATEC for rating and/or cost matters. The CTO Director will provide direct input to these personnel through ATEC personnel on the CTO. An exception of the ATEC Director Team (AET) will be made to work closely with the ATEC leadership to ensure that all efforts to fulfill the ATEC position within the CTO. The ATEC CTO team members may spend their individual responsibilities, however, for ATEC (that is the ATEC) must be the ATEC.

Page 3

ISSUING DOCUMENTS

This charter will be revised on a periodic basis to incorporate changes to the UA program as well as required by use of the organization.

Signatures

Signature of Donald F. Schmitt, Program Manager, UA, Program Manager, Unit of Action.

Signature of James H. Smith, Program Manager, UA, Program Manager, Unit of Action.

Signature of Dennis H. Sullivan, The President and General Manager, The Boeing Corporation.

Page 4

Page 5

The mission of the CTO is to ensure the planning and execution of the Future Combat System (FCS) Test and Evaluation Program at minimum cost and duplication of effort to meet developmental and operational testing requirements.

Plan Together, Test Once, Share the Data

- **Equal Partnership between PMO, LSI and ATEC**
- **Synchronizing Developmental and Operational test planning**
- **Sharing test resources and support**
- **Collecting, sharing and assessing test data jointly**
- **Minimizing duplication of test support and time required to execute combined testing**
- **Preserving OT independence**
- **Reduce Program Risks wherever possible**

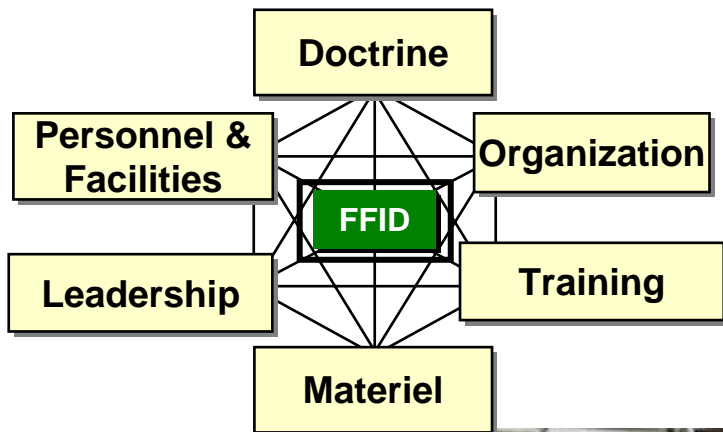
CTO Details of Operation

- **Manage all FCS T&E funding – except LSI allocated**
- **Manage all FCS Component, System Level, and System of System Level developmental and integration testing**
- **Approve all test plans for Gov and LSI testing**
- **Integrate, coordinate, and plan Combined Developmental and Operational Testing in accordance with the FCS TEMP**
- **Support Live Fire and Operational Testing**



New way of doing business... brings FCS to life.....

***Developing New Doctrine and Tactics,
Techniques & Procedures (TTPs)***



***Executing Network
Enabled
Operations***



***Real Soldiers and
Leaders...***

***Operating in live and
virtual events...***

To deliver real answers



***Conducting
Integrated Training***



Evaluating Material



..... Integrating capabilities for the current and future modular force!!

Army Evaluation Task Force (AETF) In Action



AETF P-LUT



SUGV on Point



UAS Image FBCB2



Emplacing U-UGS



Emplacing T-UGS



CL1 UAV in Overwatch



JEFX 08—Mission Accomplished



Integrated Mission Test – 1 (IMT1)



✓ Mission Test with Soldiers

- 45 Soldiers used a prototype Warfighter Machine Interface (WMI) and Battle Command System in a virtual-constructive relevant environment
- Soldier feedback on WMI design and cognitive assessment of the WMI
- First full scale system of systems (SoS) integration

✓ System of System Common Operating Environment (SOSCOE) Scalability and Discovery Test

- Large scale (100 platform) network emulation at the service layer
- Identified areas to reduce network load and improve robustness



✓ Common Operating Picture (COP) Dissemination Test

- First large scale (100 platform) COP emulation at the application layer
- Confirmed value of geographical dissemination on local COPs and identified areas for improvement



✓ SoS Simulation Framework Maturation Test

- Confirmed maturation of simulations and tools to support future SoS testing.



FCS Production Activities



Summary



- Program executing to achieve successful '09 DAB
- Platform and Network PDRs complete; supporting successful Systems of Systems Preliminary Design Review
- FCS providing capabilities to current force
 - IBCT TFT/FDT&E/LUT
- Supporting testing and technologies on track
- FCS Program is healthy and meeting commitments

Delivering a Versatile 21st Century Army