Munitions Executive Summit

Mark Oetken
Director
FCS Warfighting Systems’ Integration
20 Feb 2008

“The Future is Now”
Joint - Flexible - Responsive

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.
Connect – Protect – Project… FCS
Spin Out 1: *The Future is Now*

**Capability Improvements:**
- Force protection
- Precision networked fires
- Interoperability

**Milestones:**
- Critical Design Review – Q2 FY07
- First Network Kit Delivery – Q2 FY07
- Software Qualification – Q4 FY07
- Limited User Test – Q4 FY08
- Milestone C – Q2 FY09

**Network Capability Integration Kit**
- Integrated Computer System
- SOSCOE & Battle Command
- 4 Channel JTRS
- Current Force Interface

**Unattended Sensors & Munitions**
- Unattended Ground Sensors (T/UGS & U/UGS)
- Non-Line-of-Sight Launch System (NLOS-LS)

Relevant to Today’s Force
Spin Out 1: Unattended Ground Sensor (UGS)

KEY ACCOMPLISHMENTS:

- UGS NET
- T-UGS and U-UGS prototypes delivered for test

FY08-09:

- Army Evaluation Task Force Events
  - PTRR: 2Q08
  - TFT: 2Q08
  - FDT&E: 3Q08
  - LUT: 3-4Q08
- SO 1 Milestone C: 2Q09
Spin Out 1: Non Line of Sight Launch System (NLOS-LS)

KEY ACCOMPLISHMENTS:

- Current Forces Integration
- (AFATDS (FA Control Cell), FOS, CFFT)
- 5 Container Launch Units (CLUs) Delivered
- New Equipment Training & Logistics Demonstration Conducted

FY08-09:

- NLOS-LS Flight Testing
  - CFT-12: 2Q08
  - CTV-2: 2Q08
  - CFT-13: 3Q08
  - NLOS-LS GTV 1-9: 4Q08-1Q09

- Army Evaluation Task Force Events
  - TFT: 2Q08
  - FDT&E: 3Q08
  - LUT: 4Q08

- SO 1 Milestone C: 2Q09

- NLOS-LS Flight LUT: 2Q09

- Production Decision/LRIP I Award: 3Q09
Spin Out 1: New Equipment Training at Ft. Bliss

Close Combat Tactical Trainer
(Simulation)

Classroom

Abrams

Bradley

HMMWV

NLOS-LS

Live

T-UGS
Manned Ground Vehicles (MGV)

- C2V / RSV Rooftop De-confliction Test Rig
- NLOS-C Chassis Engine Installation
- NLOS-M 5-Round Burst
- APS Short Range Countermeasure First Flight – Design Verification Test
- Traction Drive System in NLOS-C Chassis
- Manned Ground Vehicles (MGV)
- ICV Mock Up Demo
- 120 MM MCS Cannon
- MCS XM360 Electric Gun Elevation Drive Testing
- MV Litter Lift
- Crew Station Inceptor Seat & Future Soldier Evaluation
Unmanned Ground Vehicles (UGV)

- SUGV in Soldier Exercise
- SUGV Water & Land Test
- Packbot on Patrol in Iraq
- SUGV Drop Test
- MULE EEU in Soldier Exercise
- MULE 1 meter step
- MULE EEU at NLOS-C Factory Dedication (Elgin, OK)
- MULE 1.7m Gap
- ANS LADAR and Imaging Perception Module (IPM)
- Robotic Convoy – ANS Integrated onto STRYKER & LMTV Platforms
- Robotic Convoy – Obstacle Avoidance Testing
- Autonomous Navigation System ANS
- EEU in Soldier Exercise
- EEU Testing Urban Terrain Muskogee, OK
Unmanned Aerial Vehicles (UAV)

Class I UAV

Class I Block 0 with soldier
Class I Block 0 in Flight
Class I Block 0 Flying at Orogrande

Class I Block 1 Engine prototype

Army A7 undergoing shipping inspection process at SAC

A2 Engine Run at Moss Facility 7 August 07
Army / Navy Fire Scouts at Moss Point Facility
Army A2 being loaded on C130 at Trent Lott International Air Port, MS

Class IV UAV

Army A5 on Display @ Quantico, MD Marine Day
N1 being flown at AUVSI Demo at Webster Field, MD
NLOS-LS

NLOS-LS Air Drop from C-130 aircraft
2 May 07, Ft. Bragg

Loading of NLOS-LS Container Launch Unit (CLU) onto C-130 aircraft

Air Drop of CLU unit

Upright landing of CLU unit

Soldiers prepping the NLOS-LS

NLOS-LS Firing test

Use or disclosure of data contained on the page is subject to restrictions on title page.
Soldiers
NLOS-LS: Joint – Flexible – Responsive – Lethal

**New Military Capability**
- Networked missile
- Vertical launch with 360 degree coverage
- Multiple targeting modes
- Moving target engagement
- Terminal imagery snapshot

**Flexible**
- Platform Independent -- 2 CLUs on FMTV
- Sling load forward
- C-130 transportable

**Responsive**
- In-flight Target Location Updates (IFTU)
- Fire and Forget Capability
- 15 targets from one launcher
- Automatic target acquisition

**Joint**
- Adopted by the USN for the Littoral Combat Ship

**Lethal**
- Effective against armored, non-armored, stationary and moving targets

PAM Bunker Sled Test - 21 May 07

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Mid-Range Munition: Flexible – Responsive – Lethal

**New Military Capability**

- 120mm precision-guided smart munition w/ multi-mode seeker
- BLOS fires extend maneuver battlespace
- Moving target engagement
- Autonomous or laser designated modes

**Flexible**

- Cooperative or Network engagements
- Compatible with Current Force (Abrams) with application of Ammo Data Link

**Responsive**

- Targeting information and airspace deconfliction via FCS Battle Command
- Target observation by MCS via sensor-to-shooter link

**Lethal**

- Effective against stationary and moving targets including:
  - Main Battle Tanks w/ ERA
  - Light Armored Vehicles
  - Earth & Timber Bunkers

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New Military Capability

- 155mm precision guided munition
- Fire and forget
- GPS/INS guidance
- In-theater now

Joint
- Adopted by the USMC

Flexible
- All weather/day-night
- Steep angle of attack (urban terrain)
- Compatible with digitized 155mm systems
- Growth for additional payloads
- Extended range capability

Lethal
- Effective against stationary point targets
- Unitary warhead
- Small CEP
- Selectable fuze: Height of Burst, PD, concrete penetrating Delay mode

*FCS Complementary Program
MK44 30mm: Joint – Flexible – Responsive – Lethal

New Military Capability
- 30mm airburst munition
- Increased lethality vs. Point-detonating munitions
- Effectiveness vs. targets behind walls and in defilade

Flexible
- Ready growth path to 40mm
- Interoperable with NATO standard 30x173mm ammo
- Logistics commonality across services enhances interoperability

Lethal
- Effective against stationary and moving targets including:
  - Light/Med Armored Vehicles
  - Rotary Wing Aircraft/UAVs
  - Reinforced Walls/Bunkers
  - Personnel/ATGM Crews
  - Targets in defilade
Precision Guidance Kit (PGK): *Joint – Flexible – Responsive – Lethal*

**New Military Capability**
- Provides a combined fuze and GPS-based guidance system for conventional artillery projectiles
- Includes both proximity and point detonating fuzing modes

**Flexible**
- Transforms existing artillery projectiles into low cost precision weapons (reduced CEP)
- Enhances close support
- Increases stowed kills
- Reduces collateral damage
- Reduces logistics footprint
- Increment 1 targets 155mm HE projectile family

**Unguided Flight**
- Blue

**Guided Flight**
- Orange

**GPS**

**Lethal**
- Improves effectiveness and lethality of existing stockpile

**Joint**
- Compatible with all US artillery

*FCS Complementary Program*
Common, Remotely Operated Weapon System (CROWS) II – Flexible – Responsive – Lethal

**Improved Military Capability**
- Four-Axis Targeting
- 7.62mm Ballistic Protection Kit
- Uncooled Thermal Imager
- Reduced weight
- Improved reliability

**Flexible**
- Enables “arms room” concept via compatibility with M2, Mk19, M240 and M249
- Readily adaptable to other weapons (e.g., Javelin) and capabilities (e.g., Non-Lethal)
- Readily integrates with multiple platforms (e.g., MRAP, Abrams, HMMWV)

**Responsive**
- Three-Axis Vector Stabilization
- Auto Focus (Day and Thermal)
- Auto Track, - Lead, - Scan
- Target Reference Points

**Lethal**
- Enables target acquisition and engagement at the weapon’s maximum effective range
Summary

• FCS Systems are in Soldiers’ hands today

• The FCS Network is a key Current and Future Force enabler, providing a shared, real-time, Tactical Operating Picture

• FCS core and complementary munitions leverage the FCS network and systems, enabling decisive LOS, BLOS and NLOS fires

• Spin Out 1 provides an early slice of FCS network, sensor and unattended munitions capabilities to the Current Force

FCS: The Future is Now