Future Combat Systems
Industry Day Briefing

Future Combat Systems
One Team – The Army / DARPA / Industry

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Program Manager’s Intent: Field FCS-Equipped Units of Action With Threshold Objective Force Capability by the End of the Decade
• Inform Industry on the Evolution of the FCS Acquisition Strategy
• Panel Discussion to answer your questions
Future Combat Systems

Future Combat System Definition

- Is a family of advanced, networked air- and ground-based maneuver, maneuver support, and sustainment systems that will include manned and unmanned platforms.

- Is networked via a C4ISR architecture, including networked communications, network operations, sensors, battle command systems and training that enables improved situational understanding and operations:
  - Provides improved ISR, battle command, real time sensor-shooter linkages, and increased synergy between echelons and within small units.
  - Provides the Unit of Action (UA) the ability to connect to UE, joint capabilities, and national assets making these capabilities available to the small units of the UA.

Allows the UA to develop the situation in and out of contact, set conditions, maneuver to positions of advantage, and to close with and destroy the enemy through standoff attack and combat assault.
Future Combat Systems

Critical Integrated Concepts

- **Battle Command**
  - **Joint Interoperability**
  - **Information Assurance**
  - **SA/SU**
  - **Common Operating Picture**
  - Battle Command on the Move
  - Information Fusion/Pattern Analysis
  - Staff Functions
  - **A2C2**
  - Combat Identification
  - Communications/Information Sys
  - Organizational Design

- **ISR**
  - **Sensor Fusion**
  - ISR
  - Layered Sensors
  - Unmanned Aerial Vehicle Echelons

- **Maneuver**
  - Air Assault
  - Unmanned Ground Vehicles
  - Air/Ground Integration

- **Fires**
  - **Networked Fires**
  - **Lethality**
  - **BLOS/Mutual Support/Cooperative Engagement/Point and Shoot**
  - Non-Lethal effects

- **Maneuver Support**
  - **Assured Mobility**
  - Air and Missile Defense
  - **Survivability**

- **Maneuver Sustainment**
  - **Transportability**
  - **Availability/Maintainability**
  - Sustainment Distribution
  - Maneuver Sustainment
  - Medical

- **Soldier**
  - **Training**
  - Dismounted Infantry
  - Soldier
  - Leader Development
Joint Interoperability KPP #1
The FCS FoS must be Joint interoperable. (Threshold)

Networked Battle Command KPP #2
The FCS network must enable Battle Command and provide situational awareness to the manned platform and dismounted soldier level. (Threshold)

Networked Lethality KPP #3
The FCS FoS must be capable of Joint networked lethal and non-lethal effects that achieve overmatch – out of contact and in contact, at tactical standoff and in close combat to defeat the target sets detailed in Chapter 4 FCS STAR. (Threshold)
Transportability KPP #4

The FCS FoS must be transportable worldwide by air, sea, highway and rail modes to support inter-theater strategic deployment and intra-theater operational maneuver. (Threshold)

Sustainability/Reliability KPP #5

The FCS FoS must maximize available combat power while achieving significant logistics footprint reductions and personnel efficiencies in the area of operations through reduced demand for maintenance and supply. (Threshold)
Training KPP #6

The FCS FoS must have an embedded individual and collective training capability that supports live, virtual and constructive training environments. (Threshold)

Survivability KPP #7

The FCS FoS must provide essential protection to mounted and dismounted soldiers through the best combination of ground and air system. (Threshold)
Future Combat Systems

Key Tenets of the Program

• Create Opportunity for *Best of Industry* to Participate.
• Leverage Government *Technology* Base to Maximum Extent.
• *Associate* On-Going Enabling Efforts With LSI-Led Activity.
• *Collaborative Environment* from Design Through Life Cycle.
• As a Minimum, *Commonality* at Subsystem/Component Level.
• Design/Plan for *Technology Integration*.
• Maintain and Shape the *Industrial Base* for the Future
• Retain *Competition* throughout Objective Force Acquisition.
• Appropriate *Government Involvement* in Procurement Processes.
• Consistent and Continuous *Definition of Requirements*
• Maintain and Shape *Government Acquisition* Community.
• Program *Affordability--Balance* Performance and Sustainment.
• Contribute to Achieving *Irreversible Momentum*.

*FCS is a Complex System of Systems in a Transformational Warfighting Context*
Future Combat Systems

Overarching Acquisition Strategy

• *Buy* Future Combat Systems; *Equip* Soldiers; *Field* Units of Action (UA).
• Embrace Evolutionary Acquisition While Requirements Mature.
• Contracting via Lead Systems Integrator while Influencing Complementary Programs.
• Balance Test and Evaluation With Modeling and Simulation.
• Demonstrate-Live and Virtual-Force Operational Capabilities of the Unit of Action.
• Sustain DARPA/Army Collaborative Relationship for the Future.
• Design for Supportability-Performance-Based Logistics.
• Identify and Manage Risk to Facilitate Transition at and Throughout MS B.

It Is About the “Networked” System of Systems…
And How It Enables Dominant Land Combat.
NOBODY HAS DONE THIS BEFORE!

Program Manager’s Intent: Field an FCS -Equipped Unit of Action With Threshold Objective Force Capability By the End of the Decade
Future Combat Systems

FCS ORD Definition*

Base ORD -- FCS Family of Systems Common Requirements

Annex A  
Battle Command (C4ISR)

Annex B  
Leader

Annex C  
Soldier

Annex D  
Manned Systems

Annex E  
Unmanned Systems

Annex F  
Sustainment

Annex G  
Systems Interface

Annex H  
Joint Interoperability

Annex I  
Classified

Army Aviation & A2C2S

MMR & HIMARS

Engineer Vehicles

Common Missile & CBRNRS

FTTS & UAH

ACS & Prophet

JTRS, WINT & DCGSA

TSV & TEP

CA/PSYOP Vehicle

Land Warrior Block III (OFW)

Fire Team/Squad

Command & Control Vehicle

Mounted Combat System

NLOS Mortar

FRMV (Recovery)

Infantry Carrier Vehicle

NLOS Cannon

RSV (Recon Veh)

Medical Vehicle

UAV Class 1

UAV Class 2

UAV Class 3

UAV Class 4

ARMED ROBOTIC VEH

SMALL UNMANNED GROUND VEH

INTELLIGENT MUNITION SYS

MULE

Unattended Ground Sensors

Unattended Sensors

Unattended Munitions

Complexity: Over 500 requirements that equate to approximately 300 individual programs

* 22 Jan 03 ORD Change 2
**Future Combat Systems**

**Contracting Strategy – Lead Systems Integrator**

New Thru LSI

Influence

Base ORD -- FCS Family of Systems Common Requirements

Annex A
Battle Command (C4ISR)

Annex B
Leader

Annex C
Leadership

Annex D
Squad

Annex E
Team

Annex F
Section

Annex G
Fringe

Annex H
Joint Interoperability

Annex I
Classified

**System of Systems Integration**

- OTA 845 agreement will be used for SDD.
- Agreement will emphasize system of systems development & integration.
- Enforces use of competition.
- Requires Specific Small Business Participation
- Only contract needed at MS B.

**Fire Team/Squad**

- Infantry Carrier Vehicle
- Mounted Combat System
- NLOS Cannon
- NLOS Mortar
- FRMV (Recovery)

**Command & Control Vehicle**

- RSV (Recon Veh)
- Medical Vehicle

**Maneuver Sustainment Systems**

- UAV
- UGV

**UAV**

- UAV Class 1
- UAV Class 2
- UAV Class 3
- UAV Class 4

**Unattended Sensors**

- MULE
- Unattended Ground Sensor

**Unattended Munitions**

- NLOSLS

**Army Aviation & A2C2S**

- MMR & HIMARS
- Engineer Vehicles

**Common Missile & CBRNRS**

- ACS & Prophet
- JTRS, WIN & DCGSA
- TSV & TEP

**CA/PSYOP Vehicle**

- Land Warrior Block III (OFW)

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**Future Combat Systems**

**Contracting Strategy - C4ISR Integration**

- LSI will subcontract C4ISR pieces competitively.
- LSI will leverage complementary C4ISR efforts.
- LSI SIL will integrate C4ISR pieces.
- Pursuing authority to make LSI sole source for Distributed Information Management (DIM).

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Future Combat Systems

Contracting Strategy – Combat Systems
(Manned Ground Systems)

New Thru LSI

Influence

Annex A
Battle Command (C4ISR)

Annex B
Leader

Annex C
Soldier

Annex D
Manned Systems

Annex E
Unmanned Systems

Annex F
Sustainment

Annex G
Systems Interface

Annex H
Joint Interoperability

Annex I
Classified

Base ORD -- FCS Family of Systems Common Requirements

- Basic vehicle design from Manned Ground System Integration Team with competition requirements at mission package and subsystem level.
- Associate Contract Agreements (ACA) between LSI and existing contracts for interface to existing relevant programs, i.e., Excalibur, Precision Guided Mortar Munitions, JTRS.
- This approach provides for modular growth and technology insertion.

Fire Team/ Squad

Combat Systems

Maneuver Sustainment Systems

Infantry Carrier Vehicle

NLOS Cannon

RSV (Recon Veh)

Medical Vehicle

UAV

UGV

Unattended Sensors

Unattended Munitions

UAV Class 1

UAV Class 2

MULE

Unattended Ground Sensor

NLOSLS

Command & Control Vehicle

Mounted Combat System

NLOS Mortar

FRMV (Recovery)

UAV Class 3

UAV Class 4

Armed Robotic Veh

Small Unmanned Ground Veh

Intelligent Munition Sys

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**Future Combat Systems**

**Contracting Strategy – Lethality/Munitions**

- For Primary Armament:
  - BLOS/LOS, NLOS-Cannon
  - Responsibility of platform integrator
- For Secondary Armament:
  - OCSW and 30mm Cannon
  - Form ACA with existing development programs
- For Ballistic Munitions and Simple Missiles:
  - Excalibur, PGMM, Extended Range Munition (ERM), Javelin
  - Form ACA with existing development programs between LSI and/or platform integrator and munitions developer
- For Advanced Missiles:
  - PAM, LAM
  - Form ACA with missile developer
  - C4ISR incorporated in LSI effort

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Future Combat Systems

Contracting Strategy - Unmanned Aerial Vehicles

Base ORD -- FCS Family of Systems Common Requirements

- UAV Class I & II & III & IV
  - Compete & select one or more vendor(s) to provide each UAV integrated system. C4ISR responsible for Mission Package and Ground Control System integration to ensure commonality.
  - Open competition for Most Operationally Suitable and Lowest Cost (best value).

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Future Combat Systems

Contracting Strategy - Unmanned Ground Vehicles

Base ORD -- FCS Family of Systems Common Requirements

- Annex A: Battle Command (C4ISR)
- Annex B: Leader
- Annex C: Soldier
- Annex D: Manned Systems
- Annex E: Unmanned Systems
- Annex F: Sustainment
- Annex G: Systems Interface
- Annex H: Joint Interoperability
- Annex I: Classified

- New Thru LSI
- Influence

- Fire Team/Squad
  - Infantry Carrier Vehicle
  - Mounted Combat System
  - NLOS Mortar
  - NLOS Cannon
  - RSV (Recon Veh)
  - FRMV (Recovery)
  - Medical Vehicle

- Maneuver Sustainment Systems
  - UAV
  - UGV
  - MULE
  - Armed Robotic Veh
  - Small Unmanned Ground Veh

- Command & Control Vehicle
- Unattended Munitions
- Unattended Ground Sensors
- Intelligent Munition Sys
- NLOSLS
- Engineer Vehicles
- Common Missile & CBRNRS
- JTRS, WIN-T & DCGS-A
- Army Aviation & A2C2S
- MMR & HIMARS

- Fire Team/Squad
  - Influence

- Base ORD -- FCS Family of Systems Common Requirements

- * 22 Jan 03 ORD Change 2
Future Combat Systems

Sub-Contract Procurement Schedule

- Proposal Prep: 14 Feb
- Tech Proposals: 17 Mar
- Cost Proposals: 31 Mar
- Source Selection: 15 May
- Integrator Selections: 15 Aug

Includes 12 systems/subsystems and 12 system integrators.

Integrators Select Sensors, Comms

Multiple Sources:
1. Class I UAV
2. Class II UAV
3. Class III UAV
4. Class IV UAV
5. ARV
6. MULE
7. SUGV
8. Auto Nav
9. LDSS
10. PS-MRS
11. Ground Sensor Intg
12. Air Sensor Intg
13. UGS
14. Level I Fusion
15. Network Mgmt
16. Battle Command
17. Planning & Prep
18. Situation Understanding
19. Warfighter/Machine Interface
20. Ground Platform Comms
21. Air Platform Comms
22. Integrated Computers
23. Training Support Packages
24. Soldier Comms

Preliminary Source Selections

Integrator Only, Sensor Selection within 90 days
Conclusions

• PEO GCS Is the Lead PEO Not THE PEO

• The LSI Is Lead System Integrator Not the Only Integrator

To Be Successful the FCS SoS Will Require All of Your Talents