

FUTURE COMBAT SYSTEMS



One Team-The Army/Defense/Industry

FCS Program Overview

Mr. Steve Marion
Sr. Program Director
FCS Supplier Management
The Boeing Company
13 November 2008

FCS Brigade Combat Team...

Manned Ground Vehicles (MGV)

Unmanned Aircraft Systems (UAS)

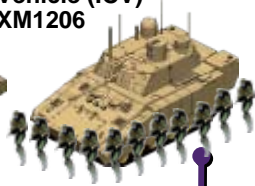
Mounted Combat System (MCS) XM1202

Infantry Combat Vehicle (ICV) XM1206

Command and Control Vehicle (C2V) XM1209

Class I Unmanned Air Vehicle (UAV) XM 156

Class IV Unmanned Air Vehicle (UAV) XM 157



Reconnaissance and Surveillance Vehicle (RSV) XM1201



Unattended Systems

T-UGS (AN/GSR-10 (T))

U-UGS (AN/GSR-9 (U))



Tactical and Urban Unattended Ground Sensors

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

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



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

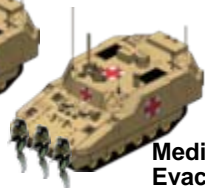


Unmanned Ground Vehicles (UGV)

Medical Vehicle Treatment (MV-T) XM1208



Medical Vehicle Evacuation (MV-E) XM1207



Armed Robotic Vehicle - Assault Light (ARV-AL) XM1219



Multifunctional Utility/ Logistics and Equipment Countermine and Transport



MULE-T XM1217



MULE-C XM1218



Small UGV (SUGV) XM1216



Manned Ground Vehicle (MGV) Family

C2V
XM1209



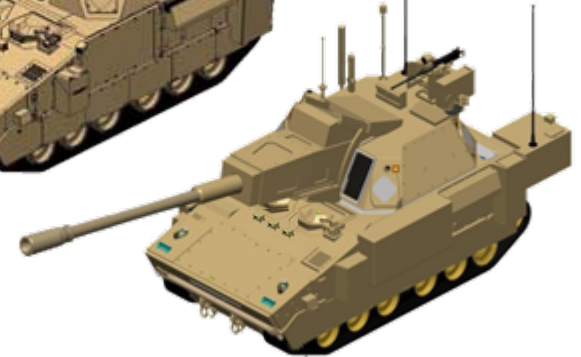
RSV
XM1201



MCS
XM1202



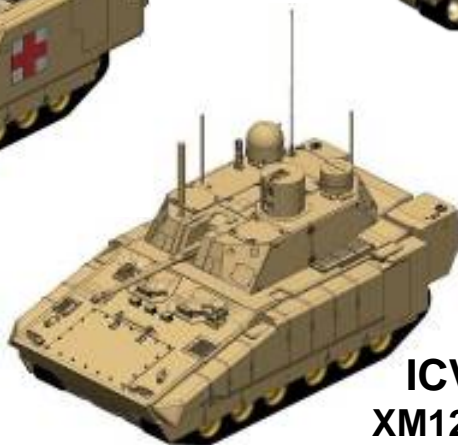
NLOS-C
XM1203



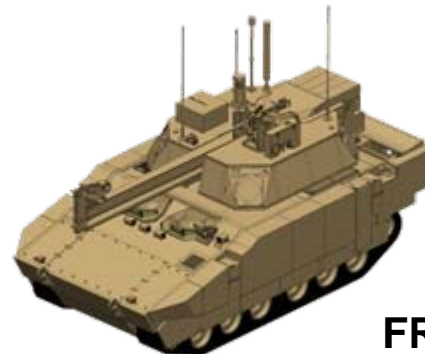
MV(E/T)
XM1207/1208



**Common
Chassis**



ICV
XM1206



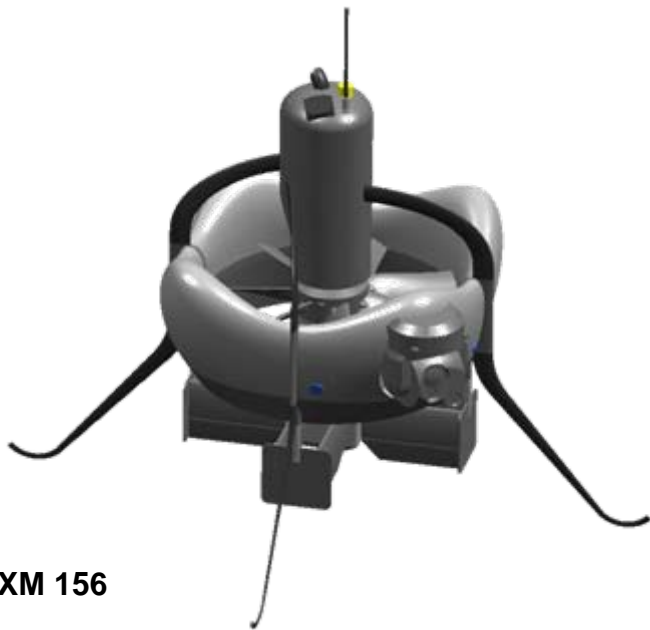
FRMV
XM1205



NLOS-M
XM1204

UAS Overview

XM 156 Class I UAS



XM 156

- Dedicated UAS capability at the lowest echelon
- Hover & Stare Capability enabling observation of urban infrastructure
- EO/IR/LD/LRF Sensor
- 10 hp Heavy Fuel Engine (HFE)

Unmanned Aerial Vehicle (UAV)
Unmanned Aircraft System (UAS)



XM 157

- Reconnaissance, Surveillance, and Target Acquisition (RSTA) with Aided Target Recognition (AiTR)
- Video/sensor data distribution on FCS network (HNW)
- Wide Band Communications Relay (WNW and SRW)
- Manned/Unmanned (MUM) Teaming
- Autonomous flight and navigation, and takeoff and landing at unprepared landing zones

XM 157 Class IV UAS

UGV Systems Overview



XM 1217 MULE Transport

- Supports two dismounted infantry squads
- Transports 1900 lb
- Mobility for Complex terrain



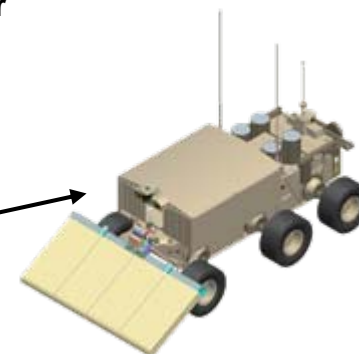
XM 1219 ARV-A(L)

- Provide RSTA/lethality for Dismounted, Mobile & Air Assault operations
- Javelin/M240
- MR EO/IR sensor



MULE Common Mobility Platform

- Common chassis to support three variants
- Articulating Suspension Arms
- Power and Propulsion to support 65 kph
- Transport 2 per CH47



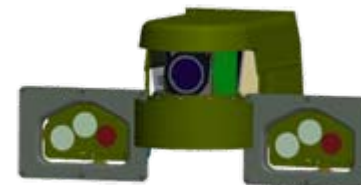
XM 1218 MULE-C

- Supports BCT assured mobility
- AT mine detection, marking and neutralization



XM 1216 SUGV

- Reconnaissance in urban and subterranean spaces
- 32 lbs, Lightweight & Man-Packable
- Day/night operation
- Modular sensor payloads



Autonomous Navigation System (ANS)

- Provides autonomous mobility control of UGV's
- Situational awareness for MGV Indirect driving

XM501 NLOS-LS System Overview

New Military Capability

- 15 missiles ready for launch
- Vertical launch with 360 degree coverage
- Laser guided, IR and grid attack modes
- Attack of moving targets
- Joint Program with Navy

Designed for Deployability

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



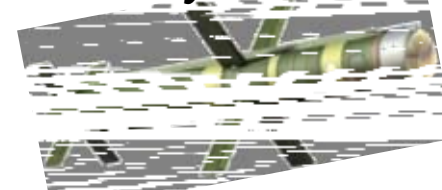
Current and Future Force Compatible

- Command and Control with AFATDS; full ORD threshold capability for sensor-shooter link with FCS Battle Command
- Two-Way Network Radio Link
- On-board Mission and Launch Processing



Container/Launch Unit

Family of Missiles



Precision Attack Missile (PAM)

- 40 km Range
- Automatic Target Acquisition
- In-flight target location updates



UGS Overview

Gateway



ISR
Sensors



Radiological/Nuclear
Sensors



EO/IR
Sensors

- Provides unattended Intelligence Surveillance Reconnaissance
- Detects & classifies heavy tracked vehicles at 350m
- Detects dismounted personnel at 50m
- Hand emplacement
- 13 sensors in a T-UGS kit
 - 2 Gateways
 - 8 ISR sensors
 - 1 RN sensors
 - 2 EO/IR sensors

T-UGS (AN/GSR-9 (V) 1)

- Supports clearing operations in complex urban terrain and provide extended surveillance of cleared structures
- Detects a person in motion within 15 meters of the sensor
- Provides an alert to the operator in less than 2 seconds
- 17 sensors in a U-UGS kit
 - 2 Gateways
 - 5 Imaging sensors
 - 10 Intrusion Detection Sensors

U-UGS (AN/GSR-10 (V) 1)

Gateway



Imaging
Sensor



Intrusion
Sensor

Program Accomplishments



ICS Mounted in Bradley



JTRS GMR in M1151A1



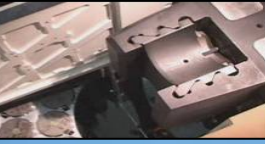
C2V Demonstrator



SUV Video Imagery Sent to B-Kitted HMMWV During Spin Out P-LUT



MCS Ammo Handling System



JEFX08



Spin Out P-LUT at AETF



Class IV UAV



Unattended Ground Sensors



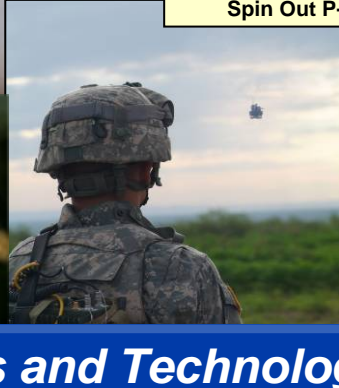
MULE



NLOS-C Army Birthday



APS Intercept



NLOS - LS Transport



NLOS - LS Test

Demonstrations and Technologies On Track

Adjusted Program

Current

- Most vulnerable force (Infantry Brigade Combat Team) not getting Spin-Outs until FY14
- Spin-Outs were focused on the most capable force – Heavy Brigade Combat Teams
- Not achieving integration of the Soldier in the network fast enough
- Not getting Spin-Outs to current force fast enough
- Size, weight, & power challenges with current heavy platforms (Tank, Bradley, Stryker, M113, & Paladin)
- Multiple Battle Command Systems



Proposed

- Spin-Outs focused on most vulnerable force (Infantry Brigade Combat Team) first – FY11
- Willing to accept risk, Heavy Brigade Combat Teams are good enough for now
- Soldier in the network with Ground Soldier Ensemble – FY11
- Accelerating and adding needed capabilities to the current force
- Integrated Battle Command System

All 43 Army and National Guard IBCTs Fully Equipped with Spin-Outs by FY25

Capability You Get

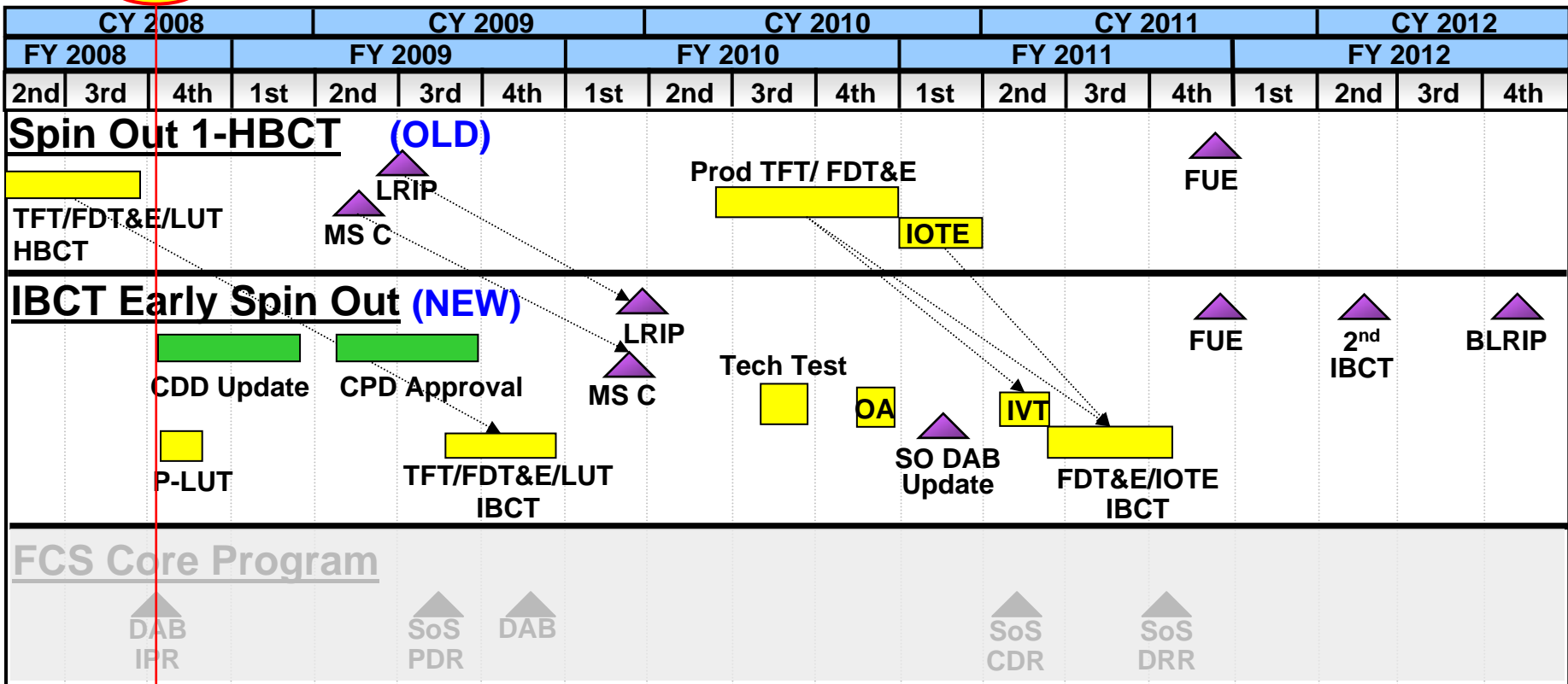
FCS-Enabled Infantry BCT IBCT Spin Out



Merging the Modular Force with FCS Capability Yielding a Networked and Precision Capable Force

Spin Out Program - What's Changed

Now



- Suspend
 - All Bradley and Abrams work after June 08 – PM MBE requirements after June 08, all SO1 HBCT testing
- Adds
 - 3 tests for IBCT Early SO – Preliminary LUT in Jul 08, SO1 Early TFT, FDTE and LUT in FY09, SO1 Early OT in FY10 (GMR radios)
 - Development of BFT HMMWV Kit (antenna and new cable) for both sets of GMR 4 channel radios (one with an EPLRS and SRW and the other with 2 SRWs)
 - Development of integration into FCB2 JCRs software
 - Integration of SUGV and Class 1 into bigger network (share pictures)
 - Update B2E software to included SUGV and Class 1 integration in FQT

IBCT Spin Out

Early IBCT

	B-Kit / B-Kit Light	81/0
	NLOS-LS	6
	T-UGS	12
	U-UGS	29
	Ground Soldier Ensamble / Rifleman Radio	268/648
	SUGV BIK1	38
	CL I UAV BIK0	22

•B-Kit For Early IBCT (HMMWV)

- 4 Channel GMR
- ICS Type VI with FCS BC B2E
- JCR running on v5 appliqué with display

•B-Kit For Threshold IBCT (HMMWV, Stryker CV)

- 2 Channel GMR
- 2 Channel HMS Manpack
- ICS Type VI running UBC-P with display
- Note: Replaces 2 SINCGARS radios in HMMWVs and EPLRS, Near Term Digital Radio (NTDR), and two SINCGARS from Stryker CV

•B-Kit Light for Threshold IBCT (HMMWV, FMTV)

- 2 Channel HMS Manpack
- V5 appliqué with display running UBC-P
- Note: Retains SINCGARS on HMMWVs, FMTVS

Threshold IBCT

	B-Kit / B-Kit Light	84/412
	NLOS-LS	6
	T-UGS	12
	U-UGS	29
	Ground Soldier Ensamble / Rifleman Radio	268/648
	SUGV (T)	38
	CL I UAV (T)	22
	MULE-C (T)	2
	ARV-A-L (T)	29
	Centralized Controller (T)	123
	Class IV UAV (T)*	16

Average Procurement BCT Cost (FY03C\$)

Spin Out Early = \$181.4M
 Spin Out Threshold = \$370.1M
 Excludes radios & GSE
 Includes ORFs

Spin Out Capabilities to Current IBCTs

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Production Schedule	1	2	4	1	2	2	3	3	3	4	4	4	4	4	2
Procurement Dollar Rqmts (TY\$M)	\$333	\$555	\$852	\$983	\$1,126	\$1,405	\$1,563	\$1,609	\$1,643	\$1,976	\$2,003	\$2,006	\$2,018	\$1,881	\$1,006
Cumulative Fielding to Current IBCTs		1	3	6	8	10	12	15	18	21	25	29	33	37	41

Threshold Production

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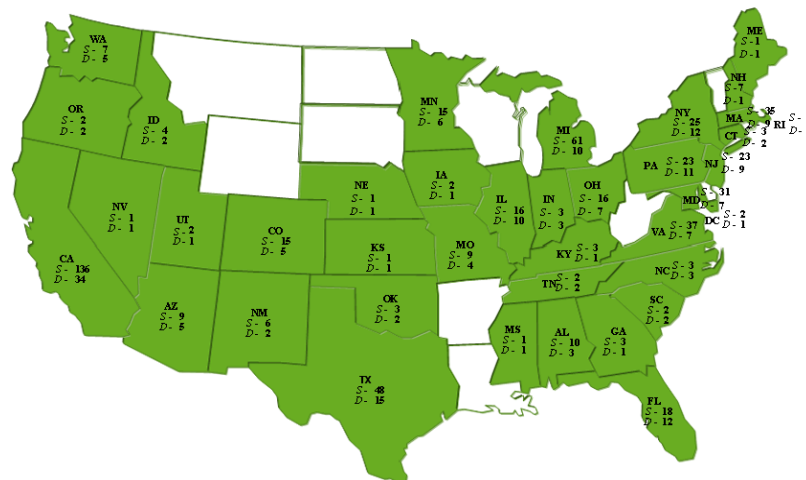
FCS Program Business Opportunities



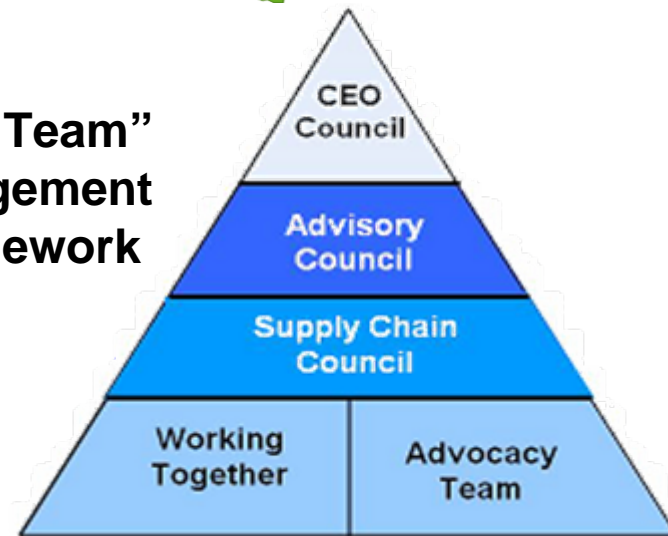
One Team

39 States, 203 Congressional Districts, 586 Suppliers

As of 31 March 2008



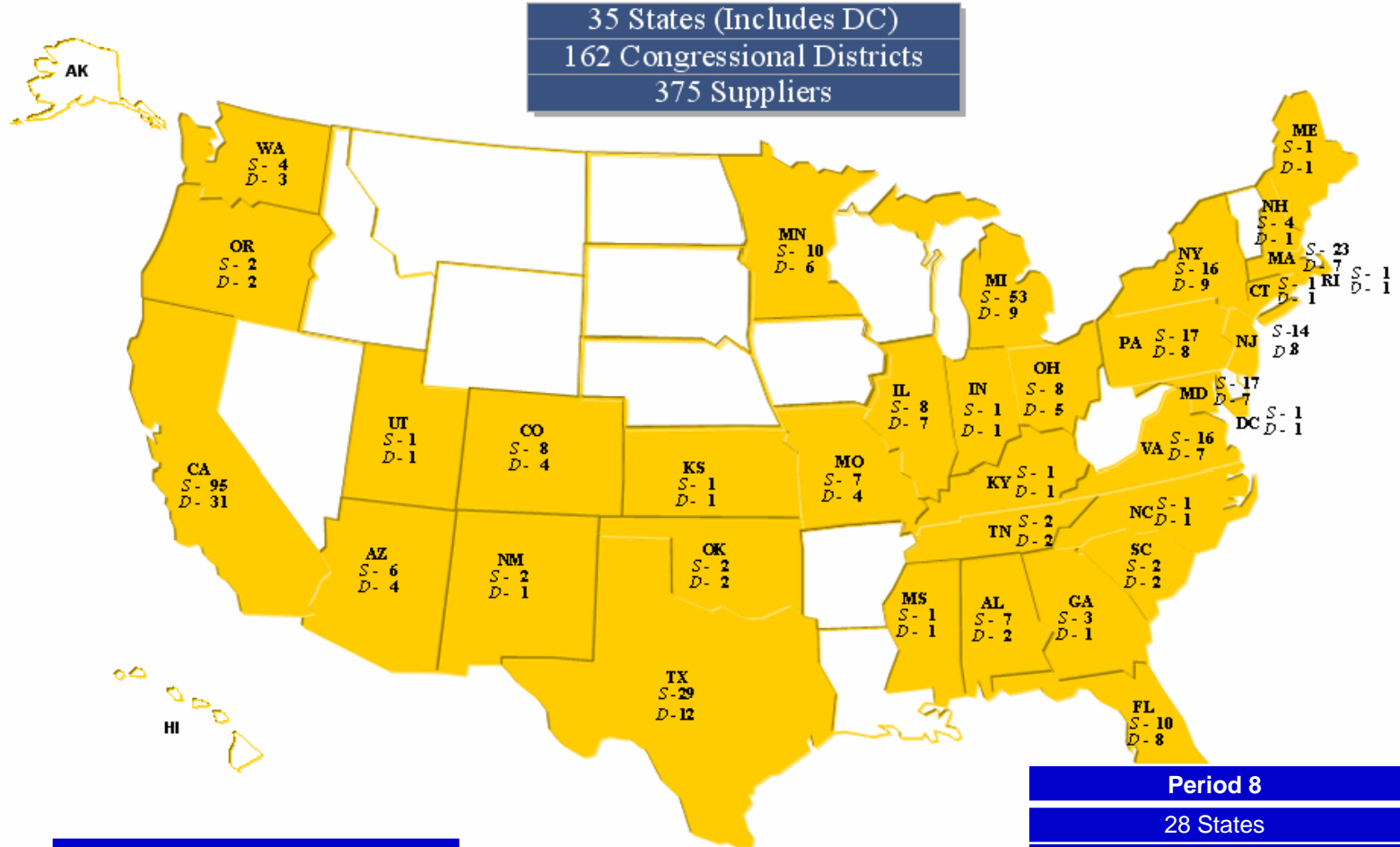
**“One Team”
Management
Framework**



Best of Industry Approach

Future Combat Systems Supply Base

Small Business - As of Period 9: 03/31/08



-----Excludes Values-----
 < 5K for Small Business
 < 10K for Large Business
 S=Supplier D=District

Period 8
 28 States
 151 Congressional Districts
 314 Suppliers
 -----Excludes Values-----
 < 5K for Small Business
 < 10K for Large Business

How to Get Involved with FCS

- Regularly check the FCS Website Home Page at: www.boeing.com/fcs
- Located on this website:
 - FCS Business Opportunities of the LSI and its Partners (contacts with websites)
 - Information on Submitting Inquiries
 - Partners' Requests for Quotations / Information
 - Supplier Diversity information (specific LSI / Partner Small Business contacts provided in FCS Business Opportunities Brochure)
 - FCS calendar with upcoming conferences and events
 - On-line registration form
- Reach out to the LSI and Partners to express your interest and capability
- Focus on areas of technology and express interest across the One Team

FCS External Web Site

Website for program information to engage all segments of Industry

- Business opportunities across the team including RFIs/RFPs and Industry Day announcements

The screenshot shows the Boeing website's 'Future Combat Systems' section. The top navigation bar includes links for Corporate Governance, Employment, Employee/Retiree, Ethics, Suppliers, and Secure Logon. The main content area features a banner for 'Future Combat Systems' with the tagline 'One Team - The Army/Defense/Industry'. Below the banner is a section titled 'About the FCS Program' with a description of the program as an Army modernization initiative. A sidebar on the right contains 'Quick Links' for FCS One Team, Request for Information/Propose, and FCS Business Opportunities, as well as 'New Bid Opportunities' for Voice Call Manager (VCM) RFP, Opportunity Deferred, Technical On-Site Support - RFI, and Multi-purpose ATP Test Stands: Fabrication and Delivery of - RFI. A 'Register with FCS' link is also present.

New Bid Opportunities Posted

Examples of Current Business Opportunities

Supportability	
Logistics Data Management Service	
<ul style="list-style-type: none"> • Service Oriented Architecture • Systems Engineering • Software Development • Modeling and Simulation • Systems Architecture 	
Platform Soldier – Mission Readiness	
<ul style="list-style-type: none"> • Embedded micro sensors with micro transmitters for monitoring human health and physiological/psychological conditions 	
C4ISR – Network Systems / Battle Command	
Centralized Controller Device	Battle Command & Mission Execution
<ul style="list-style-type: none"> • Procurements for Small, Hand-Held Computing Devices <ul style="list-style-type: none"> –Helmet/Goggle Mounted Display Devices –OLED Touch Screen Displays 	<ul style="list-style-type: none"> • Software Engineering • Software Coding and Development

Manned and Unmanned Ground Systems	
MGV	UGV
<ul style="list-style-type: none"> • Fabrication • Wiring Harnesses • Bearings • Electrical and Hydraulic Components • Machined Parts • Insulation • Fuel Tanks • Fuel Adapter Cap External to MGV: Large Caliber Ammunition Resupply	<ul style="list-style-type: none"> • Titanium Fittings and Tubing • Welding Services • Lightweight Armor • Suspension Motors • Ultrasonic/Acceleration/Position Sensors • Integrated GPS/INS System • GPS Antenna
Intelligence, Surveillance, and Reconnaissance	
Air Sensor Integration	
<ul style="list-style-type: none"> • Software Engineering to support porting and verification testing • Engineering Consultants for Electro-Optics/Infrared/Laser-Designator/Laser Range-finder sensor supplier management • Knowledgebase solutions 	

Summary

- Program keeping pace with Army needs...Maintain Velocity
- More than 60 test activities underway...All Platforms in Testing
- 2009 is a critical execution year...SoS PDR
- FY09 PB at \$3.6B...RDTE & Production
- Focused on Our Soldier

...The Future is Here Now



Equipping our joint warfighters with the world's best capability

FUTURE COMBAT SYSTEMS



One Team-The Army/Defense/Industry

Questions?

