



# ***Meeting the Needs of a Transforming Force...***

**An Engineer Perspective**



# ***AGENDA***

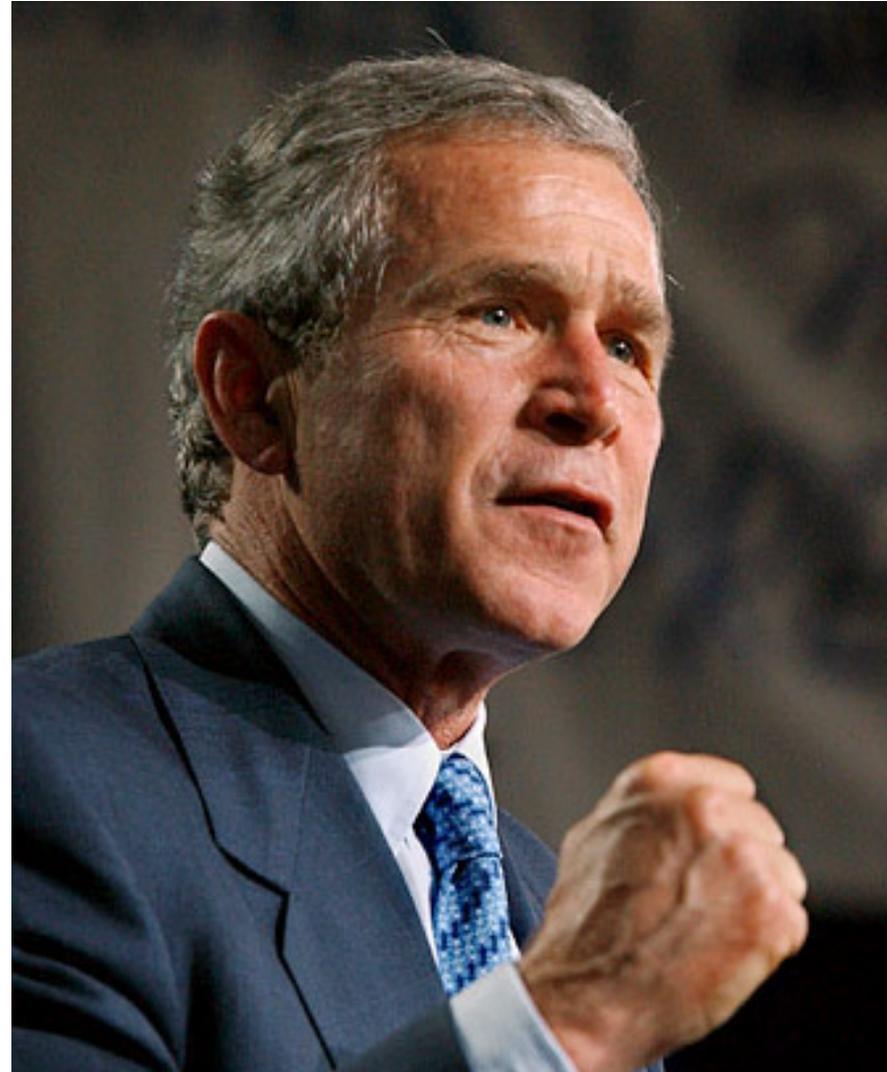


- **Army Vision**
- **Assured Mobility**
- **Vision for Demolitions and Engineer Munitions Modernization**
- **Summary**



**“The United States needs to speed up the Transformation of its Armed Forces if it wants to succeed in the war on terrorism and other future enemies.”**

**President George W. Bush**





# THE ARMY VISION



## People

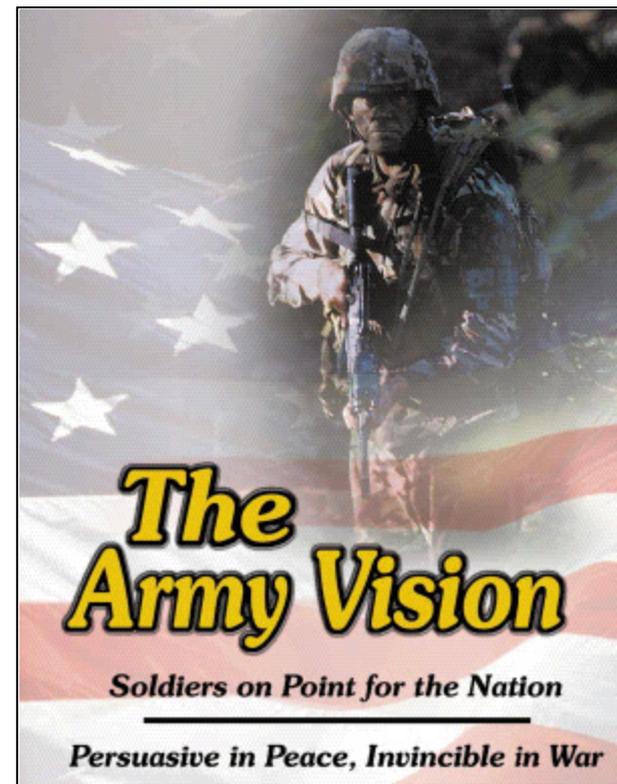
- $\frac{3}{4}$  **Soldiers -- Centerpiece of our formations**
- $\frac{3}{4}$  **Train Soldiers and grow leaders**
- $\frac{3}{4}$  **Leadership is our stock-in-trade**
- $\frac{3}{4}$  **Well being -- investment in nation's security -- for soldiers, civilians, retirees, and their families**

## Readiness

- $\frac{3}{4}$  **Top priority**
- $\frac{3}{4}$  **Must maintain non-negotiable contract -- to fight and win the Nation's wars as we transform**
- $\frac{3}{4}$  **Support National Military Strategy -- meet JSCP and CINC requirements**

## Transformation

- $\frac{3}{4}$  **More strategically responsive and dominant at every point on the spectrum of military operations**



# Spectrum of Military Operations

Nuclear War

**Homeland Security**



**GWOT**

**Soldiers on Point for the Nation**



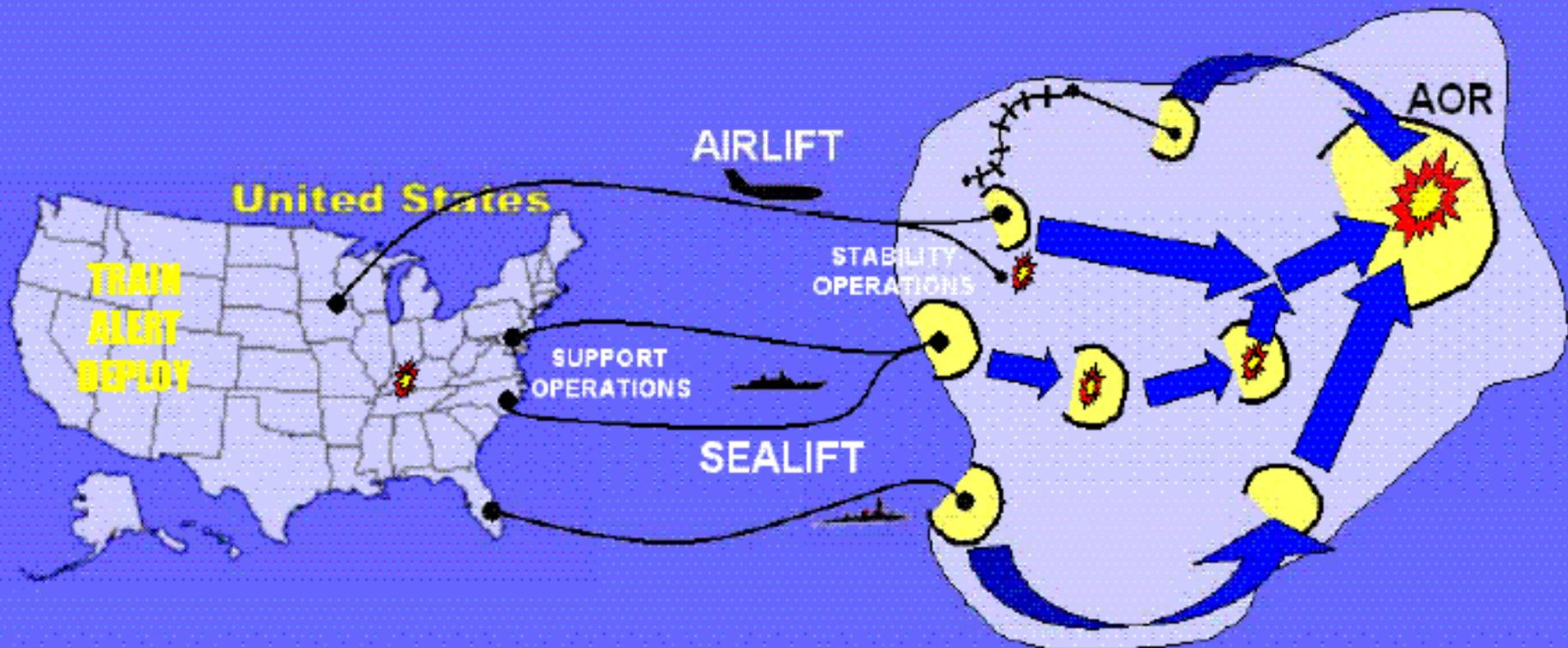
# ***FUTURE OPERATIONS***



- **Varied and quickly changing environments**
- **Old and new threats**
- **Uncertainty on the battlefield**



# REQUIRED MOBILITY CAPABILITIES



**Strategic Deployment:**

The transport of forces from CONUS or forward bases into a theater of operations or Joint Operations Area (JOA) through multiple points of debarkation.

**Operational Movement and Maneuver:**

The movement of forces within a theater of operations or a JOA to conduct operations.

**Tactical Maneuverability**

The tactical movement of combat units to positions of advantage and the application of countermeasures to obstacles

SEE FIRST

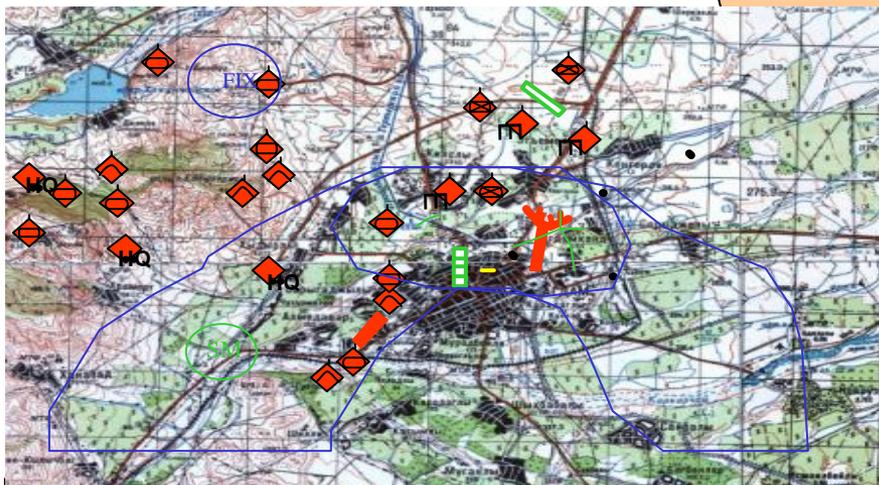


Develop Mobility  
COP

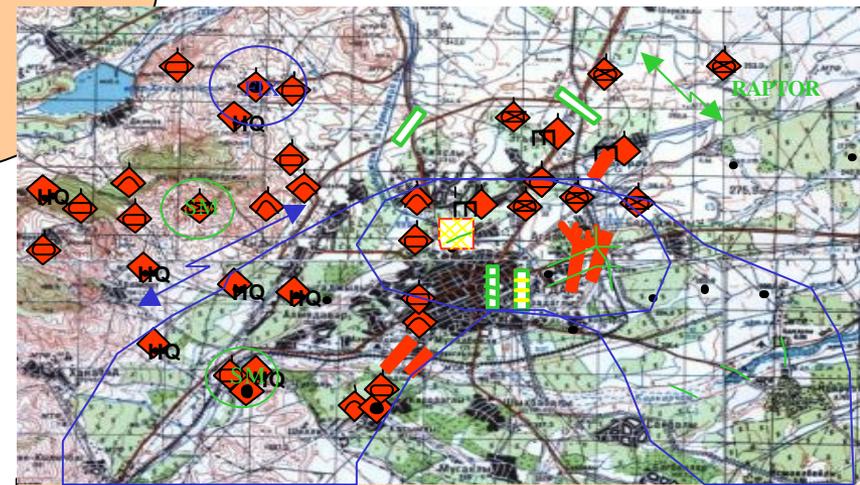


Select, establish, & maintain Operating  
Areas

# ASSURED MOBILITY



Maintain mobility and  
momentum



Attack enemy's ability to influence  
Operating Areas

ACT FIRST



# ESSENTIAL CAPABILITIES

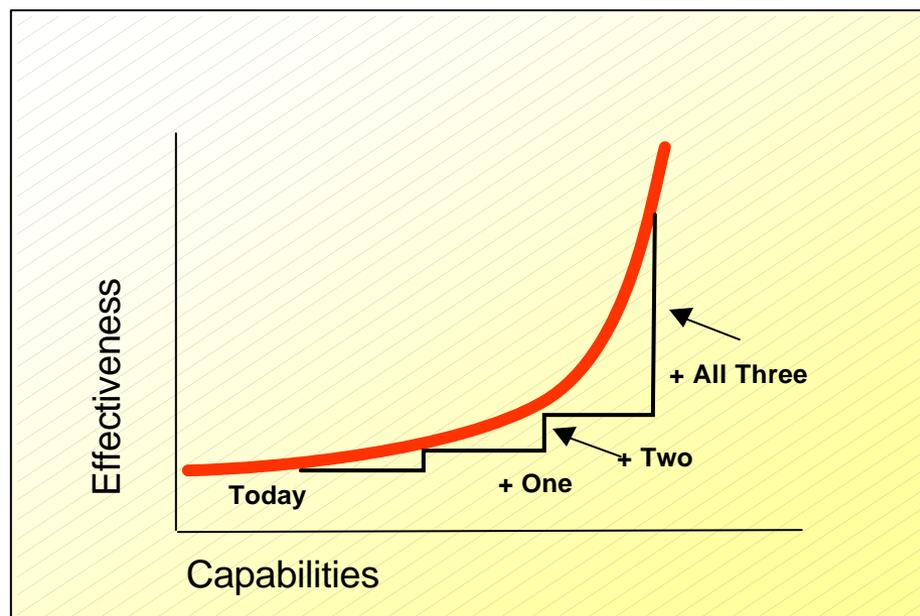


Objective Force Concept Depends on

All Three Capabilities:

- Superior SITUATIONAL UNDERSTANDING: Enemy, Friendly, Environment, Civilian
- Delivery of PRECISION EFFECTS
- ASSURED MOBILITY When and Where the Commander Chooses

- Integrated C4ISR Network Provides Essential Overarching Environment



***The Keys to Full Spectrum Dominance***



# ***DTLOMS ASSURED MOBILITY IMPLICATIONS***



## **DOCTRINE**

- C2 of movement within corridor (Opening / Closing / Maintaining)
- ISR integrated with terrain to develop the mobility COP
- Decision aids to select operating areas

## **TRAINING**

- Specialized battle drills within combined arms teams utilizing decision aids and reacting to updated information
- Integrate ISR with obstacle effects

## **LEADER DEVELOPMENT**

- Experience level required for planning & executing Assured Mobility across dispersed battlespace

## **ORGANIZATION**

- balanced embedded resources & reachback for Assured Mobility

## **MATERIEL (See Required Capabilities on next slide)**

## **SOLDIERS**

- Able to understand the impact of terrain and their vital role in Assured Mobility



# ***MATERIAL IMPLICATIONS REQUIRED CAPABILITIES***



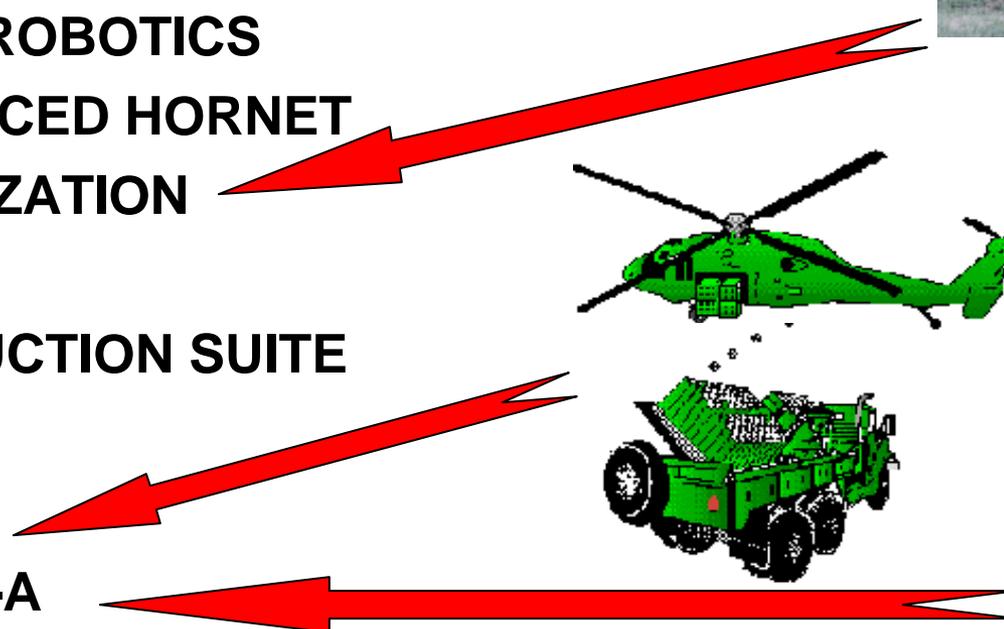
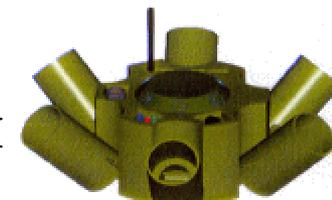
- **Sustain friendly and control enemy freedom of maneuver.**
- **Allow the force to shape, modify, and supplement terrain effects in all conditions within the battlespace.**
- **Multi-functional system integrated into the network-centric advanced force structure.**
- **System of systems.**
- **Provide precision delivery, multi-dimensional coverage, and stand-off execution in advance of offensive operations.**
- **Provide variable type and severity of effects from lethal to non-lethal.**

# 1-n INTERIM LIST



## 2002

1. DTSS
2. ENGINEER SQUAD VEHICLE
3. STANDOFF MINE DETECTION (ASTAMIDS, GSTAMIDS, AND HSTAMIDS)
4. MONGOOSE
5. REBS
6. COUNTERMINE ROBOTICS
7. RAPTOR/ADVANCED HORNET
8. DEMO MODERNIZATION
9. HMEE
10. LIGHT CONSTRUCTION SUITE
11. BRIDGING UNIT
12. MCS-ENG
13. VOLCANO / APL-A



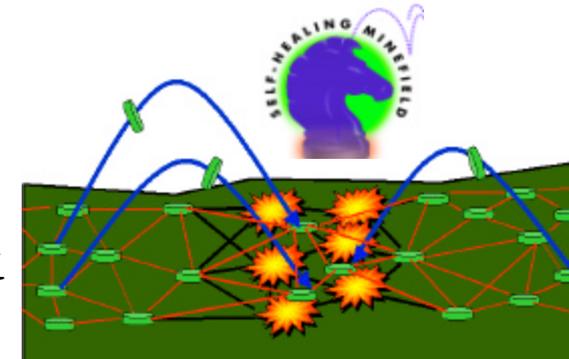


# 1-n OBJECTIVE LIST



## 2002

1. MOBILITY INFORMATION SYSTEM
2. STANDOFF MINE DETECTION (ASTAMIDS, GSTAMIDS, AND HSTAMIDS)
3. STANDOFF MINE NEUTRALIZATION
4. BRILLIANT SENSOR - MUNITIONS
5. FCS -- MOBILITY VARIANT
6. MANUEVER SUPPORT BRIDGING SUITE
7. RAPIDLY DEPLOYABLE CONSTRUCTION EQUIPMENT
8. TERRAIN SHAPING MUNITION
9. DEMOLITION MODERNIZATION
10. INFRASTRUCTURE CONSTRUCTION EQUIPMENT





# ENGINEER MUNITIONS AND DEMOLITIONS SUPPORT TO THE FCS

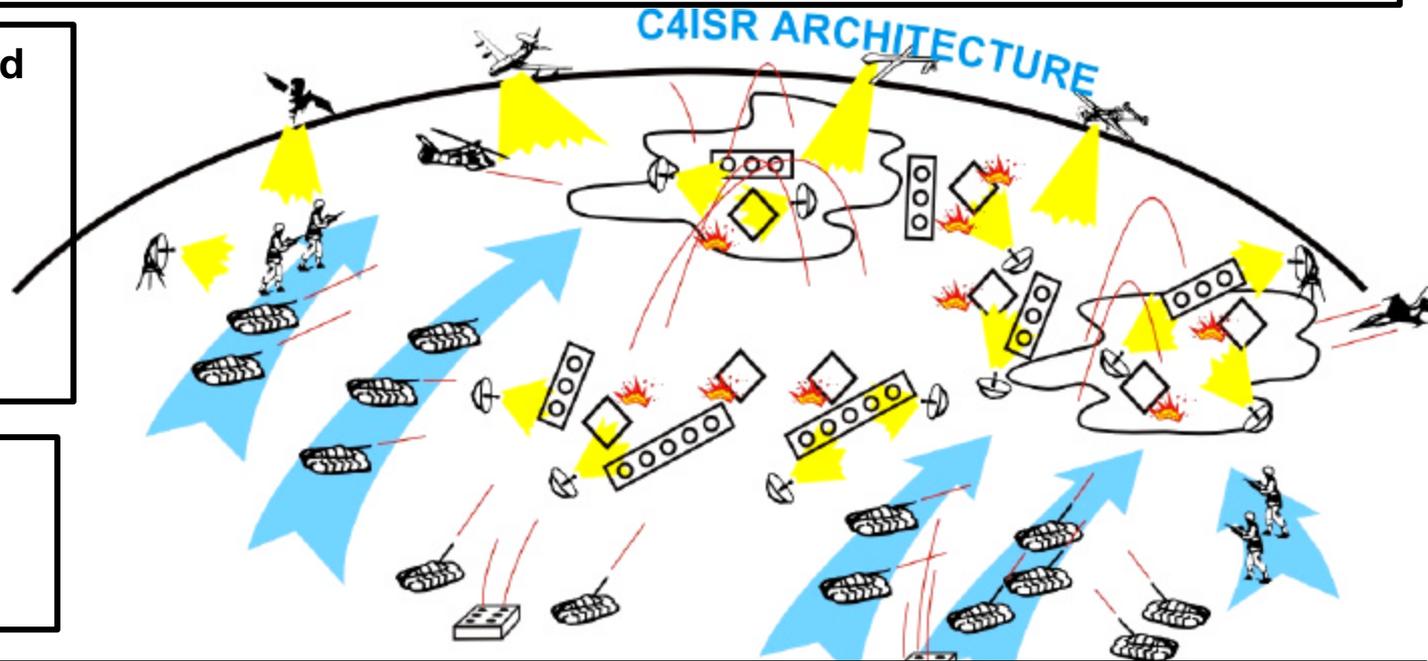


- Integrated into the C4ISR architecture – shared knowledge
- Provide organic sensors (like Raptor) or link to FCS sensors
- Utilize sensor to shooter links to cue engineer munitions and demolition system outcomes in concert with FCS actions

## Engineer Munitions and Demolitions Enable Assured Mobility

- ➔ Allow unimpeded friendly maneuver
- ➔ Preclude enemy maneuver

- Engineer munitions and demolitions are primarily offensive weapons in Objective Force Operations



- Electronically integrated into the COP and tactical internet for situational awareness and understanding and remote control and operation
- Utilize advanced technologies that are less bulky, more versatile, lightweight, and multi-functional
- Selectable response capabilities afford full spectrum operation

***Knowledge Based...Fast Paced...Unyielding Force Mobility  
Delivers Overwhelming Battlefield Effects***



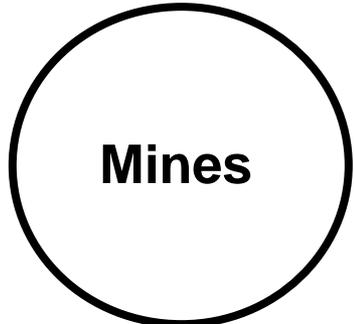
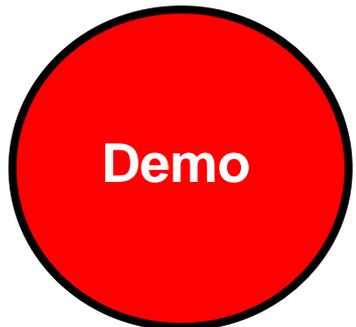


# TRANSFORMATION OF MINES, DEMOLITIONS, NON-LETHAL CAPABILITIES

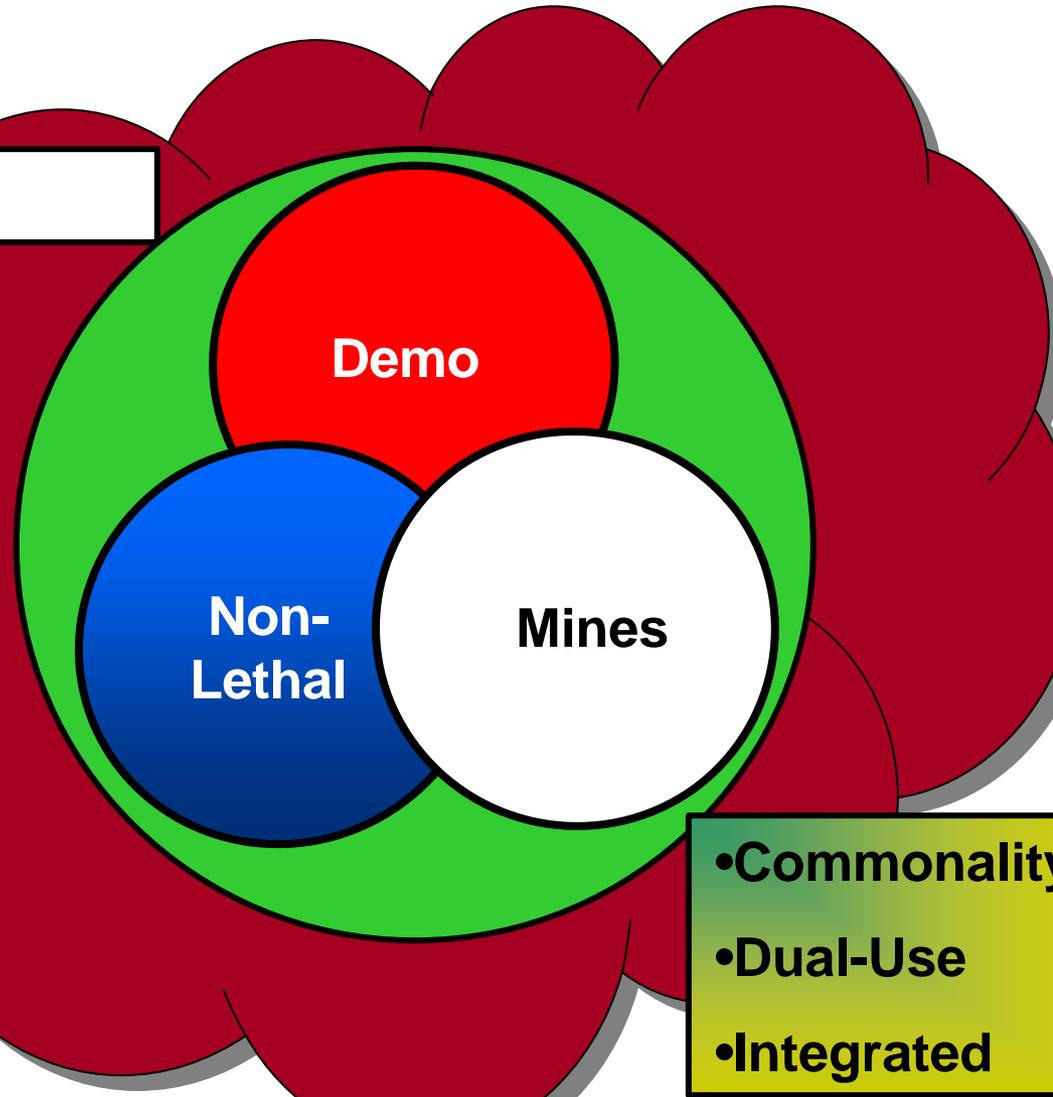
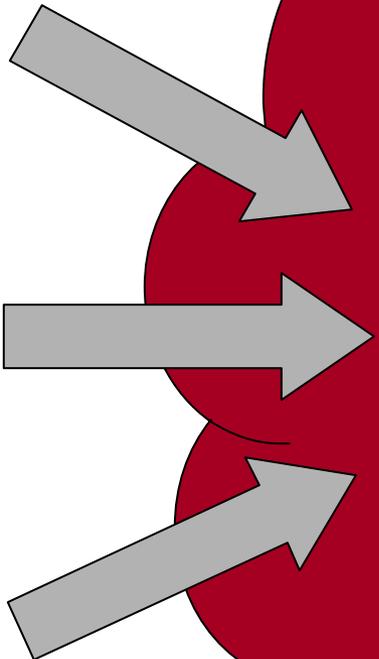


TOMORROW

TODAY



TRENDS...



- Commonality
- Dual-Use
- Integrated

# DEMOLITIONS TRANSFORMATION



**TODAY**

**Demolitions  
Kit Bag**

**Close-  
In**



**FUTURE**

**Demolitions  
Kit Bag**

**Stand-  
Off**

- Bulky
- Stovepipe
- Logistic Challenges
- Complicated
- Reliability Questions
- No C2
- 12B Operators

- Lightweight
- Interoperable
- Modular
- Simple to Operate
- Versatile/Multi-Functional
- Integrated into FCS
- Objective Force Soldier Operated

~20 Systems to support 100's of tasks

- Breaching
- Cutting
- Digging

Few systems to support dozens of tasks

- Breaching
- Cutting
- Digging
- Communicating/Planning



# ROADMAP

## Objective Force

Today's Systems

System

Control

Function

Initiators and Initiation Systems



**Family of Initiators**

Remote Control

Internet Version

Man-in-the-Loop Version

Smart Version

Networked

Remote Operation and Execution

Commonality

Communications

Auto-Target Recognition

Autonomous / Smart

Demolitions

Bulk

Special Purpose

Shaped & Cratering

**Modular Charge Kit Dial-A-Charge**

Remote Delivery Version

Hand-Emplaced Version

Breach

Cut

Incapacitate

Deny

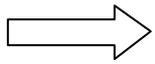
Employ Explosive and Non-Lethal Means



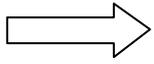
# DEMOLITIONS PATH FORWARD



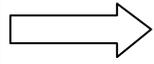
**TODAY**



**2 - 4 YEARS**



**4 - 6 YEARS**

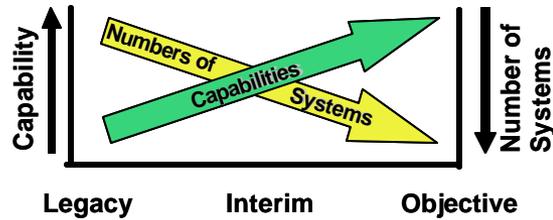
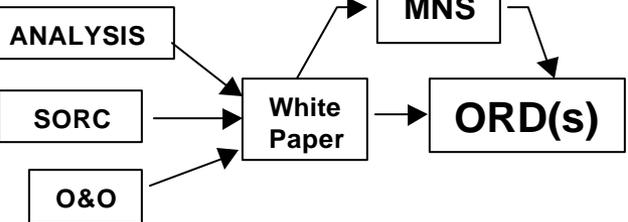
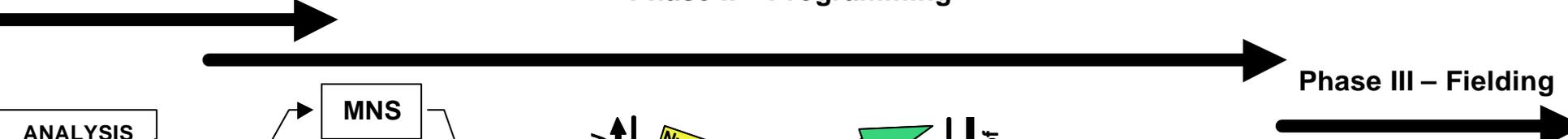


**AND BEYOND...**

**Phase I – Planning**

**Phase II – Programming**

**Phase III – Fielding**



**ACQUISITION PROGRAM EXECUTION**

**System Fielding**

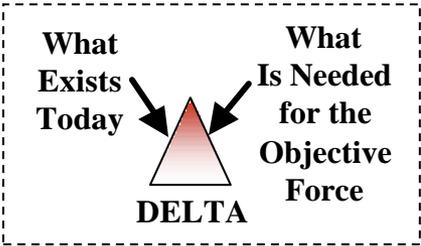
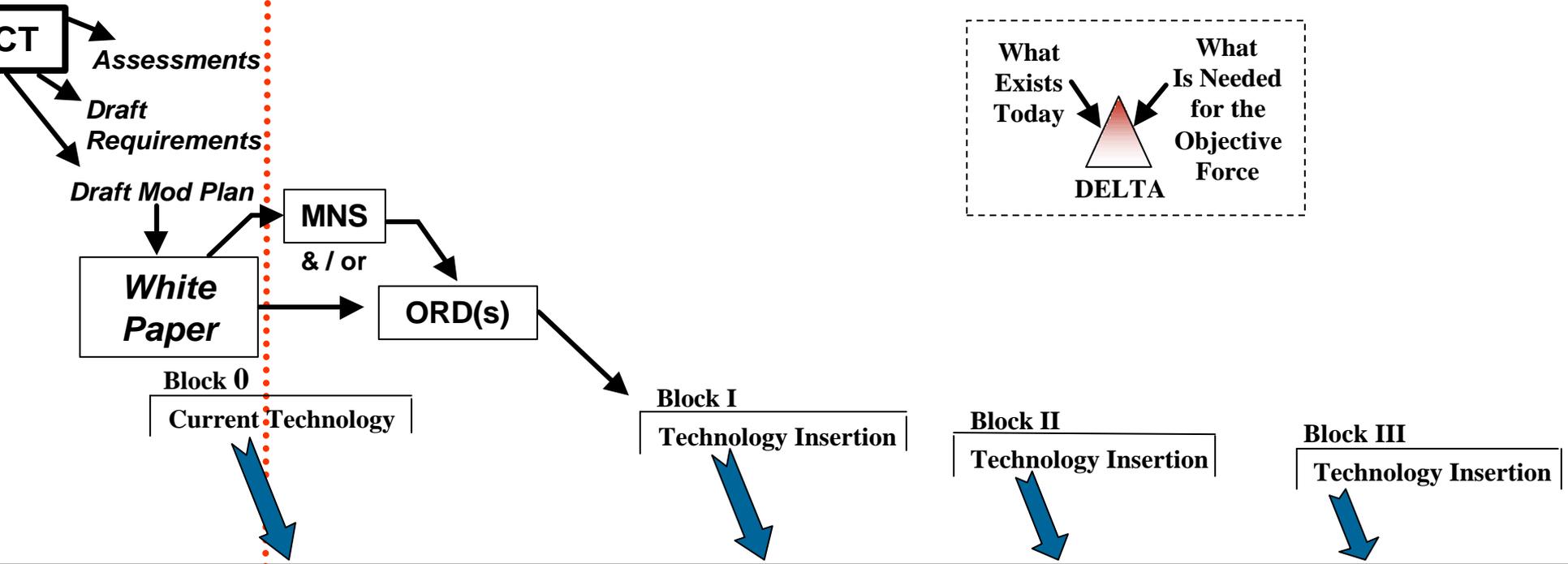




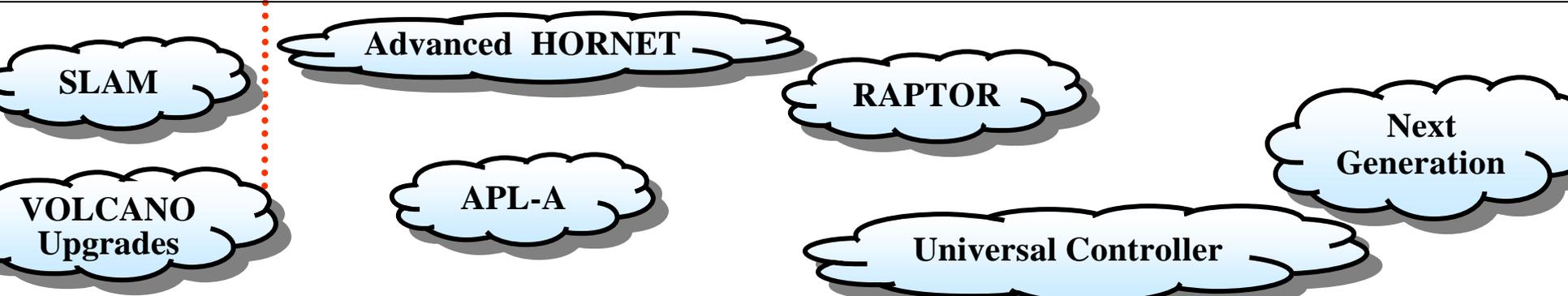
# ENGINEER MUNITIONS MODERNIZATION PLAN



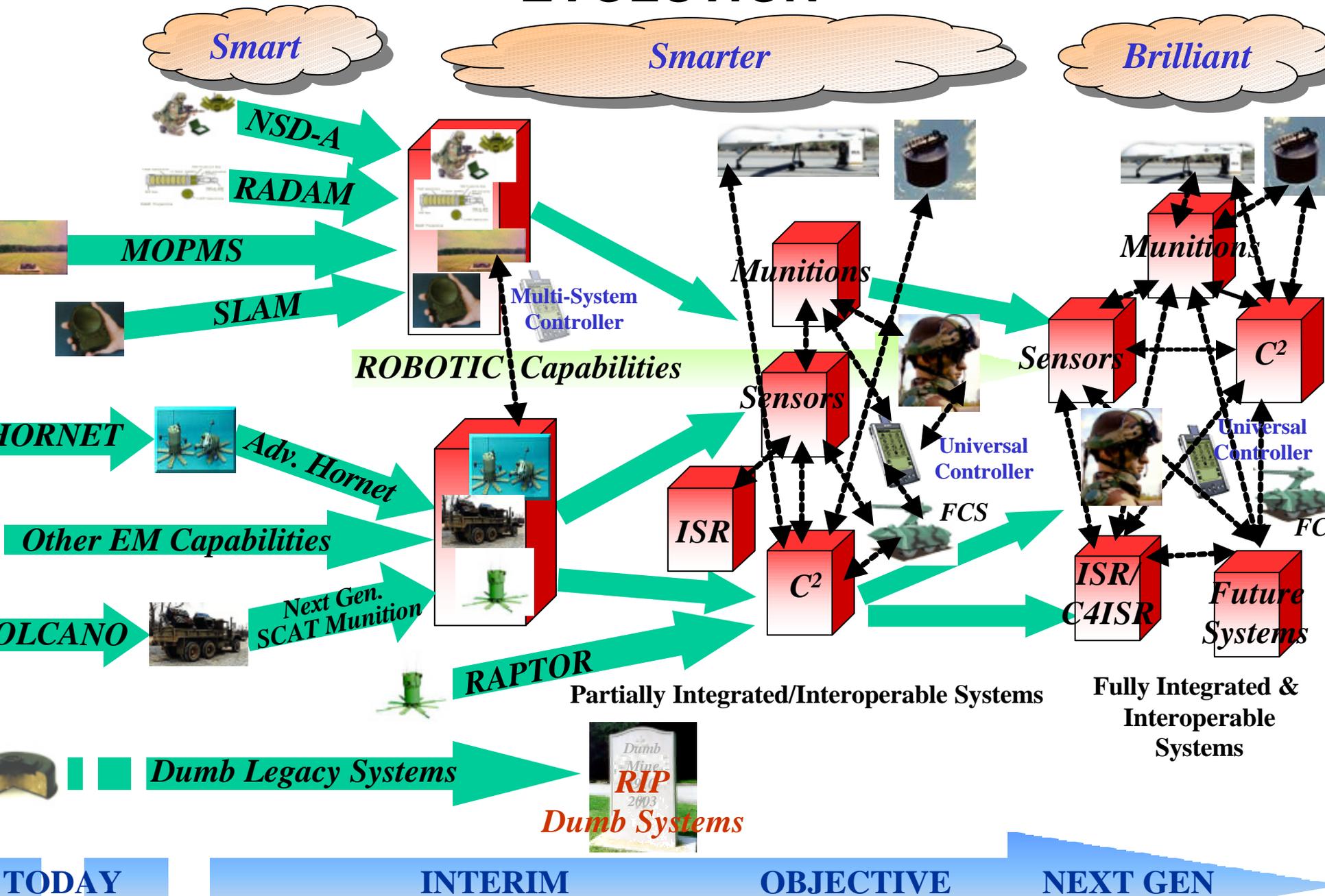
FY02                      FY03                      FY05                      FY07                      FY09                      FY11                      FY13



## ACQUISITION PROGRAM EXECUTION



# ENGINEER MUNITIONS SYSTEM OF SYSTEMS EVOLUTION



Smart

Smarter

Brilliant

NSD-A

RADAM

MOPMS

SLAM

Multi-System Controller

ROBOTIC Capabilities

Munitions

Sensors

Sensors

C<sup>2</sup>

HORNET

Adv. Hornet

Other EM Capabilities

Next Gen. SCAT Munition

OLCANO

RAPTOR

Universal Controller

FCS

ISR

C<sup>2</sup>

ISR/  
C<sup>4</sup>ISR

Future Systems

Partially Integrated/Interoperable Systems

Fully Integrated & Interoperable Systems

Dumb Legacy Systems

Dumb Systems

TODAY

INTERIM

OBJECTIVE

NEXT GEN



# ENGINEER SYSTEM OF SYSTEMS



*Objective Force Capabilities* + *Modernized Demolitions & Engineer Munitions Capabilities* = *Success Across The Entire Conflict Spectrum*

# ***SUMMARY***



- **Evolution of spectrum of conflict and changing roles for the modern warrior**
- **Evolution of Demolitions and Engineer Munitions has begun**
- **This evolution is critical to Objective Force Operations**
- **Industry and government cooperation will be pivotal to success**
- **Bottom Line – U.S. must maintain technological advantage**



***QUESTIONS ?***