Future Modular Force Strike Concept and Precision Munitions

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Allan Resnick, SES
Director, Capabilities Development and Analysis
Army Capabilities Integration Center
US Army Training and Doctrine Command

TRADOC: Victory Starts Here!
The Army Capabilities Integration Center designs, develops, integrates and synchronizes force capabilities for the Army across the DOTMLPF imperatives into a Joint, Interagency, and Multinational operational environment from concept through capability development.
Spectrum of Operations in 21st Century

SPECTRUM OF CONFLICT

Stable Peace
Unstable Peace (Pre-Insurgency)
Insurgency
General War

OPERATIONAL THEMES

Peacetime Military Engagement
Limited Intervention
Peace Operations
Irregular Warfare
Major Combat Operations

FULL SPECTRUM OPERATIONS

STABILITY
DEFENSE
OFFENSE
STABILITY
DEFENSE
OFFENSE
STABILITY
DEFENSE
OFFENSE
STABILITY
DEFENSE
Who Will We Face? Where Will We Operate?

Enemies Will Seek to:
- Deter US involvement
- Isolate US from local support or allies
- Block entrance to country or lure US into “their zone”

Operational Complexity:
- Enemies who have “gone to school” on U.S. operations
- Traditional and Irregular
- Protracted, simultaneous, full spectrum operations in difficult/diverse terrain

Adaptive, Asymmetric Threat
- Some Niche capabilities better than ours
- Info Operations
- No rules

Second Lebanon War Insights (Hezbollah)
- Complex terrain fight in “their zone”
- Relied on low visibility and prepared defenses
- Relied on own secure lines of communication and predicted Israeli ground approaches
- Massed Rockets, ATGMs, RPGs, and Mortars (low tech new ways)
Army Concept Strategy

FY05
- Capstone Concept

FY06
- Operating Concepts

FY07
- Functional Concepts

FY08
- Concept Refinement

Wargaming and Experimentation

Capability Based Assessments (CBA)

A comprehensive set of concepts for future capabilities development
THE PROBLEM

Future operational environment requires precise, responsive, integrated and interoperable fires (lethal and non-lethal) delivered from a wide range of sources (joint, interagency and multinational) at the tactical, strategic or operational level to defeat the enemy while simultaneously complementing movement, stability operations, and protection of friendly forces conducting Full Spectrum Operations.

SOLUTION SYNOPSIS

- **Tailored mix** of organic and available joint, allied, and coalition strike capabilities
- **Fully integrated**, transparent communication and computer interfaces between joint fires (lethal / non-lethal), command and control, and knowledge networks
- Continuous integration and employment of **networked fires** that will extend seamlessly from strategic to tactical levels and timeframes with no gaps in coverage or loss of timeliness
- **Near real-time situational awareness** to employ fires that achieve maximum desired effects
- **Advanced munitions** (lethal and non-lethal)
- Gaining and maintaining routine **access to Space**

*Strike -- employment of fires in the future Modular Force, including available joint and multi-national fires, in support of Full Spectrum Operations and integration of fires with information capabilities and operations*
**Purpose**: analysis of the Joint and Army precision munitions proposed for the *current and future forces* in medium and high intensity operations within Joint, Interagency, and Multinational (JIM) context to support program and funding decisions.

**Problem Statement**
Numerous Joint and Army precision munitions planned to support the current Heavy BCT forces and future Heavy BCT and FCS BCT forces. Army precision munitions cost estimates greatly exceed currently available and projected funding. The Army must determine what subsets (or mixes) of Army precision munitions best support the force within logistical and funding constraints.
Precision Munitions Mix Analysis

Context

Attributes: preferred mix determined based on ability to:

**Threat & Environment**
- Engage targets under adverse weather and countermeasure conditions.
- Engage targets under stringent ROE conditions (e.g., minimize collateral damage).

**Current and Future Force**
- Provide a balanced precision capability across echelons and battlefield functional areas.
- Provide a precision capability beginning FY08 and leverage munitions with best technical readiness level to minimize costs and facilitate transition between force designs.

**Resources**
- Meet the affordability requirements.
- Meet the logistic support capabilities of the current and future force.

- Multiple joint land operations scenarios around the globe
- More than 30 munitions candidates
- More than 180 target mission profiles

Joint, Army, and Other Services Participants

- USAFAC
- USAIC
- USAAVNC
- UAMBL
- Army G3/G8
- ARDEC-CSS
- ARM PMO
- JCM PMO
- NAVSEA
- NAVAIR
- NLOS-LS TF
- OPM Excalibur
- OPM CAS
- PEO Ammo
- PEO Tac Missiles
- PM Mortars
- PM MAS
- S3/PFRMS
- TSM RAMS
- TSM Cannon
- DCSINT-Threats
- USAF Doc Center
- AMSAA
- TRAC
A methodology to screen, explore, and develop mixes of Army precision munitions through iterative analysis and integration of results from goal programming, force on force, and resource analysis.

**Front End Analysis**

- **Operational Framework & Requirements**
  - Mission Profiles
  - Capability Packages

- **Screening Potential Mixes**

- **Versatile Munitions**
  - Versatile: The ability to achieve effects across the spectrum of the Threat target sets using diverse tactical selection criteria.

**Mix Analysis**

- **Force on Force Simulation (BN+)**
  - Initial Combinations
  - Sensitivity Analysis

- **Preferred Mixes**

- **F-o-F Simulation (BCT & DIV)**
  - Resource Analysis
  - Analysis Integration
  - • Cost
  - • Logistic Impact
  - • Affordability
• Precision munitions are not a one-size fits all….Commanders require immediate options.

• Employment of precision munitions becomes most effective as we build and improve the future force network.

• Current and Future Forces (HBCT and FBCT) will be able to accomplish their missions with a subset of the Army’s collection of precision munitions programs.

• Employing a subset of Army precision munitions causes greater reliance on joint capabilities (i.e. increased joint interdependence).

• Select Army Precision Munitions provided broadest utility across range of military operations (e.g. Hellfire)

• Select mixes reduced the overall logistics burden.

• Effectiveness and affordability will drive changes to program quantities and production schedules.
Way Ahead
U.S. Army Modernization Strategy

Soldiers and Leaders
(Mounted and Dismounted)

Joint Modular
Force Attributes
- Full Spectrum Operations Capable
- Projects And Sustains In Austere Environments
- Common Operating Picture, On The Move, Down To Soldier Level
- Lethal And Integrated Small Units
- Informed, Empowered, Multi Skilled Leaders And Soldiers
- Dominant Land Force

More
Agile, Versatile, Lethal, Survivable, Sustainable, Standardized

Future Combat Systems
Integrating Agent for Systems of Systems

- On the move
- Multi Layered Network
- Joint Integrated
- Persistent, shared situational awareness

Modular Formations

- Better Protection
- Mission Effective and Efficient
- More Lethality
- Rotational, sustained presence

Network
BACK UPS
THE PROBLEM

- Volatile, Uncertain, Complex, Ambiguous Strategic Environment.
- Full Spectrum Dominance Transformation Guidance.
- Complex Threats with Robust Anti-access Capabilities.
- Joint, Interagency, and Multinational Context.
- Concurrent Operational Requirements: Expeditionary Capabilities and Campaign Qualities.

SOLUTION SYNOPSIS

- Shaping and Entry Operations
- Operational Maneuver from Strategic Distances
- Intratheater Operational Maneuver
- Decisive Maneuver
- Concurrent and Subsequent Stability Operations
- Distributed Support and Sustainment
- Network-Enabled Battle Command
Evolving Network-Enabled Battle Command

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<tr>
<th>Static, Terrestrial Battlefield</th>
<th>Modular, Non-Linear Joint with Bridges</th>
<th>Integrated, On-the-Move Joint at the Core</th>
<th>Leader-Centric Self-Healer</th>
<th>Future Force</th>
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- **Army of Excellence**
  - Dial-up: 0.5 Mbps
  - DSL: 1.5 Mbps

- **Force XXI**
  - 0.5 Mbps

- **Current Modular Force**
  - 0.5 Mbps
  - 0.7 Mbps
  - 0.4 Mbps

- **Future Modular Force**
  - 24 Mbps
  - 10 Mbps
  - 4 Mbps
  - SF Convoys

**FCS BCT:** Over 20x increase in ISR improves the unit’s Quality of Information (See First). The network enables Shared Situational Understanding (Understand First) and Force Effectiveness (Act First).
FBCT Designed for Complex Environments

Compared to Today’s Heavy Brigade:

- 10X More Unmanned Assets
- 6X More Sensors . . . All Networked
- 2X More Infantry Soldiers in Squads
- 3X More Reliable and Maintainable
- Next Generation Manned Ground Vehicles
  - Increased lethality and survivability
  - Chemical/Bio Hardened
  - 360 degree hemispheric Active Protection
  - Nodes for sharing information: carries most of the sensors

Lighter, Faster, and Increased Mobility