U.S. Army Capabilities Integration Center (ARCIC)

TRADOC Overview
Concept to Requirements to Capabilities for Procuring Affordable Tactical Missiles

AUSA Tactical Missiles Conference

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Unclassified
Mission

TRADOC develops the Army's Soldier and Civilian leaders, and designs, develops, and integrates capabilities, concepts and doctrine in order to build a campaign-capable, expeditionary and versatile Army in support of joint warfighting commanders through Army Force Generation (ARFORGEN); Support the Army’s Human Capital Core Enterprise.

TRADOC Priorities

1. Leader Development
   • Training
   • Education
   • Experience
2. Initial Military Training
3. Support to ARFORGEN
4. Future Capabilities Integration
5. Training Concept
6. Human Capital Core Enterprise
Emerging Trends in the Operational Environment

**Uncertainty**
Location, Adversaries, Context, Duration

**Pace of Change**
Exponential, not Arithmetic

**Increased Competition**
Rising powers, organized militias, technology as a leveler

**Decentralization**
Networked Forces, Dispersed Among the People

**Hybrid Threats**
Dynamic combinations of conventional, irregular, terrorist and criminal capabilities

Military Power in the 21st Century will be defined by our ability to adapt
What We Do...

Prepare the Army to Dominate in FSO

- Leader Development
- Lessons Learned
- Doctrine Development
- Training Concept
- Training Support
- Functional Training

Imperatives:

- Develop our military and civilian leaders
- Provide trained and ready forces to support current operations
- Develop and Integrate Capabilities

Initial Military Training

- Basic Training
- Advance Individual Training
- Basic Officer Leadership

Develop and Integrate Capabilities

- Concepts
- Requirements Determination
- Capabilities Integration
- Human Dimension

Manage and Execute the Army’s Human Capital Strategy

- Acquire (Market, Recruit, Access)
- Distribute
- Sustain
- Transition
- Structure
- Develop (Career Management)

Combined Arms Command (CAC)

Army Capabilities Integration Command (ARCIC)

Army Accessions Command (ACC)
Army Capstone Concept 2009

Integrate Joint Capabilities

Develop the Situation Through Action

Forces capable of prompt and sustained operations and skilled in Operational Adaptation

Conduct Combined Arms Operations

Employ Combinations of Defeat and Stabilizing Mechanisms

Exert Psychological Technical Influence

Cooperate With Partners
Concepts to Capabilities...

ARCIC Core Functions
- Concept Development
- Requirements Determination
- Capability Integration

Rolling 2 Year Cycle
Developments - Resourcing - Acquisition

Capabilities to Joint Force Commanders
Organizations of...
- well-trained soldiers
- possessing the right skill sets
- with superior equipment
- employing sound doctrine
- led by competent and confident leaders who understand their organizations' potential
- and are empowered in combat by superior information
- supported by state-of-art facilities

CURRENT

Military
Concept

FUTURE

Experiment
- War game
- Analyze
- Evaluate
- Integrate (by/with/thru CoEs)

ARCIC Core Functions
- Concept Development
- Requirements Determination
- Capability Integration

Army Capstone Concept

Ideas

Lessons Learned

RISK
How Many Tactical Missiles Does the Army Need?

“I know nothing about the subject, but I’m happy to give you my expert opinion.”
Precision Fires Requirements
“The What”

This requirements process sets preferred munitions capabilities.

ARCIC:
- Identifies Precision Fires requirements along with Proponents
- Identifies Materiel as well as DOTmLPF Solutions
- Identifies Other DOTmLPF Considerations
- Identifies changes over time to Materiel and DOTmLPF Requirements

ONS
Lessons Learned

ARCIC reviews ONS as potential long term solutions (CDRT)

Studies, Analyses, Strategies

IBCT Precision Munitions Analysis
TF120 Precision Fires Analysis
Army Missile Capability Gaps
PMMA Assessment
Fires Strategy
GMLRS AoA

ARCIC conducts Studies and Analyses that informs the Army of new requirements or changes to existing requirements and changes to DOTMLPF

Doctrine
Organization
Training
Materiel
Personnel
Facilities
Closing the Precision Fires Capability Gaps

**CNA 12-17 Required Capabilities**

The current and future modular force lacks:

1. The ability to employ advanced precision weapons that enable routine strike applications for urban areas and danger-close requirements, and to incorporate advanced precision missile submunitions that can attack multiple aim points to include fixed, relocate-able and moving targets in support of the close support, counterstrike and shaping missions.

2. The ability to employ organic indirect precision munitions and non-lethal area and precision munitions at the CO and BN levels.

3. The capability to provide all weather, rapidly responsive, precise, indirect fires to support widely dispersed Combat Outposts and operations at the lowest tactical echelons...IAW the OEF ROE.

4. The ability to designate, identify and mark targets in both the mounted and dismounted configurations; fire support observers lack the ability to designate while under armor and on the move.

5. The Combat Aviation Brigade (CAB) has inadequate weapon options for full range of engagement profiles.

**TRADOC Validated Precision Fires GAPs**

- **Improving Target Acquisition Sensor TLEs (1, 3, 4)** (JETS, LLDR 2H, UAS Sensors, LTLM)
- **Providing Precision Munitions Capability (1, 2, 3, 5)** (Excalibur, Hellfire, JAGM, GMLRS-U, PGK)
- **Responsive to Current Operations Precision Needs (1, 3)** (M777A2 with Excalibur, APMI)
- **Investigate Organizational Changes (1, 2, 3)** (Composite Fires BN)

**Solution Sets for Closing the Gaps**

- JETS-Joint Effects Targeting System
- LLDR-Lightweight Laser Designator
- APMI-Accelerated Precision Mortar Initiative
- JAGM-Joint Air Ground Missile
- PGK-Precision Guidance Kit
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<td>2004 JP 3-52 Doctrine for Airspace Control in the Combat Zone</td>
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<td>2007 JP 3-27 Joint Doctrine for Homeland Defense</td>
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<td><strong>CONCEPT</strong></td>
<td>2009 Army Capstone Concept</td>
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<td>2008 Integrated AMD Concept</td>
<td>2010 AMD AMD Future Concept 2017-2030</td>
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<td><strong>ORGANIZATIONAL</strong></td>
<td>Modularity/ARFORGEN IFPC-I Battalion(s) IFPC (Warn) in BCT</td>
<td>THAAD Growth</td>
<td>Requirement for new organizational designs for IFPC</td>
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<td>MEADS into AMD Battalions</td>
<td>Requirement for potential force structure increases for THAAD and IFPC</td>
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<td><strong>TRAINING</strong></td>
<td>Transition of institutional training to Ft. Sill (BRAC) 6 current system training courses</td>
<td>10 system training courses</td>
<td>Requirement for new or revised POIs, TADSS, facilities, increased student throughput, NET training for THAAD, JLENS, SLAMRAAM, AIAMD, IFPC</td>
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<td>Adaptive Learning Initiative</td>
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<td>OES/ NCOES Warfighter Forums Leader Development Strategy</td>
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<td><strong>PERSONNEL</strong></td>
<td>C-RAM driving unforecasted requirements for 14J</td>
<td>New skills required for new systems (THAAD, JLENS, IFPC)</td>
<td>Requirement for new ASI(s) for Potential requirement for 14J MOS split</td>
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<td><strong>FACILITIES</strong></td>
<td>Transitioning institutional training facilities</td>
<td>Institutional and operational facilities for THAAD and JLENS</td>
<td>Significant requirement for THAAD and JLENS MILCON</td>
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<td><strong>MATERIEL</strong></td>
<td>PATRIOT, C-RAM, Avenger, Sentinel, AMDPCS/FAAD C2</td>
<td>AIAMD, THAAD, JLENS, SLAMRAAM, IFPC-Intercept, MEADS, MSE, Multi-Mission Radar (MMR)</td>
<td>Mitigates gaps in integration, counter-UAS, CMD, counter-RAM, and evolving BMD. Requires changes in DOT_LP for new systems Developing affordable technology for future materiel solutions</td>
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<td>-S&amp;T</td>
<td>Extended Area Protection &amp; Survivability (EAPS) ATO</td>
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Mix of Capabilities

- Housing density can vary widely over small distances between terrain elements
- Selecting munitions with increasing levels of precision may be most cost-effective

“An organic precision indirect fire munitions will allow commanders to engage targets in environments that ordinarily require putting Soldiers and non-combatants in harms way or cause unnecessary collateral damage”
Operational Adaptability through Affordable Force Modernization (DOTMLPF)

Establish baselines
Innovate – when opportunities meet needs
Learn, adapt, learn, adapt...
Converge experimentation, exercises, and testing
Soldiers earlier
Establish constraints
Cost / Benefit
Risk
Speed matters

Buy fewer, more often
Summary

- **Resource Informed, Incremental Approach**
  - Prioritize capabilities and align with ARFORGEN
  - Design to technology readiness and costs
  - Conduct Cost- benefit analysis earlier in the development
  - Trade across warfighting functions, formations, and services

- **Preparing the Army for an Uncertain Future by**:
  - Implementing the **Capstone Concept** that articulates how the Army will fight in the future
  - Constant review and revision of **Doctrine**
  - **Designing** and **developing** the **future** Army Modular Force
BACK-UP
Trends in PRECISION FIRES
Capability Development

**Historical Trends of Precision Fires**
- Permissive MCO environment dominated by area targets and volumetric fires
- Single purpose munitions focused on anti-armor targets (ATGMs, Copperhead, Hellfire, Maverick)
- Specific sensors required for specific munitions (Weapon sight, G/VLLD, aircraft designator)
- Strategic and operational targets serviced by Joint capabilities or ATACMS

**Current & Future Trends of Precision Fires**
- Hybrid warfare demands precision at all levels
- Expanding target sets -- Caves, houses, dugouts, bunkers, unarmored vehicles
- Access to Army and joint full spectrum precision capabilities make precision viable at the lowest tactical levels
- Improved imagery and point dropping software applications permit precision target mensuration
- Expanded network and sensor capabilities needed to reduce TLE without system specific sensors
- Precision Fires capabilities increase efficiency and reduce logistical burden

**Trends Driving the Need for More Precision Fires**
- Changes to the battlefield:
  - Larger BCT Areas of Operations
  - Urban Operations
  - Civilians on the Battlefield
  - Coalition Operations
  - Requirement for reducing collateral damage
- Precision munitions improve combat effectiveness thereby increasing demand for organic precision fires
- DoD Policy severely restricts the use of Cluster Munitions
- Reducing the logistic tail for moving munitions resupply into theater
360-Degree Threat At, Above, and Below Ground. Future force combined arms formations must have the capabilities to detect, track, classify and attack threats at, above, and below the ground.

The future force must also be capable of conducting area security over wide areas.

Future force projection capabilities must generate options for the joint force commander to overcome enemy anti-access and area denial efforts, as well as to sustain operations at the extreme end of extended LOC. Anti-access and area denial capabilities include theater ballistic missiles, inexpensive cruise missiles, long-range rockets and artillery, weapons of mass destruction (WMD), and information operations as well as an array of unconventional, asymmetric means to interdict entry forces such as improvised explosive devices.

Decentralization of operations will require Fires capabilities to plan, prepare, execute, and assess the effects of fires at levels lower than that contained in previous concepts and doctrine.

Enabled by mission command, offensive and defensive Fires capabilities are essential to combined arms and joint, full spectrum operations at every echelon. Fires capabilities must support decentralized and distributed operations, while retaining the ability to conduct centralized operations as METT-TC requires. 360-degree Fires capabilities will interdict, degrade, defeat, or destroy threat capabilities, and protect friendly forces, populations, and critical infrastructure, in all three dimensions, from mud to space.

To conduct future force projection and intra-theater maneuver, fires capabilities must have the same mobility, protection, and survivability as the forces they support. Additionally, fires capabilities must have the ability to rapidly transition to combat configurations or be able to “fight off the ramp.” Surface-to-surface long-range indirect fires and surface-to-air fires capabilities will accompany forces in the initial stages of early entry operations. To support future force projection and intra-theater maneuver, offensive and defensive fires capabilities must have the range and reach to provide the required lethal and nonlethal effects in shaping and decisive full spectrum operations.

Critical capabilities to enable Fires mission command include: contribution and access to the ground and air common operating picture for SA and SU, air-ground integration, and real-time airspace coordination; collaborative planning tools; embedded training and rehearsal capabilities; enhanced battle command systems that can communicate and transfer large amounts of data across extended ranges; that are self-healing; that have redundant capabilities; commonality from the tactical to the strategic level; and interoperability with routine access to joint, multinational, and interagency systems through military and non-military systems.

Specific intelligence capabilities that enable fires include: continuous access to intelligence information and capabilities, including national, Army, joint, and multinational assets, in all levels of classification to enable targeting; analytical capabilities at lower echelons to support situation development, targeting, and full spectrum operations; sensor fusion that enables threat situational awareness and understanding, target development, and precision and area engagement of targets.

Critical movement and maneuver capabilities to enable Fires are: attack aviation capabilities that provide complementary and reinforcing fires and redundant capabilities at all echelons; and lift capabilities that enable fires to conduct and support force projection, and inter- and intra-theater movement and maneuver.

The protection function will depend upon the fires function to deliver defensive fires (i.e., air and missile defense, counterfire, final protective fires) to perform critical tasks that protect friendly forces and populations. The tasks include the capabilities to provide early warning, intercept full spectrum air and missile threats at sufficient ranges to prevent weapons release and mitigate effects on the intended target, prevent the threat from delivering multiple RAM volleys on a target, and airspace management to prevent fratricide. Fires will require the same capabilities the protection function provides to all warfighting functions to preserve the force.