Army Capabilities Integration Center

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Mission

The Army Capabilities Integration Center leads the development and integration of force capabilities across the DOTMLPF for the Army within a Joint and Multinational environment to support Joint Force Commanders.

Vision

World class professionals developing innovative, integrated, resource-informed, and outcome-based solutions for the current to future force.
**ARCIC Priorities**

**Connect**
- Develop affordable and achievable LandWarNet and LWN Systems
- Enable Unified Battle Command
- Develop Network Vulnerability Strategy
- Develop bridge to Ground Soldier System

**Protect**
- Optimize current and future force readiness; minimize opn’l risk
- Develop organizationally based force protection capabilities

**Project**
- Deliver expeditionary full spectrum capabilities to the force.
- Joint Future Theater Lift and Tactical Lift
- Accelerated current capabilities while modernizing the future force

**Think and learn for the Army: conceptual framework beyond 2024.**
- QDR Roles and Missions Support to ARSTAF
- Collect & analyze operational data to better represent Irregular Warfare
- Develop Human Dimension, Generating Force, Capstone Concepts
- Execute CSA/CG TRADOC Future Warfare Study
- Campaign of Learning
  - Leading from the edge
  - Baseline and integrate analyses: Mod Force, FCS, and SBCT.
  - Conduct other key analyses reflecting force effectiveness;
    - Tactical Vehicle Strategy
    - RSTA and ISR support to BCT
  - Capability Needs Analysis; timely to meet warfighter needs

**Adapt community of practice culture to deliver organizationally-based solutions.**
- People
  - Training, Education, and Certification
  - NSPS and Evaluation links to Objectives
- ARCIC Campaign Plan
- Implement COEs w/ FCS COE
Among other things…..

- Help the Army think
- Account for the future strategic environment
- Advocate Joint Interdependencies
- Warfighter’s “agent” for capabilities development
- Voice for Army S&T and FCS Stratcoms
- Interface with academia, industry, labs…. 
- Key integration role: future force and current fight
**Battle Command Network**

- Beyond-line-of-sight
- Integrate Command and Control
- Optimized for mobile operations
  - Increase access and available to all echelons and the individual Soldier

**Counter IED and Mine**

- Detect, identify and neutralize CBRNE obstacles
- Safe standoff distance
- Determine threat, select best method to neutralization, and ascertain potential effects
- Maintains maneuver force momentum while protecting Soldiers and platforms

**Power & Energy**

- Enhanced agility to operate worldwide, reducing weight and volume
- Sufficient pulsed power enabling advanced lethality options
- Increased continuous power and fuel economy
- Emerging electrical components and systems require dismounted Soldiers to possess a radical increase of available power, at half the tactical weight.

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Power ("P") = rate at which work is performed or energy transmitted.
Energy ("E") = capacity to do work.
Work = force times distance (dot product) moved in the direction of the force.
Human Dimension

- Enhance & restore cognitive and physical performance
- Function efficiently as integral component of a network and society
- Interface with multiple unmanned systems
- Mitigate the increase in physiological and psychological stress
- Improving mental, moral and physical capacity and performance

Training

- Live, virtual, constructive and mixed venues
- Enable the Future Force to impart more skills, faster, at lower and with greater retention than currently achievable
- Use non-traditional home station training techniques and technology, train prior to employment
- Enhance and account for individual proficiencies and learning rates (outcome based)
- Leader development must be completely adaptable and scalable to cover the full spectrum of operational challenges facing the Soldier
Refocusing Spin-Outs to IBCTs

Focus Before

• 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, and power challenges with current heavy platforms (Abrams, Bradley, Stryker, M113, & Paladin).
• Multiple Battle Command Systems.

Way-Ahead

• Spin-Outs focused on most vulnerable force (Infantry Brigade Combat Teams) first-FY11.
• Willing to accept risk, Heavy Brigade Combat Teams are good enough for now.
• Soldier in the network with Ground Soldier Ensemble – FY12
• Accelerating and adding needed capabilities to the current force.
• Integrated Battle Command System.
The Vehicle Challenge

Develop a vehicle strategy that will support the Army in an Era of Persistent Conflict …..

• By meeting force requirements for deployability, mobility, lethality, and survivability
• By providing more Soldiers to engage adversaries
• By increasing power requirements for:
  ▪ Battle Command
  ▪ Weapon systems
  ▪ Stability and Support Operations
• Supported by reducing sustainment requirements for:
  ▪ Manpower, fuel, and ammunition
  ▪ Equipment (vehicles, trailers, generators, tools…)
  ▪ Life-cycle costs

What is the magnitude of the problem?
Performing superbly in combat today but...

- Reaching limits of space, weight, and power
- Driving unaffordable sustainment requirements
  - Support vehicles (ammo, fuel)
  - Repair vehicles, wreckers
  - Trailers
  - Generators
  - Support personnel (maintenance, supply, refueling, ammo…)

≈ 2349 all variants
≈ 3834 all variants
≈ 2516 all variants
≈ 1594 all variants
≈ 974 all variants
≈ 5877 all variants
A snapshot of the Light, Medium and Heavy Tactical Wheeled Vehicle (TWV) Fleet

- The Army has documented need for 295,997 TWVs
- There are 247,406 TWVs fielded
- ~ 15% - 20% of TWV fleet is armored
  - Total includes armored vehicles procured under the Operational Needs Statement (ONS) OEF/OIF
- 86 variants (Light, Medium, Heavy)
- 25,047 Medium vehicles are over 30 years old:
  - 38% of the Medium fleet
  - Nearly 23,000 vehicles with manual transmissions ~ requires additional training

**BLUF**

- Numbers do not include ASV, STRYKER, MRAP
Generators and Trailers

Army Tactical Electric Power Requirements

Army has 102,000+ Generator Sets

Command & Control
8,728 Gen Sets (8%)

Maneuver Support & Sustainment
68,439 Gen Sets (67%)

Fire Support
2,769 Gen Sets (3%)

Air Defense
1,735 Gen Sets (2%)

Maneuver
16,255 Gen Sets (16%)

Mobility/Counter-Mobility/Survivability
4,567 Gen Sets (4%)

Trailers

Light = 12,517
Med = 9,906
Heavy = 34,226
Total 56,649
Increased Quality and Quantity Drive Increased Overall Cost

LTV Cost

- 1985 IOC
- 1996 M1114 armored HMMWV Limited Production
- 2006 M1100 series begins fielding scalable armor
- 2009-10 ECV II production
- 2014- JLTV production

Growth Drivers:

- Modularity
- 100% Mobility
- Grow the Army
- 3 Days of Supply - MCO
- 7 Days of Supply - SO
- Asymmetric Capabilities

HMMWV Production by Year

- 1985: 70,000 HMMWV (1985-1990)
- 1990: 95,399
- 1995: 1,821
- 2000: 1,654
- 2005: 7,268
- 2008: 15,459

HMMWV Production Rolling Totals

- 1985: 70,000 HMMWV
- 1990: 95,399
- 1995: 1,821
- 2000: 1,654
- 2005: 7,268
- 2008: 149,796
Where we need help from Industry

- Holistic protection concepts and strategies. Move beyond just more armor.

- Power and Energy Strategy
  - Improve fuel efficiency
  - Reduce transportation & distribution requirements (vehicles, trailers)
  - Increase power capacity
  - Eliminate Generators

- Improve Reliability, Availability, Maintainability
  - Embedded diagnostics
  - Parts and tool reduction
  - Improve life-cycle costs
  - Reduce number of support personnel requirements

- Improve Lethality and packaging of ammo

- Reduce Weight, improve mobility and deployability
NDIA Combat Vehicle Conference

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TRADOC: Victory Starts Here!
Purpose: Link and Track Capability Need Priorities to S&T Investments

- Assists TRADOC CDIDs/DCDs to
  - Define and monitor Warfighter Outcomes (WFOs)
  - Crosswalk WFOs to Authoritative Sources
  - Link and track potential solutions from ATOs, SBIRs, etc.
- Assists Army S&T Community to link investments to WFOs
- Links:
  - Army S&T Enterprise Management System
  - Army Small Business Innovative Research System
  - PEO C3T T2MATRIX Database

Linking TRADOC CDID/DCD Managed Warfighter Outcomes to Army S&T, JCAs, Gap Analyses, and the “Big 5” Integrated Warfighter Outcomes
• Stand alone statements that articulate capabilities needed for the Army Warfighter by FY 2024 and include:
  – Clearly articulated description of capability.
  – Rationale explaining reason for the capability.
  – Metrics to describe achievement of the capability.

• “Big Five” Warfighter Outcomes
  – Army Leadership “top down” investment areas that have the potential for a profound impact on future capabilities.
  – Requirement for cross-domain coordination warrants Senior Leadership awareness and monitoring of progress toward achieving capability.
  – Sufficiently shape the S&T Investment so that the capability can be realized within the next 10-15 years.
**ARCIC Outcomes**

Build the force: by 2024, field the modular force as envisioned by the Army Capstone Concept.

- AROC Approval of Rifleman Radio
- LandWarNet CONOPS approved 11 Feb 08
- USMC & Army common way-ahead for Position Location Information
- Unified Battle Command
- Tactical Wheeled Vehicle Strategy
- Requirement Determination Phase of TAA 10-15
- Redesign of Division, Corps, and ASCC (DP 123)
- Combat ID ICD validated by JROC in Aug
- TF ODIN
- FFID IOC 1 Oct 07
- Spin-out 1 Force Development Test and Evaluation (May 08)
- Accelerated fielding and training of SUGV and Class I UAS
- Implemented SO1 change from HBCT to IBCT

**Think and learn for the Army**

- Protection Strategy
- Organizational Based Assessment
- Combat and Tactical Vehicle Strategy (PDM II)
- Brigade Combat Team Holistic Review
- Army / Air Force UAS CONOP
- CCJO and JOE development
- ARCIC Technology and Industry Information Exchanges
- Human Dimension Concept
- Emerging Global Trends
- Success of Army Expeditionary Warrior Experiments

**Adapt community of practice culture**

- CNA in support of POM 11-15
- Re-focused Warfighting Outcomes to support S&T investment
- TR 71-20
- Teamed with HQDA to write and staff AR 71-9
- Developed ARCIC Campaign Plan
- NSPS