



*“The Intellectual Center  
of the Army”*



**The Evolution of Realistic Training to Fight and Win in a Complex World**  
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- **Introduction**
- **Revolution In Training: Train to Win in a Complex World**
- **Assessment of Current Capabilities: What We Must Change**
- **Science and Technology Focus: Modernize Capabilities**
- **Revolution In Training: How We Change, Evolve**
  - **Near-Term Focus: Realism, Repetition, and Relevance**
  - **Mid-Term Focus: Modernize to Increase Complexity**
  - **Far-Term Focus: Training Environment = Operational Environment**
- **Long-Range Investment and Requirements Analysis**



## 1970s - Today

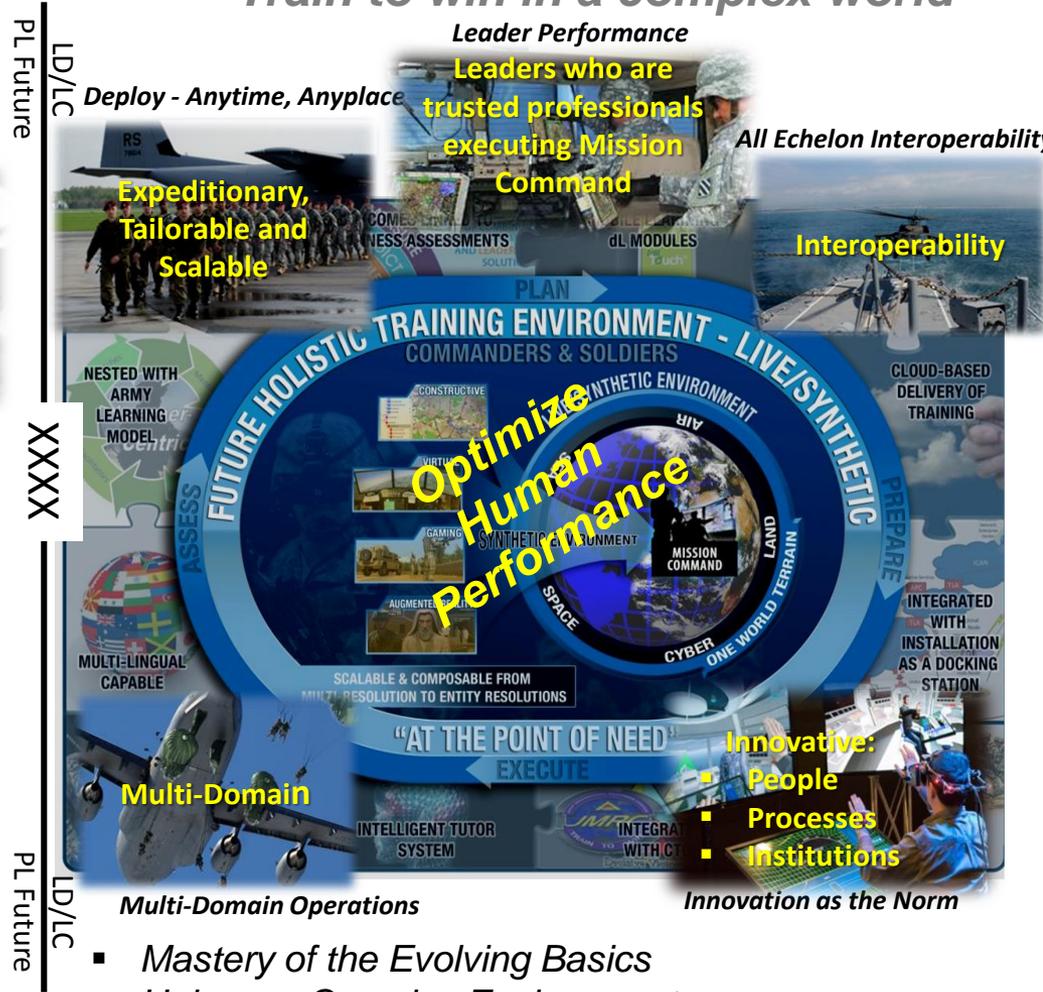
...fight outnumbered and win

## 2015 - 2025

Train to win in a complex world



- Mastery of Weapon Systems and Technology
- Known Complicated Enemy
- Fog of War: Not enough Info



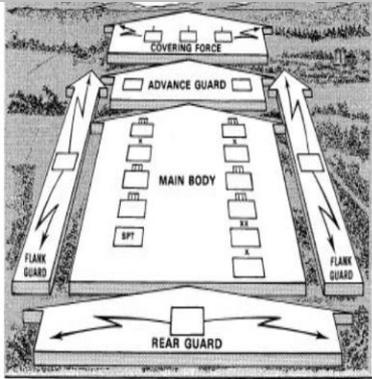
- Mastery of the Evolving Basics
- Unknown Complex Environment
- Human Dimension/Cognitive Dominance





## AirLand Battle:

Fight outnumbered, and win



## COMPLEX OE

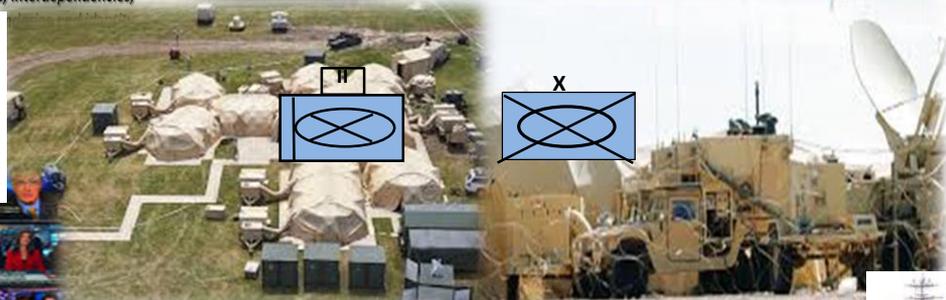
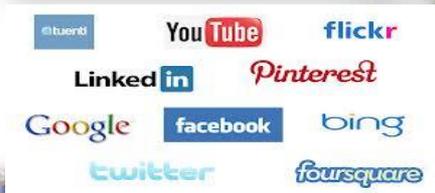
Complex Environment



## Hybrid Strategy



Relationships, interdependencies,





*Problem Statement: How to train to win in a complex environment?*

## Our current capabilities ...



The "Basics" have evolved over time, growing more complex

### EVOLUTION OF THE BASICS

	The "Basics" Then 1944-2001	The "Basics" Now 2014-Future
<b>Shoot</b>	<ul style="list-style-type: none"> <li>- Effectively Engage Targets</li> <li>- Accuracy and precision</li> <li>- Hit targets with iron sights</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing importance of discriminate fires</li> <li>- More complex rules of engagement</li> <li>- Split-second decisions to use force or not</li> <li>- Increased use of optics/ night vision</li> </ul>
<b>Move</b>	<ul style="list-style-type: none"> <li>- Squad/Platoon Battle Drills</li> <li>- Situational awareness derived from a map</li> <li>- Company AO may include several grid squares</li> <li>- Operate in difficult terrain</li> </ul>	<ul style="list-style-type: none"> <li>- Dispersed, independent movements</li> <li>- Situational awareness derived from a COP (common operating picture)</li> <li>- Company AO may include multiple districts and villages (larger than a battalion AO in the past)</li> <li>- Operate among the people in complex societies in any terrain</li> </ul>
<b>Communicate</b>	<ul style="list-style-type: none"> <li>- FM Radio Procedures</li> <li>- Military to military</li> </ul>	<ul style="list-style-type: none"> <li>- Voice and Digital networks</li> <li>- Host nation, media, Interagency</li> <li>- Cultural awareness, negotiations, social media</li> <li>- Matching actions to words</li> <li>- Winning the battle of the narrative</li> </ul>
<b>Physical Fitness</b>	<ul style="list-style-type: none"> <li>- Basic physical conditioning (push-ups, sit-ups, 2 mile run)</li> </ul>	<ul style="list-style-type: none"> <li>- Total Fitness (physical, mental, social, resilience)</li> </ul>
<b>Discipline</b>	<ul style="list-style-type: none"> <li>- Do the right thing when no one is watching</li> </ul>	<ul style="list-style-type: none"> <li>- Do the right thing as the whole world is watching</li> </ul>

- X **Adaptive**
- X **Supports Repetition**
- X **Develop Cognitive Dominance**
- X **Low Over Head**
- X **Available at the Point of Need**
- X **Agile, responsive and Pre-Active process**
- X **Joint, Coalition Interoperable**

**Develop a training capability that addresses the above while focusing on**

- ✓ **"Must put the intellectual ahead of the physical"**
- ✓ **Training = a venue for innovation**
- ✓ **Deliver tough, realistic and multiechelon training**
- ✓ **Execute progressive and iterative training**
- ✓ **Soldiers and Leaders that thrive in ambiguity**
- ✓ **Recognize that warfare is a human endeavor**



*Immediate(Now-2019): Focus on Realism, Relevance and Repetition*

## Change the Training Paradigm By ...

### Provide Realistic Training at Home Station

#### Focus on New Basics

##### *Evolving Basics*

- Shoot / don't shoot
- Move among the people
- Communicate in digital environment
- Physical fitness = Total fitness
- Discipline "... as the whole world watches"

#### Incorporate Human Dimension

##### *Improve Our Understanding Of the Human Dimension*

- What is HPO?
- Individual Assessments
- How did we measure it?
- How do we train Generation Next?
- What Specific Functions and Primary Variables Impact HPO?

High-Fidelity CTC OE  
Training Enablers



Coalition

& JIIM



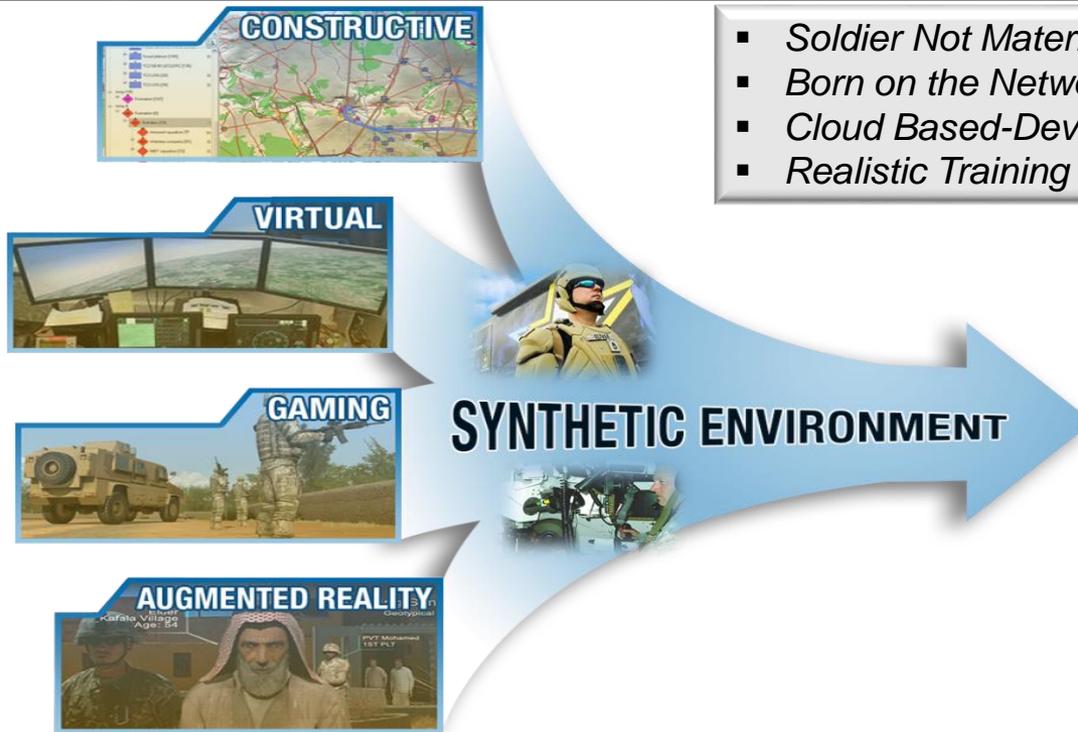
#### *First Fight Is Now at Home Station*

- Focus on Mastery of Mission Command
- Integrate Mid-High Fidelity CTC Enablers (OC & OPFOR Academy POIs)
- Educate Leaders on Unit Training Management
- Replicate complex operational environment through Virtual, Constructive and Gaming
- Provide a "Professional, Free-Thinking" OPFOR
- Increase repetitions by leveraging the Integrated Training Environment
- Integrate Joint and Coalition enablers through distributed technologies via Constructive and Gaming
- Revise Acquisition Policies and Procedures to allow for the rapid integration of new capabilities to keep pace with the OE and Technology





## Mid-Term (2020 – 2029): Focus on Modernization and Increasing Complexity



- Soldier Not Material Centric/Human Performance Optimization
- Born on the Network/Common Operating Environment
- Cloud Based-Device enabled /Delivered at the Point of Need
- Realistic Training within Complex Operational Environment



## Focused on the Human Dimension, Enabling Human Performance Optimization

**Improve Cognitive Component**

- Perception
- Memory
- Reasoning
- Judgement



**Key Required Capabilities**

- Cognitive Ability Assessments
- Accelerate Learning
- Increase Experience
- Accelerate Professional Development
- Critical Thinking



## Long-Term (2030 and Beyond): Training Environment = Operational Environment

### Leader Performance

Leaders who are trusted professionals executing Mission Command

### All Echelon Interoperability

Interoperability

### Deploy - Anytime, Anyplace

Expeditionary, Tailorable and Scalable



Realistic Training

Optimize Human Performance

Multi-Domain

Multi-Domain Operations

Innovative:  
 • People  
 • Processes  
 • Institutions

Innovation as the Norm

- Mastery of the Evolving Basics
- Unknown Complex Environment
- Human Dimension/Cognitive Dominance





*Identify the S&T investments that maximize future training capabilities.*

## Single Synthetic Environment

- Collapse Virtual, Constructive, and Gaming capabilities into a single Synthetic Training Environment (STE).
- Augmented Reality (AR) brings synthetic complexity into the live training environment.

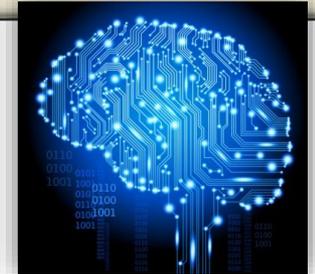


## One-World Terrain

- Single terrain database
- Provide “digital dirt” of all land, sea, air, space, and cyber domains.
- Supports training and mission rehearsals anywhere in the world.

## Artificial Intelligence

- Replicate operational complexity and uncertainty.
- Autonomous, free-thinking virtual OPFOR.



## Intelligent Tutors

- Provide commanders a holistic training Common Operational Picture (COP).
- After Action Review (AAR) and assessment tools are linked to execution outcomes, assist unit readiness reporting, and provide lessons learned.
- Virtual coaches tailor training to the individual.



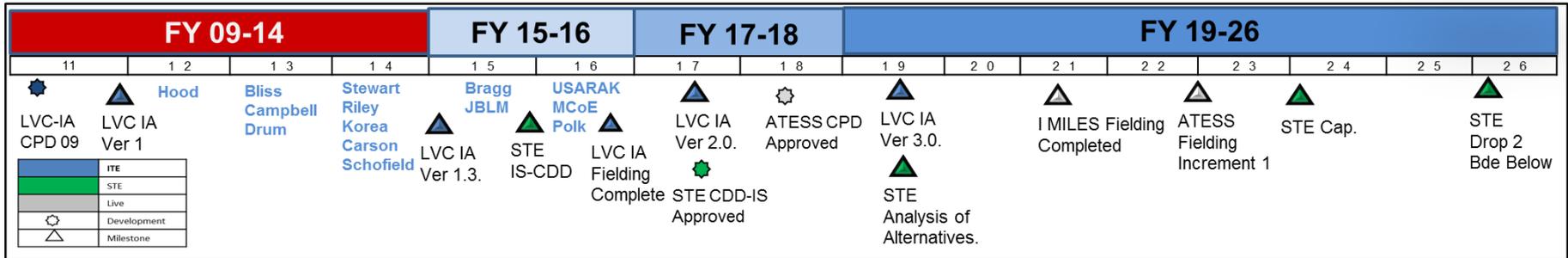
## Big Data

- Encompass all aspects of the Operations Process to enable the seamless planning, preparation, execution, and assessment of Live-Synthetic training.
- Rapidly model real-world in the STE.

## Point of Need

- Distributed delivery of training.
- Bring training environment to the Soldier.
- Available 24/7, low-overhead, and scalable.





- Established Long Range and Requirements Investment Analysis Strategy
- Authoring Synthetic Training Environment Requirements Document
- Working towards placing the Integrated Training Environment on the Mission Command Network
- Leveraging Army Warfighting Assessment to introduce emerging technologies
- Establishing community of interest with Industry, Academia and government partners to share and advance concepts through professional forums.



## U.S. Army Combined Arms Center and Fort Leavenworth

"We cannot expect to capture the imagination of combat-seasoned forces that have been in some of the most complex environments imaginable for almost a decade by sitting them in a classroom and bludgeoning them with PowerPoint slides. We must make the 'scrimmage' as hard as the 'game' in both the institutional schoolhouse and at home station."

-- General Martin E. Dempsey

