

Training with the ITE Capability

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Shoot, move, and communicate” is still a fundamental, albeit simplistic, means of describing warfare. By adding “decide” we account for the mental thought process that occurs before any action is taken in warfare. Training leaders and Soldiers to decide, shoot, move, and communicate at platoon, company, or battalion levels was simpler when the only tools a leader had to consider were his rifle, radio, map, and Soldiers. Previously, leaders could go to an unoccupied training area, with little or no coordination, and train knowing they were accounting for the majority of tasks required. With the increased dependence on digital mission command information systems (MCIS) and the need to train as a combined force, the tools and level of responsibility of our Soldiers and leaders have changed dramatically.

Soldiers and leaders now require more technological skill and greater lateral thought. This change increases the need for a more robust training capability. Additionally, the availability of equipment, funding, training space, and time required to train have decreased. Therefore, the solution must use less resources to meet an increased training requirement. To answer the call, the Army developed the Integrated Training Environment (ITE) to help commanders meet that challenge.

The ITE allows for more robust scenarios that can impart the complex realities of the current operating environment. The ITE allows commanders the ability to control training utilizing their tactical operations center (TOC) for Soldiers in the field with Soldiers training at the mission training complex (MTC) and virtual training facilities concurrently in the same event. While the ITE is technically capable of enabling a brigade-level exercise, it is best suited for training platoon, company, and battalion combined collective training. It is important to note that while ITE events can include live, virtual (including gaming), and constructive training systems, they do not have to include every system. Leaders add or subtract systems based on whatever meets their specific training objectives.



Soldiers in the Reconfigurable Vehicle Tactical Trainer coordinate with Soldiers in the Close Combat Tactical Trainer, Virtual Battlespace 3, Aviation Combined Arms Tactical Trainer to conduct combined arms maneuver against enemy forces within a built-up area.

Before giving examples, a brief description will be provided for each of the training systems and the tools that facilitate Soldier interaction within. Live training is supported by the Home Station Instrumented Training System (HITS) which works in conjunction with the new radio-linked Multiple Integrated Laser Engagement System (MILES) gear to push Soldier position, status, weapon fire, and weapon impact information.¹ HITS also allows Soldiers to receive simulated damage from indirect fire weapons from other connected training simulations. If conducting a force-on-force event, placing the artillery unit within a constructive simulation allows training of the call-for-fire mission with simulated rounds impacting on live opposing forces (OPFOR) based on the coordinates sent by either voice or through MCIS. The current limitation of replicating simulated indirect fire into a live area still remains — the Soldier must review the monitor to see the effect. Good synchronization with the lane walkers can mitigate this limitation and ensure a simunition is thrown prior to the simulated rounds' impact.

The constructive system the Army utilizes can be compared to *Command and Conquer* or any other desktop/tablet-based strategy game. In the constructive environment, units move and interact on a 2D map. When utilized within the ITE, the constructive system displays 2D map icons for each unit regardless of the system actually controlling the unit. This allows tanks or Soldiers controlled in the constructive simulation to interact with tanks or Soldiers in the live and/or virtual/gaming simulations. To promote "fair-fight," we only allow constructive artillery to affect live forces using HITS. It would not be fair for a Soldier in a simulation, who cannot be seen by the Soldier in live, to be able to shoot the live Soldier.

Virtual simulations include gaming simulations. The virtual training environment, when considered as part of the ITE, consists of the Aviation Combat Arms Tactical Trainer (AVCATT), Close Combat Tactical Trainer (CCTT), Reconfigurable Vehicle Tactical Trainer (RVTT), Reconfigurable Vehicle Simulator (RVS), and Virtual Battlespace 3 (VBS3). AVCATT is an aviation collective flight trainer that is configurable for variants of the AH-64, OH-58, UH-60, and UH-47 helicopters. CCTT is a maneuver collective ground combat trainer that has systems to represent the variants of the M1A2 and M2A2 combat vehicles. RVTT and RVS are slightly different, and both provide reconfigurable wheeled vehicle platforms surrounded by an interactive screen. The screen responds to laser light signals from handheld weapons inside the simulator, much like the Engagement Skills Trainer (EST) 2000. Lastly, VBS3 is a first-person commercial game that has been modified to support Army training by utilizing real-world terrain and Army equipment specifications. It was contracted to provide military-specific training capabilities utilizing gaming techniques to represent training requirements/tasks down to the individual Soldier level. While it is possible for some MTCs to use lasers integrated into the rifles, like EST 2000, to interact with VBS3, this capability is not an Army-wide provided or funded capability with VBS3. The primary interface for the Soldier using VBS3 is through a mouse and keyboard and/or a Xbox controller.

Lastly, the ITE concept utilizes a single mission command interface system to send messages to a unit's MCIS, which includes the Command Post of the Future (CPOF), Blue Force Tracker (BFT)/Force XXI Battle Command Brigade and Below (FBCB2), Advanced Field Artillery Tactical Data System (AFATDS), Tactical Airspace Integration System (TAIS), Battle Command Sustainment Support System (BCS3), and Air and Missile Defense Workstation (AMDWS).

The Army continues to fund the mission command interface system for developing new message formats. Continued funding supports functionality with future MCIS systems like the Joint Capabilities Release (JCR) and Command Web initiatives. Each system is provided the appropriate message information from the simulations and simulators and tracks the information like real data. In addition, AFATDS can direct fires from both live and simulated artillery. In the near future, the AVCATT and CCTT-embedded BFTs will be able to receive the same data.

Training utilizing the ITE capability provides many possibilities such as training air-ground integration, air assault, hasty attack, or deliberate defense. This concept is well suited for training tasks requiring additional enablers or complexity not as readily available in live training. The ITE capability also supports high-risk training such as combined arms actions, urban operations, close air support, or danger close fire missions. Training opportunities are left to the imagination of the trainer. For ease of reference, the examples provided next will be based on a 2010 heavy brigade combat team (HBCT) cavalry troop configuration consisting of Bradleys, Cavalry Fighting Vehicles, and HMMWVs with three-man crews and two scouts each. This configuration allows a reference for dismounted training, motorized training, and mechanized training.

Platoons can start out small with collective gunnery, either unstabilized or stabilized, depending on their platform. Combining CCTT and VBS3 allows for crews to practice acquiring targets, dismounting their troops, coordinating fires, and then remounting and repositioning. In the haste of deployment, units often do not conduct collective firing tables, but they can virtually. Air assaults are another operation that is often not trained due to limited resources. A dismounted force in VBS3 can practice actions on the helicopter landing zone (HLZ) with actual aviators in AVCATT. This is very easy to set up, though it may take a little more coordination with the pilots and the MTC. The payoff is the ability to work with actual pilots and conduct more iterations of these essential and expensive skills than what is possible live.

Executing a platoon exercise of greater complexity, like the hasty attack, the Bradley crew members use CCTT Bradleys while their dismounts use VBS3. The dismounts communicate via radio to the crew, reinforcing good internal and external communication techniques. All of the HMMWV crews — minus the headquarters (HQ) section (platoon leader [PL] and platoon sergeant [PSG]) — utilize VBS3 along with their dismounts.

The PL and PSGs, along with their vehicle crews, use RVTT/RVS HMMWVs. This forces the leaders to execute mission command via voice and BFT. If aviators are available, they can provide support from AVCATT. If they are not available, close air support can be provided through VBS3 artificial intelligence software controlled by the training support personnel. Indirect fires are provided by the administrative controller within CCTT and can be relayed through the company fire support officer (FSO), or platoon forward observer (FO). OPFOR are controlled by the VBS3 training support personnel in conjunction with the company/troop commander's guidance.

The troop commander can observe the fight using the CCTT after action review (AAR) systems or the integrated exercise control 3D viewer provided with the integration architecture hardware at the MTC. Leaders can also listen to the radio communications as Soldiers transmit over their radios and monitor events utilizing simulated BFT equipment. When complete, leaders can review the entire scenario with a 3D visual and highlight any points of interest or learning.

For a company or troop, the training can be as simple as joining with the previously mentioned platoon event. The HQ section can receive, monitor, and battle track the platoon's actions. The company can also run platoons simultaneously in the same configuration, depending on the availability of systems, or in a different configuration, such as a platoon in live and a platoon in the virtual and gaming environment. The HQ would still need to battle track all the platoons at the same time while coordinating the air assets and shifting priorities of support.

A more complicated, complete company-level event would require battalion staff support. Platoons can execute missions in the same structural configuration as the first example, but with a constructive wraparound that provides the overall squadron situation. In this scenario, the company commander

would receive support from the battalion S2 or the company intelligence support team (CoIST), as advised by the S2. The S2 or CoIST can provide varying OPFOR reactions and interactions to support all types of scenarios but is most beneficial in stability and urban operations. Using constructive simulations, the ITE allows the company to involve various enablers not generally available in live training (engineers, signal intelligence, etc.). The Raven unmanned aerial vehicle (UAV) is a key enabler the company has but often cannot practice employing. The company defense is a great opportunity to enable platoons to employ the Raven and practice procedures for employment, recovery, and control. If actual aviators are available, Soldiers can practice airspace deconfliction, which is increasingly a lower-echelon responsibility.

In the last example, we used the battalion to facilitate company training. Currently, however, the ITE is mostly used supporting battalion exercises. Most battalions using the ITE capability, use it as a means to prepare for Combat Training Center (CTC) rotations after their combat equipment has shipped and before they deploy. Due to the lack of overall training aids, devices, simulators, and simulations (TADSS), many battalions conduct training events without troops (TEWTs). PLs and PSGs occupy CCTT, AVCATT, and/or VBS3 with their crews. The rest of their formations are filled with artificial intelligence (AI) or tethered wingmen (AI vehicles programmed to maintain position relative to another vehicle), sometimes called semi-automated forces (SAF). Staffs establish command posts and practice digital procedures while still exercising unit actions and orders. Subordinate leaders practice the same while also maneuvering their sections, platoons, companies, etc., within a 3D environment.

Ultimately, leaders gain a better understanding of the time delay and processes required for aviation and fires support, as well as the employment of additional enablers. The training further establishes unit SOPs and improves unit total performance while reinforcing small unit operational skills. The 1st Battalion, 18th Infantry Regiment, 1st Infantry Division, recently conducted this same exercise in preparation for a National Training Center (NTC) rotation and reported significant success, resulting in laudatory remarks from NTC observer controller/trainers (OC/Ts).

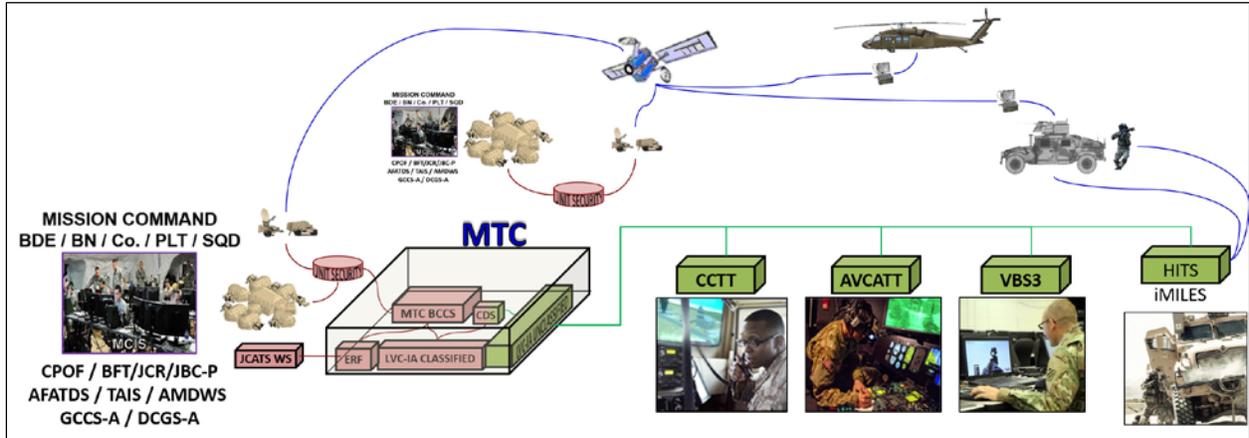
This article provides an overview of the ITE capability of training and what it can do. Use of the ITE will allow Soldiers to learn how to decide, shoot, move, and communicate. Start out small and then build the complexity of your events (crawl, walk, run). The live, virtual, and constructive integrating architecture (LVC-IA) supporting the ITE capability is currently supported at 12 MTCs across the Army and will have an ability to include remote virtual systems not located at the home station starting in FY17. The ITE capability has limitations but provides many more benefits for training Soldiers to fight and win on today's complex battlefield. Most ITE limitations can be overcome by the expertise found on an MTC's support staff. The ITE capability is available at Fort Stewart (Ga.), Fort Riley (Kan.), Fort Campbell (Ky.), Fort Carson (Colo.), Fort Wainwright (Alaska), Korea, Hawaii, Joint Base Lewis-McChord (Wash.), Fort Drum (N.Y.), Fort Bliss (Texas), Fort Hood (Texas), and Fort Bragg (N.C.).

Additional information about the ITE or information regarding conducting integrated training can be found at the ITE Portal (<https://ite.army.mil>).

Notes

¹ The radio linked MILES gear is called iMILES and is differentiated from normal MILES because of the ability to connect to an external radio. The external radio comes with the HITS system and plugs into the port on the iMILES harness.

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The live, virtual, and constructive integrating architecture (LVC-IA) allows more realistic combined arms training through linkage to real-world Mission Command Information Systems and TADSS (training aids, devices, simulations, and simulators)