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The Army's Project Convergence

What Is the Army's Project Convergence?

Project Convergence is what the Army calls a "campaign of learning," designed to further integrate the Army into the Joint Force. It is how the Army intends to play a role in Joint All Domain Command and Control (JADC2), the Department of Defense's (DOD's) plan to connect sensors and weapon systems from all the military services—Air Force, Army, Marine Corps, Navy, and Space Force—as well as Special Operations Forces (SOF), into a single network which, theoretically, could prove faster and more effective in responding to threats from peer competitors.

Designed around five core elements—soldiers, weapons systems, command and control, information, and terrain—Army Futures Command (AFC) plans to run Project Convergence on an annual basis. The Army intends to conduct experiments with technology, equipment, and solicit soldier feedback throughout the year, culminating in an annual exercise or demonstration. In basic terms, the Army reportedly wants to "take the service's big ideas for future warfare and test them in the real world. The Army wants to figure out what works and what needs fixing—and figure that out as early as possible, when it's much cheaper to make changes."

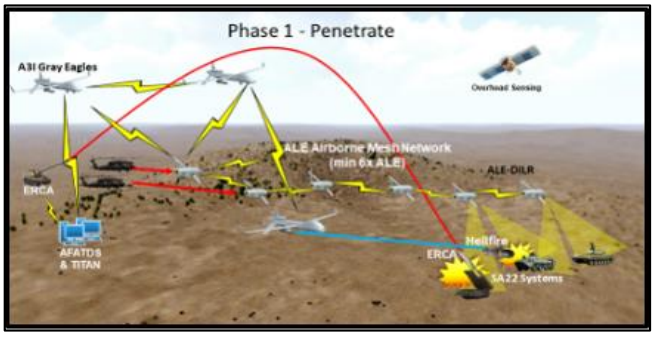
Project Convergence 2020 (PC20)

PC20 took place at Yuma Proving Ground, Arizona between August 11th and September 1st 2020 and involved about 500 personnel. PC20 was intended to provide information to support decisions to:

- Change how the Army fights by shaping how it organizes for combat;
- Highlight opportunities to optimize operational processes;
- Evolve how the Army visualizes, describes, decides, and acts on enemy threats; and
- Build soldier and leader trust in emergent technologies.

PC20 concentrated on what the Army calls the "close fight" by integrating new enabling technologies at the lowest operational level so tactical networks could facilitate faster decisions. At the unit level, PC20 focused on Brigade Combat Teams (BCT), Combat Aviation Brigades (CAB), and Expeditionary Signal Battalion-Enhanced (ESB-E). At the system level, PC20 involved the Army's MQ 1C Grey Eagle unmanned aerial vehicle (UAV), the Air Launched Effects (ALE) —a multi-purpose helicopter-launched system—and the tactical network — command, control, communications, intelligence, and computer systems used by the Army in combat.

Figure 1. Representative Exercise Operational Scenario



Source: From Army Briefing provided to CRS dated September 10, 2020.

One of PC20's experiments reportedly included using low-earth orbit satellites and Grey Eagle UAVs to perform sensing for air targets and a ground system to detect a target. Data from the two systems was passed back to an organization at Joint Base Lewis McChord, Washington, where the target was processed.

The data was then passed back to Yuma Proving Ground to a system to engage the target—either a self-propelled artillery system such as the Extended Range Cannon Artillery (ERCA) system currently under development, a Grey Eagle, or another ground platform. This entire sequence was supposedly accomplished within 20 seconds.

The Army's Plans for Project Convergence 2021 and 2022 (PC21 and PC22)

At present, the Army has made planning information publicly available only for 2021 and 2022.

Project Convergence 2021 (PC21)

While other supporting exercises and experiments have been conducted throughout this year, PC21's main series of live-fire events reportedly will take place October. 12th – November 10th at a number of installations located in the United States. PC 21 plans to involve approximately 7,000 personnel including 900 data collectors, and will include experiments involving about 107 different technologies.

Some of the Army's objectives during PC21 reportedly include identifying technologies to enable the Joint Force to penetrate enemy's anti-access, aerial-denial (A2/AD) capabilities as well as determining which emerging technologies are needed to execute the Joint All-Domain Operations concept. The Army is also reportedly "looking for ways to incorporate artificial intelligence (AI), machine learning, autonomy, robotics, and common data standards and architectures to more quickly make decisions across multiple domains of operations."

PC21 also plans to include units such as the Army's Multi-Domain Task Force (MDTF) based at Joint Base Lewis-McChord in Washington and elements from the Fort Bragg, North Carolina-based 82nd Airborne Division. Reportedly major capabilities from the other services to be tested include the Marine's Ground/Air Task-Oriented Radar (GATOR), the Navy's SM-6 missile, and an Air Force F-35 fighter and B-1 bomber.

The Army reportedly intends to examine seven scenarios during PC21:

- **First Scenario:** Test joint all-domain situational awareness and incorporate space sensors in low earth orbit;
- **Second Scenario:** Conduct a joint air-and-missile defense engagement in response to an enemy missile attack;
- **Third Scenario:** Conduct a joint fires operation as the force transitions from crisis to conflict;
- **Fourth Scenario:** Conduct a semiautonomous resupply mission;
- **Fifth Scenario:** Conduct an AI and autonomy-enabled reconnaissance mission;
- **Sixth Scenario:** Conduct an air assault mission employing the Integrated Visual Augmentation System (IVAS) - a heads-up display worn by soldiers that provides enhanced situational awareness; and
- **Seventh Scenario:** Conduct a mounted AI-enabled attack.

Project Convergence 2022 (PC22)

In PC22, the Army plans to include allies and partners - focusing on closes allies and security partners such as Australia, Canada, New Zealand, and the United Kingdom. The project is to expand to the Combined Joint Task Force (CJTF) level and bring more technologies and assets to the battlefield. The goal is to exercise from competition through conflict and return to competition levels of conflict. In addition to the CJTF (Corps and Division-level), the Army also plans to include a Multi-Domain Task Force (MDTF), a number of Brigade Combat Teams (BCTs), and Allied and Partner Mission Command Elements in PC22.

Potential Issues for Congress

How Might Project Convergence Influence Army Force Structure and Modernization Efforts?

The Army has compared Project Convergence to the Army's Louisiana Maneuvers conducted all across the United States in 1940 and 1941 that played a major role in how the Army organized for, equipped itself for, and fought World War II. If this is the case, by what formal mechanisms or processes, will the observations/findings of Project Convergence inform Army force structure and modernization decisions? Will this be exclusively an Army Futures Command function? Will other entities, such as Combatant Commands, play a role? How will the results of Project Convergence be reflected in the Army's Planning, Programing, Budget and Execution (PPBE) process? How does the Army plan to communicate with Congress regarding insights gained during PC21 and PC22?

Involvement of Allies and Partners

As noted, PC22 plans to include Mission Command Elements (MCEs) from selected Allies and Partners with the intent of enabling them to seamlessly plug into the network and establish a common operating picture with U.S. forces. While such interoperability can be viewed as essential for Coalition operations, this could prove elusive for some Allies and Partners who lack the resources and technology afforded to DOD. Taking this into consideration, does the Army plan to test alternative means to integrate less-capable Allies and Partners into operations envisioned in the new Joint Warfighting Concept? Or, instead, will they be expected to play "catch up," possibly excluding them from participating in future Coalition operations?

Project Convergence: Operations in a Denied Electromagnetic Spectrum (EMS) Environment and Signature Management

In examining the basic goal of Project Convergence—integrating sensors and shooters to more rapidly identify and engage targets at close and long distances—it becomes apparent achieving this goal depends on unfettered access to the electromagnetic spectrum. As previously noted, one of the objectives of PC21 is to successfully conduct operations in a contested electromagnetic spectrum environment and it is likely that future Project Convergences will continue to stress this ability. This raises the issue of how the Army will function if instead of the EMS spectrum being "contested" it is instead "denied." For example, what if a significant part of the EMS is "denied" as it would be if U.S. space-based assets were attacked and significantly damaged or destroyed? Are there redundancies (systems or processes) envisioned for testing during future Project Convergences to address how the Army would detect and engage targets beyond visual range if aerial or space assets become unavailable by kinetic actions or by some other means such as electronic warfare or cyberattack?

Another related issue is that of signature management for the Army's networks and systems under development. In this context, signature management refers to all the various signatures—visual, infrared, radar, sound, electromagnetic—that a system emits. Potential enemies could also rapidly detect these signatures and engage and destroy U.S. systems in a similar manner as Project Convergence is attempting. Signature management seeks to control and reduce the detectability of systems and their vulnerability to attack. Given the importance of signature management, what are the Army's objectives for future Project Convergence efforts to address signature management associated with networks and systems?

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