



U.S. Army Staff Sgt. Stetson Manuel carries the Ghost-X Unmanned Aircraft System during PC-C4 Phase 2. Fort Irwin, CA. Credit: U.S. Army

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Key Takeaways From the Army's Project Convergence Capstone 4

In 2020, the U.S. Army launched its first Project Convergence exercise with the aim of further integrating the Army into the Joint Force⁽¹⁾, assessing the impact of emerging technologies on joint operations, and informing the Army's approach toward improving and modernizing inter-service capabilities.

Since its inception in 2020, Project Convergence has grown to encompass all branches of the U.S. military, as well as the militaries of U.S. allies and partners. The Army hosted **Project Convergence Capstone 4 (PC-C4)**, its fourth set of Project Convergence exercises, from February 23 to March 20 at Camp Pendleton and Fort Irwin, both in Southern California. PC-C4 brought together over 4,000 service members and civilians from Australia, Canada, France, Japan, New Zealand, the U.K., and the U.S.

This Client Alert highlights several of the technologies and strategic concepts that played a central role in PC-C4, with the aim of providing industry participants with a view as to some of the specific capabilities that are likely to receive continued attention and budget support from the Army and the Joint Force in the years ahead.

(1) The "Joint Force" refers to the DoD's efforts to coordinate communications, decision-making, and mission execution across all branches of the U.S. armed services (and, by extension, those of allied and partner nations)

Project Convergence – and the capability set it aims to advance – is closely tied to the DoD’s push toward increased connectivity between sensors and weapon systems across service branches, embodied in the Pentagon’s **Combined Joint All Domain Command & Control (C-JADC2)** framework.

This year’s exercise was focused on preparing for a conflict in the Indo-Pacific. This focus was underscored by the participation of key allies in the region, including Australia, New Zealand, and Japan. PC-C4 participants tested technologies aimed at addressing the logistical challenges inherent in coordinating across the vast distances of the Pacific, and the tactical challenges of littoral and amphibious combat.

Exercises took place across two phases: Phase 1 was hosted at Camp Pendleton from February 23 to March 3 and was joint-focused, while Phase 2 was hosted at Fort Irwin from March 11-20 and was primarily Army-focused. Core technological and strategic focus areas spanning both phases are detailed below.

I. Combined Joint All-Domain Command & Control (C-JADC2): An Overarching Theme



- **Objective:** To achieve a joint and multinational common operational picture that allows U.S. and allied service branches to have the same picture of the battlespace, with the same data. One example of a concrete, real-world impact of effective joint force command and control today is the more efficient use of munitions, a front-and-center challenge in Ukraine’s war effort.
- **Spotlight on Emerging USAF Capability:** “The Air Force is using several ... mobile and tactical C2 battle management system[s], bringing hundreds of data feeds together to create an air picture.” – Brig. Gen. Luke Cropsey, on the USAF’s role in providing exercise participants with a multi-service synchronized picture⁽¹⁾

II. Integrated Sensors & Fire Capabilities



- **Objective:** To enhance layered air and missile defenses and experiment with new sensor capabilities from unmanned and manned aircraft.
- **Spotlight on Emerging Joint Force Capability:** “During PC-C4, we are truly integrating all the services. We are using a USMC F-35 as the sensor, with a USAF unit as the Battle Management node, translating the data so that the target can be shot by an Army missile.” – Air Force Maj. Morgan Huttes⁽²⁾

III. Data Processing and Data Transfer at Speed



- **Objective:** To increase the speed of moving data from sensor to decision maker to effector. While limited details have been disclosed regarding the nature of the data exchanged (beyond general targeting information), PC-C4 participants have indicated that, since the first Project Convergence exercises in 2020, the speed of moving data from a sensor to an effector has increased by two orders of magnitude.⁽³⁾
- **Spotlight on Emerging Joint Force Capability:** “The entire joint force ... with our U.K. and Australian teammates ... were able to effectively move data for the first time in an Indo-Pacific scenario at a magnitude never seen before.” – Lt. Gen. Ross Coffman, Deputy Cmdr. of Army Futures Command⁽⁴⁾

(1) “DAF delivers lethality at the speed of data during Project Convergence Capstone 4,” *Secretary of the Air Force Public Affairs*

(2) “Project Convergence Capstone 4 Works to Integrate Joint, Multinational Defense Systems,” *Secretary of the Air Force International Affairs*

(3) “SPECIAL REPORT: Army’s Project Convergence Goes on the Offensive,” *National Defense Magazine*

(4) “Data passed ‘at magnitude never seen before’ at Army’s Project Convergence,” *DefenseScoop*

IV. Aerial Tier Network Extension



- **Objective:** To facilitate greater connectivity across dispersed forces, primarily by leveraging high-altitude UAS. In an Asia-Pacific scenario, this objective is geared largely toward hardening the Joint Force’s network against interference from dense foliage and ensuring that units have multiple communication paths available in case one is contested or compromised.
- **Spotlight on Emerging U.S. Army Capability:** One of the systems tested at PC-C4 was the K1000ULE from Kraus Hamdani Aerospace. The solar-powered UAS flies at 18,000 feet and provides persistent and long-range target acquisition, detection, processing, and reporting capabilities. The platform recently set a record for Group 2 UAS, staying airborne for more than 75 hours.

V. Unmanned Vehicles + Manned-Unmanned Teaming Doctrine



- **Objective:** Continue to develop doctrine and explore new use cases for unmanned systems, manned-unmanned teaming, and human-machine integration.
- **Spotlight on Emerging Joint Force Capabilities:** Several unmanned systems took part in PC-C4 exercises. These included, among others:
 - **Ghost Robotics Vision 60** – an agile four-legged UGV, used to provide reconnaissance and enhanced situational awareness for ground forces
 - **General Dynamics Small Multipurpose Equipment Transport (S-MET)** – an eight-wheeled robotic “mule” capable of carrying over 1,000 pounds and intended to relieve soldiers of having to personally move heavy gear
 - **Malloy Aeronautics Tactical Resupply Vehicle-150 (T150)** – an autonomous aerial drone with a cruise speed of 67 mph and a maximum payload of 150 lbs, geared for fast last-mile resupply / logistics support



Conclusions and Takeaways

The capability set highlighted above provides industry participants with an instructive roadmap of areas that are likely to receive continued operational focus – and continued budget priority – from the U.S. Army and the Joint Force in the coming years. While these capabilities are applicable across theatres, many share the common theme of addressing critical needs in the context of a hypothetical conflict around Taiwan.

Ultimately, these capabilities are interrelated – the C-JADC2 concept, in particular, serves as a common thread underpinning the others: enhanced systems integration, faster data sharing, more resilient situational awareness architecture, and the evolution of doctrine around new unmanned technologies are all being undertaken with the common aim of streamlining battlefield decision-making and accelerating the delivery of effects across domains.



U.S. Army soldiers alongside British Army Special Operations Brigade soldiers during PC-C4 Phase 1. Credit: U.S. Army



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