USACBRNS Force Modernization Process and Integration

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The U.S. Army modernization process enables the delivery of quality solutions to Soldiers to ensure future mission success. It builds on a common strategic foundation and an assessment of near- and far-term challenges. Army modernization is the progressive transformation of the critical elements (which the Army defines, constructs, and operates through doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy [DOTMLPF-P]) from the present to the future. Modernization occurs when progressive transformation ventures are successfully implemented across DOTMLPF-P components and holistically enhance the Army ability to accomplish its mission. It encompasses a continuous transformation strategy (see Figure 1) that heavily relies on the use of human-machine integration by using the tenets of Transformation Contact 2.0 in contact (near-term), deliberate transformation (mid-term), and concept-driven development (far-term).

Continuous transformation informs and sets conditions to deliver the total force in the forthcoming Army Warfighting Concept.[1] In a rapidly evolving and complex operational environment, commanders are empowered to exercise disciplined initiative with existing resources to experiment with concepts, organizational designs, and materiel solutions that feed into enduring Army solutions. The Army utilizes the regionally aligned readiness and modernization model to synchronize modernization, training, and mission requirements across Army commands to coordinate warfighting efforts.

Continuous transformation provides a framework for "thinking in time" across three concurrently-executed time horizons. Continuous transformation is an overarching concept for how the Army perpetually injects organizational, materiel, doctrinal, and other changes based on experience gained from exercises, experiments, observations, wargames, and emerging technology demonstrations.

The first time horizon—Transformation in Contact 2.0—captures near-term (within 18 to 24 months) efforts to rapidly prototype organizational changes and integrate emerging technology. Transformation in Contact 2.0 is a perpetual and continuous effort that provides the opportunity to learn, fail, refine requirements, and develop faster solutions to stay ahead of adversaries.

Transformation in Contact 2.0 is the near-term efforts to prototype organizational designs and operationally test new technology to shape future program objective memorandums and total Army analysis decisions. This time horizon encourages commanders to demonstrate adaptability, flexibility, initiative, and innovation to keep pace with rapid changes in the operational environment. Transformation in Contact 2.0 broadly equates to the force employment phase of the continuum of strategic direction described in Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3100.01e, *Joint Strategic Planning System*,[2] and Joint Doctrine Note (JDN) 2-19, *Strategy*.[3]

Deliberate transformation is the mid-term efforts to plan organizational changes and materiel procurement for the Army through the program objective memorandum and total Army analysis processes. This time horizon is characterized by larger procurement programs and the implementation of validated organizational changes to prioritized units in the total Army. This 2-to-7-year timeframe aligns with the force development phase of the continuum of strategic direction, where the Army builds and refines its formations.

The final time horizon is concept-driven development, which examines the period between 2030 and 2040 to identify the potential new concepts, formations, talent, doctrine, technology, or other DOTMLPF-P changes required to successfully compete in the future. Concept-driven capabilities are the long-term efforts executed to identify capabilities and technologies that may be required during the 2030 to 2040 timeframe. Concepts are driven by science and technology investments, wargames, and experiments. These elements broadly equate to the force design phase of the strategic direction continuum.

The Army continuously transforms to validate new capabilities and accelerate development and force design efforts to achieve a more lethal, strategically mobile, and combat-ready force, now and in the future. This ongoing and iterative process includes the disciplined reallocation of resources, and it grows and evolves the total Army into a multidomain-capable force. Commanders are empowered to take disciplined initiative and assume prudent risk to innovate the manner in which the mission is executed. As previously mentioned, DOTMLF-P is crucial for receiving input and successfully implementing required changes within the force modernization process.

DOTMLPF-P is an acronym that represents the domains that equipment programs and nonmaterial solutions must integrate to enable military utility for the Army and the Department of Defense. The DOTMLPF-P is defined in the Joint Capabilities Integration Development System (JCIDS) process as the framework that determines which changes and/or acquisition efforts could fill a need from an operational perspective to address a capability gap. In essence,

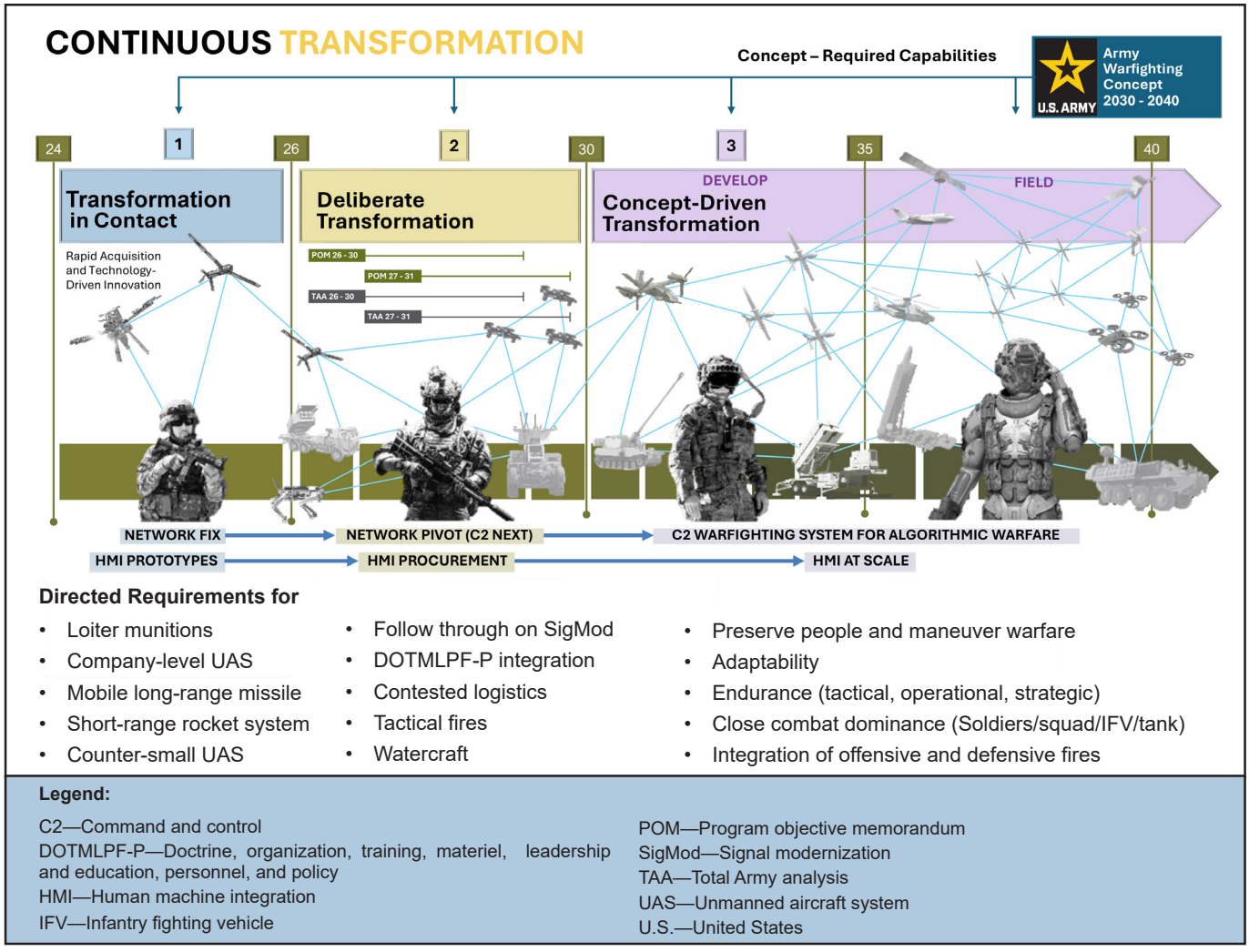

Figure 1. Continuous transformation strategy

the DOTMLPF-P process is the necessary requirements that properly determine the acceptability, suitability, and feasibility of proposed force design changes; the integration of new capabilities; the evaluation of current processes; and participation in capability-based assessments.

The following are DOTMLPF-P domains:

- **Doctrine.** Identify the changes needed in designated joint or Service doctrine to describe how the recommended capability should be captured in doctrine. The doctrine consideration consists of fundamental principles that guide the employment of U.S. military forces in coordinated action toward a common objective.
- **Organization.** Identify current organizational structures that allow the capability to be used to its fullest potential. Outline the recommended or required organizational structure changes that could enable the implementation, greater efficiency, or performance of the capability.
- **Training.** Ensure that training is properly addressed from the beginning of the capability development process. Outline recommended and required training that could enable effective implementation and performance of the capability. Training that is unplanned, inadequately funded, or belatedly integrated can be a significant lifecycle cost driver or contribute to a lack of readiness when the system is fielded.
- **Materiel.** This domain has two meanings, depending on the use of an uppercase or lowercase m.
  - Capital "M": Identify concerns during the development of a materiel capability.
  - Lowercase "m": Identify increased quantities, modifications, improvements, or alternate applications of existing materiel or the purchase of commercial off-the-shelf, government off-the-shelf, or nondevelopmental items.
- **Leadership and Education.** Identify the required professional leadership development that is the product of a learning continuum that comprises training, experience, education, and self-improvement. Identify if current leadership and education allow the capability to be used to its fullest potential.
- **Personnel.** Ensure that qualified personnel exist to implement proposed solutions for capability gaps. (This is not the same as the organizational domain.) The number or quantity of people is a function of the organization section. Personnel should include the qualities, types, or skills needed to work the proposed solution.
- **Facilities.** Identify real property requirements consisting of one or more buildings, structures, ranges, utility systems, associated roads or other pavements, and

underlying land areas. Identify if current facilities allow the capability to be used to its fullest potential.

- **Policy.** Identify Department of Defense, interagency, or international policy issues that may impact effective implementation of the solution.

The domains may fall under different organizations across all Army Centers of Excellence. For maneuver support, the U.S. Army Training and Doctrine Command (TRADOC) proponent governs training, leader development, and personnel; the Centers of Excellence govern doctrine, organizations and facilities; and the Army Futures Command governs materiel. Each proponent is required to integrate the domains, ensuring a capability that originated from a gap that was shepherded through the JCIDS process to provide military utility to the end user.

The U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) uses the Capability Integration and Initiatives Division (CIID) to synchronize DOTMLPF-P across the domain leads and other stakeholders (such as science and technology; the Joint Requirements Office; the Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense [JPEO-CBRND] material developers; Headquarters, Department of the Army G-8 Force Development; Headquarters, Department of the Army G-3-5-7; and the Army Futures Command). This synchronization allows DOTMLPF-P to be integrated into planned meetings for program reviews of joint and Army initiatives and into the coordination of other unscheduled events that require a consolidated response, such as coronavirus disease 2019 (COVID-19) or Transformation in Contact 2.0 support.

The chemical, biological, radiological, and nuclear (CBRN) program reviews occur weekly and follow a standard agenda that includes an equipment capability description, a planned concept for employment, a basis of issue guidance, and a DOTMLPF-P chart that lists each domain. Each domain is coded by a green, amber, or red dot for a quick status view.

- **Green.** Signifies that there are no issues and things are on track according to the established timeline.
- **Amber.** Signifies that issues being worked may affect development/delivery.
- **Red.** Signifies that existing issues will affect development/delivery and require senior leader input for program continuation.

Each domain area on the DOTMLPF-P chart provides space to list current working items for the program review. Additionally, space is given to display the program timeline, milestones, and decision points. Current CIID focus is on the future capabilities that might be required during the next several years.

In the future, new CBRN capabilities will be fielded to the warfighter. This includes the Nuclear, Biological, Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite Upgrade. This Stryker variant will be the first Army armored vehicle that incorporates unmanned aircraft systems with an added CBRN reconnaissance and surveillance capability. For biological surveillance, operations remain vulnerable to potential disruptions by adversaries who could exploit weaknesses. The logistical and medical ramifications would have dire consequences and increase the burden of achieving strategic goals. To help mitigate this threat, the Army plans to replace its legacy biological detection capability with the Joint Biological Tactical Detection System (JBTDS). JBTDS improves and increases the capacity of the biological detection capability. With the JBTDS, biological defense platoons can provide near-real-time, tactical-level detection of an aerosol biological warfare agent, which enhances situational awareness for commanders.

Several modernization efforts support the Army of the future. These efforts include the Uniform Integrated Protection Ensemble (UIPE), Automated Obscuration System, and Automated Decontamination System. The UIPE is a two-piece, lightweight, chemically protective combat uniform made of air-permeable material that has an aerosol liner treated with liquid repellent. The UIPE is a lighter-weight protection ensemble that safeguards the Soldier in contaminated environments while significantly reducing the wearer's burden. The Automated Obscuration System and the Automated Decontamination System are robotic-enabled platforms that provide visual screening and a streamlined decontamination process. These capabilities are currently undergoing prototype testing. They are designed to increase capability and capacity and reduce manpower, time, and resources while removing the Soldier from the hazard.

The USACBRNS CIID synchronizes these efforts and maintains a brief for each capability worked through joint, Army, and proponent-specific capabilities. The DOTMLPF-P chart is the key to this process. The team conducts in-person meetings, ensuring the presence of local domain leads and their deputies; additional stakeholder organization members can attend via Microsoft Teams.© Attendance from a combination of other stakeholders (including Army staff, program executive office employees, and the science and technology community) varies based on whether the program is new or established. During these meetings, domain representatives consider each identified implication, with the intent to solve or mitigate it well before a system or process fields/starts. After the domain briefs, the schedule and milestone chart are assessed with the intent to synchronize the program objective memorandum with the initial operational capability and the full operational capability.

To support theater opening operations during a transition to conflict, a force design update was executed to transform five hazard response companies into heavy reconnaissance and decontamination companies. These new companies provide early-entry operations the CBRN defense capabilities need to support joint reception staging onward movement and integration and to maintain the flow of friendly forces. The finalized force design update uses the DOTMLPF-P process to attain final Army approval to integrate the new structure into CBRN formations. The USACBRNS CIID is now working on integrating the Transformation in Contact 2.0 efforts into future CBRN formation changes.

Transformation in Contact 2.0 focuses on a new initiative that tests new capability and/or new equipment sets and

tactics to adapt to real-world situations involving current and future threats. The main goal is to create more adaptable units that can quickly respond to these threats—not necessarily reducing formation structure, but instead incorporating new technology and processes that are streamlined to quickly adapt to new threats. The CBRN proponent uses these thought processes to generate new ideas and solution sets to prepare the Chemical Corps to adapt in stride with the Army Transformation in Contact 2.0 processes. The four lines of effort focus on developing a CBRN human-machine integration company using unmanned systems for streamlined unit operations. These efforts include—

- Experimenting with unmanned systems for more intensive functions (such as decontamination).
- Exploring ways to use technology for obscuration.
- Developing autonomous capabilities for units.
- Leveraging new technologies for enhanced operational flexibility.

The CBRN proponent is currently working on a proof-of-concept experiment with all stakeholders. The experiment should be complete by September 2025.

Army force modernization is a strategic approach to continuously improve military capabilities by introducing new technologies, tactics, and organizational structures to maintain combat effectiveness against evolving threats. Force modernization could involve upgrading existing equipment, developing new weapon systems and CBRN sensors, or adapting doctrine to better leverage these advancements across all aspects of military operations and DOTMLPF-P domains. It includes three methods—Transformation in Contact 2.0, deliberate transformation, and concept-driven development—to prepare for near-term, mid-term, and far-term (as far out to 2040) operations. Modernization has a holistic approach that encompasses multiple areas across the DOTMLPF-P and adapts to emerging threats by applying new technologies across centers and through the Army Futures Command. To maintain a modern and effective Army, a constant and adaptable approach is crucial, reflecting both evolving military concepts and senior leader strategies.

Endnotes:

[1]The Army Warfighting Concept is under development by the Army Futures Command.

[2]CJCSI 3100.01e, *Joint Strategic Planning System*, 29 January 2024.

[3]JDN 2-19, *Strategy*, 10 December 2019.

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