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INFORMATION PAPER

SUBJECT: All Arms Maneuver Collective Training; Training and Simulation Characteristics of Need

1. Situation. The Army must be prepared to compete and win against peer adversaries in a complex, multi-domain operational environment. Future conflict will require the Joint Force to dominate in all domains (land, maritime, air, space, and cyberspace) and dimensions (physical, information, and human). To achieve this, the Army must be able to conduct realistic, large-scale combined arms training that replicates the challenges of Multi-Domain Operations (MDO) across the entire competition continuum.

2. Problem. The Army's current training infrastructure consists of separate and stove-piped Live, Virtual, and Constructive systems (e.g., JLCCTC, CCTT, AVCATT) that are not integrated. This disjointed approach prevents the Army from conducting true all-arms, multi-echelon, combined arms maneuver in a collective training environment. It creates a critical readiness gap by limiting the ability to train against a peer threat at the scale and complexity required for Multi-Domain Operations.

3. Objective. The objective is to create a Global Training Environment that provides a holistic, all-arms training capability. This will be achieved by developing and integrating Live, Virtual, and Constructive training environments through a common software standards backbone, enabling units from Soldier to ASCC to train seamlessly across all domains at the point of need.

4. Key Characteristics. The Global Training Environment will be realized through the development and integration of the following key characteristics, which are underpinned by a collaborative and iterative development process among Science & Technology, Capability Developers, Acquisition, and Industry.

a) Live Training Integration. The Army must evolve its Live Training Systems (LTS) to fully connect instrumented Soldiers, vehicles, and units at home stations and Combat Training Centers into the broader synthetic environment. This will allow live participants to seamlessly interact with and fight against virtual and constructive forces, enabling more complex and realistic collective training scenarios.

b) Virtual Training Modernization. The Army requires modern, Reconfigurable Virtual Collective Trainers (RVCT) and Soldier Virtual Trainers (SVT) to replace legacy, proprietary systems. These next-generation trainers will

leverage common software and One World Terrain (OWT) to provide immersive, MDO-relevant training for ground and air platforms, from individual tasks to complex, multi-echelon collective events.

c) Next-Generation Constructive Simulation. The Army needs a Next Generation Constructive (NGC) capability to simulate the scale, complexity, and all-domain nature of MDO. This simulation must provide a semi-autonomous and intelligent opposing force (OPFOR) capable of executing peer-level threat doctrine, forcing commanders and staffs to make decisions in a dynamic and contested environment.

d) Foundational Common Software (STE-SW). The entire Global Training Environment must be built upon a single, common software baseline. This will be achieved through a layered architecture that includes:

- Core Services Layer: The Synthetic Training Environment-Software (STE-SW) providing the foundational architecture, including One World Terrain (OWT) and a common data layer.

- Transport Layer: Common IP-based transport services (TCP, UDP, multicast) to provide reliable and low-latency data movement.

- Interoperability/Application Layer: Standardized simulation protocols (DIS, HLA, TENA) and APIs to ensure semantic data interoperability across LVC training systems.

- Sensor/Instrumentation Layer: Evolved Embedded Training (ET) and Live Training Systems (LTS) that connect instrumented Soldiers, vehicles, and units into the synthetic environment.

5. Amendments. This Characteristics of Need statement is a living document and will be updated as required based on technological observations and lessons learned through experimentation. At a minimum it will be reviewed every 90 days by the Commanding General, U.S. Army Transformation and Training Command.