Statement of Need
Joint Electromagnetic Warfare Center (JEWC)
Purchase Request: F2MTL26075A002
Modern Air Combat Environment (MACE)
Extended Warfare

1. Purpose:
    a. The purpose of this statement of need is to acquire MACE Extended Warfare and associated equipment. MACE is a full-spectrum battlespace simulation software for building and executing scenarios across multiple domains, simulated in high detail including the full electromagnetic spectrum.

2. Current Challenge:
    a. The Joint Electromagnetic Warfare Center (JEWC) currently is supporting a task to further EMS modeling at the campaign level. An associated subtask is to assess and evaluate current Commercial of the shelf (COTS) and Government of the Shelf (GOTS). As such, JEWC Modeling and Simulation Engineers are evaluating several diferent existing software and trailing them in real use cases. MACE, along with others, is one of the COTS being evaluated.

3. Scope of Work:
    a. Vendor shall deliver the MACE Extended Warfare and associated items outline below:

Item	Item Quantity
Mace Extended Warfare	3
Armor	3
USB Security Dongle	3
GIS Data Drive	1
Shipping	1

Salient Characteristics

1. Official Support: Modern Air Combat Environment (MACE) is developed and supported by Battlespace Simulations, a FAAC Incorporated company, and provides comprehensive documentation, technical support, and regular updates.

2. Full-Spectrum Battlespace Modeling: MACE provides high-detail, multi-domain simulation, including air-to-air, air-to-ground, naval, and rotary-wing scenarios, with a focus on contested operational environments.

3. 3. Physics-Based Simulation: It features high-fidelity, pulse-level modeling of electromagnetic spectrum activity (Radar, IR, RF). This includes AESA/PESA radar behaviors and Fresnel propagation.

4. Interactive and Dynamic Interface: Instructors can add/move entities (SAMs, aircraft) and change weapon loadouts in real-time without stopping the simulation.

5. Extensible and Data-Driven: The order of battle is fully extensible, allowing end-users to add new platforms, weapons, and customize radar pulse and scan characteristics. It includes a Plug-in API for custom code.

6. 6. GIS-Core and Global Terrain: Built on a mature Geographic Information System (GIS) core, MACE uses OpenStreetMap (OSM) data and supports worldwide 10-meter imagery and elevation data.

7. Live-Virtual-Constructive (LVC) Integration: It supports DIS and TENA interfaces for interoperability with, or acting as, Computer Generated Forces in larger training systems.

8. Advanced EW Training Features: MACE-EW features, part of the standard suite, include 2D/3D EW displays, direction finding (DF), towed decoys, and communication jammers.

9. ARMOR 3D Visualization: MACE includes BSI's Augmented Reality Mission Rehearsal and Observation (ARMOR) tool, a Unity-based 3D viewer that supports VR, AR, and screen modes for visualizing the battle from any perspective.

4. Deliverables

    a. See items above under "Scope of Work"