Broad Area Announcement
for

VANGUARD 2024

DISCLAIMER:

THIS IS NOT A SOLICITATION: No award will be made because of this request. This RFI is for informational and planning purposes only. This is not an Invitation for Bid, a Request for Proposal, or a Request for Quotation. No solicitation document exists, and a formal solicitation will not be issued by the Government after receiving responses to this RFI. The Government will not be liable for payment of any costs incurred in response to this RFI, participation in the Vanguard experiment, and is under no obligation to act in any way on the information received. No costs incurred by interested companies in response to this announcement will be reimbursed. The information provided may be used by the Army in developing a future acquisition strategy, Performance Work Statement, Statement of Objectives and/or Performance Based Specification(s). Interested parties are responsible for adequately marking proprietary or competition sensitive information contained in their response.

PURPOSE:

The U.S. Army Intelligence Center (USAICoE), in partnership with Army Futures Command (AFC) through the Intelligence Capability Development Integration Directorate (I-CDID) and its Intelligence Battle Lab (IBL), will conduct persistent experimentation through a recurring event executed in collaboration with Army, Joint, Department of Defense (DoD), Multi-National, Industry, Academia, and other mission stakeholders to advance Army Intelligence and Electromagnetic Warfare (I&EW) modernization objectives, while shaping and incorporating future concepts, formations, and emerging technologies.

BACKGROUND:

Future warfare portends a hyperactive, interactively complex battlefield characterized by robotics and autonomous systems, loitering intelligent munitions, semi-autonomous entities, short-range point defenses, AI/ML-enabled capabilities, distributed Soldier-Machine Teams, and self-organizing intelligence networks. To survive a complex, contested, congested, and transparent battlefield, friendly and enemy forces will continuously reorganize as self-composable edge organizations. As seen in past and current conflicts, forces adapt tactics, techniques, and procedures at a rate that will challenge the ability to forecast and confirm enemy courses of action,

ability to operate in a contested electromagnetic environment, and ability to delivery both kinetic and non-kinetic effects at the timing and tempo of the fight. Vanguard 24 and persistent experimentation are designed to develop and address learning demands aligned to modernization and transformation requirements within the I&EW disciplines, as well as seamlessly integrate into the new warfighting concepts and increase the Army's capabilities, survivability, and lethality.

INFORMATION REQUESTED:

Interested parties with the ability to prototype and demonstrate emerging I&EW, robotic, and data processing capabilities that answer the below technology focus areas should submit a Whitepaper not to exceed 10 pages in length, and technology specification sheet in the attached format. In addition, interested parties are required to submit a one-page power point technology quad chart depicting an image of the capability, capability description, and point of contact. A template will be provided in the enclosures. The selected technologies will be integrated and presented to the Government during the Vanguard 2024 experimentation event from 08-21 September 2024.

> Note: All correspondence including the Request for the Reference Design Document and Whitepaper shall have correct CUI markings in accordance with DoDI5200.48 –Controlled Unclassified Information (CUI).

TECHNOLOGY FOCUS AREAS:

1. Threat Targetry: Home Station Training with Live Threat Emitters – In support of multi-domain ranges, the Army will need to acquire software-defined and RF-enabled targetry transceivers that can replicate, represent, and emulate modern threat systems and activities to support realistic training at home station locations in a complex electromagnetic environment. Soldiers, units, and commanders need experience training and certifying on I&EW systems and qualifying on fundamental and advanced ES, EA, and EP tactics and techniques before deploying to combat training centers or operational environments. Vanguard 24 will explore, expose, and integrate viable solutions to train on MDO concepts at home station training and assess the performance the commercial, government, and academic transceiver capabilities that:
   a. can withstand the rigors of ground transport over rough terrain.
   b. can connect to a network with a common radio interface connection.
   c. can be operated and maintained by Soldiers who are technically trained in electromagnetic warfare, signals intelligence, or radio communications.
   d. are desired to be separated by bands (HF, VHF, UHF, EHF)
   e. can emulate ground-based signals in theaters such as ground surveillance radars, ground electromagnetic attack emitters, advanced threat tactical communications, ground-based fire finder radars, air defense radars, and the communications associated with unmanned aerial systems.
   f. are desired to be programmable and software defined with imported IQ files, mission configuration files, or be specifically built using open-source software

defined radio applications such as RedHawk, GNU Radio, or other software to replicate or manipulate a waveform.

g. are equipped with applicable antennas, amplifiers, and cabling.

h. provide operators with real time feedback on the effectiveness of EA, through either an onboard interface, networked back to a controller, or post processed.

i. are both weather and dust resistant and withstand usage in an outdoor field environment. (cold weather, wet weather, and extreme hot weather climates).

j. can interface with the Threat Battle Command Force (TBCF) interface standard. The TBCF Software Development Kit (SDK) can be requested from PEO STRI Mr. Troy Bedsole at Michael.T.Bedsole.civ@army.mil, or 256-876-6756.

2. High Altitude Electromagnetic Warfare & SIGINT - In support of high-altitude Electromagnetic Warfare & SIGINT, ES and EA payloads are needed that can be integrated onto high-altitude platforms.

a. capability should meet the SWaP-C for operations above 65,000ft AGL.

b. capability should be less than 110lbs in weight.

c. capability should have a control link connection to ground station.

d. capability is desired but not required to conform to JICD 4.2 and operate with EWPMT. The EWPMT SDK can be requested at https://mcsc.army.mil/login.php

3. Robotics – In support of future robotic autonomous intelligence and electromagnetic warfare (IEW) systems, the Army will need robotic platforms to conduct intelligence and electromagnetic warfare operations in large scale combat operations. These systems will offload the human risks of ground collection operations by allowing soldiers to remain in sanctuary out of range of enemy kinetic effects, thereby offering a means to gather critical information in non-permissive environments. Robotic IEW systems should use the latest artificial intelligence and machine learning (AI/ML) technologies to maneuver through varying terrain (jungle, desert, etc) as well as identify, detect, and effect adversary systems with or without a human in the loop. Vanguard 24 will explore, expose, and integrate viable solutions to employing Robotic IEW systems in a realistic combat environment, while also evaluating new concepts of employment. The government is looking for commercial, and academia technologies with the following desired characteristics:

a. can withstand the rigors of ground transport over rough terrain.

b. can provide electrooptical, infrared, thermal, and radio frequency collection on a robotic platform.

c. tailorable for mission needs.

d. utilizes low probability of intercept and detection communications links for data backhaul and command and control.

e. utilizes AI/ML for target recognition, obstacle avoidance, and target identification.

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    f.   provides modular payloads that can adapt to varying missions.
    g.   can be operated independently or with a human in the loop.
    h.   provides anti tamper capabilities.
    i.   can demonstrate teaming with other robotic systems or networked with other sensors on the battlefield.

VANGUARD 2024 TECHNOLOGY SELECTION PHASES:

PHASE 1: Technology Selection

Technologies will be selected according to their applicability to the technology focus area, and/or ability to address a key intelligence and electromagnetic warfare gap. Selected partners will be notified and encouraged to participate in any planning events, to include technical interchange meetings. This phase begins with receipt of this BAA and ends with notification to selected vendors.

PHASE 2: Technical Integration

In this phase, selected partners will work with subject matter experts from the Intelligence Center of Excellence and Intelligence Battle Lab to design an experiment or demonstration of the technology in a live environment. A series of regular technical interchange meetings (TIMs) will occur between the government and selected partner to develop an experimentation, and data collection plan. This phase begins with vendor notification and ends with detailed experimentation and data collection plan.

PHASE 3: Execution

This phase begins with all parties arriving at experiment sites, and selected partners will begin setting up technologies with government SMEs. All base, range, cybersecurity, and spectrum clearances should be received by the appropriate government representative and approved prior to this phase. This phase begins at the start of Vanguard 24 on 08 September 2024, and ends with the VIP Day on or about 20 September 2024. Exact dates will be in enclosure 2 "Timeline".

PHASE 4: Evaluation and Reporting

This phase begins with the collection of all data elements by IBL ORSA's and the Electronic Proving Grounds Anechoic Chamber engineers, and Intelligence Electronic Warfare Test Directorate (IEWTD). Data will be collected on the performance, configuration, and ease of use of each system, and feedback from FORSCOM, INSCOM, and USARPAC participants (Soldiers) in the form of questionnaires, written documentation, and recordings. All recordings of systems performance will occur in a controlled environment (Anechoic Chamber), and each system will be given a specific waveform to transmit. This phase begins with data collection and ends with the publishing of the written report. No vendor proprietary information will be shared outside of government control.

CONTRACTOR SUPPORT:

The Government may use contracted personnel to provide administrative assistance to federal employees regarding all aspects of any actions ensuing from this announcement, including the evaluation of white papers and subsequent proposals. However, federal employees will be responsible for actual reviews and evaluations. Government support contractors will be bound by appropriate non-disclosure agreements (NDA) to protect proprietary and source-selection information. They are not permitted to release any source-selection information to third parties, including others in their organization. By submission of a white paper, offerors are hereby granting support contractors access to financial, confidential, proprietary, and/or trade secret markings.

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Responses to this RFI are to be unclassified ████████████████████████████████
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1. Point of contact information to include: company name, contact name, and company address.

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2. CAGE Code and DUNS Number