Engineer Research and Development Center
Transformative Artificial Intelligence/Machine Learning High-Performance Computing
Commercial Solutions Openings (CSO)
Solicitation Number: W912HZ25SC003

SECTION A: INTRODUCTION:

The DoD High Performance Modernization Computing Program (HPCMP) is seeking innovative commercial solutions to advance the state of Artificial Intelligence (AI) and Machine Learning (ML) for the Department of Defense (DoD). This initiative aims to support the development, prototyping, and demonstration of cutting-edge AI/ML capabilities tailored for modern, high-performance computing environments to be located at the Army Research Laboratory (ARL) DoD Supercomputing Resource Center (DSRC).

The primary objective is to identify and validate transformative technologies and solutions capable of delivering secure, scalable, and real-time AI/ML computations in complex and operationally relevant military scenarios. These solutions should address the unique challenges of DoD applications, including the need for robust security, adaptability to dynamic environments, and the ability to operate effectively in distributed and edge computing architectures.

Proposed solutions should align with critical DoD modernization priorities, including AI enablement, autonomous systems, and supporting distributed edge computing. The goal is to enhance the DoD's ability to leverage AI/ML technologies to improve decision-making, operational efficiency, and mission effectiveness in support of national defense objectives.

Problem Statement:

The DoD faces a pressing need for innovative computing solutions that can deliver the performance, efficiency, and flexibility required to maintain technological superiority. By investing in next-generation AI/ML computing systems, the DoD can ensure its ability to meet the demands of modern warfare, enhance mission effectiveness, and maintain a decisive edge over adversaries in an increasingly complex operational landscape.

Background:

As the Department of Defense (DoD) prepares for the complexities of next-generation conflict, it is imperative that computing architecture and software infrastructures evolve to meet the demands of modern warfare. Traditional computing systems, while effective for traditional High-Performance Computing (HPC) workflows, are not fully equipped to address the unique and rapidly growing requirements of the modern DoD. The increasing reliance on data-driven decision-making, real-time analysis, ML based surrogate modeling, generative AI, scene reconstruction, computer vision, sensor fusion, and autonomous systems necessitate specialized computing solutions tailored to AI/ML workloads.

AI/ML technologies are critical enablers for the DoD's modernization and Critical Technology Area priorities, including predictive analytics, autonomous operations and enhanced situational awareness. However, these capabilities require computing systems that are not only powerful but also scalable, adaptive, and optimized for the unique challenges of military applications. Specialized AI/ML computing platforms are essential to process vast amounts of data, execute real-time calculations, and support distributed operations in contested and dynamic environments.

Requirements:

ARL DSRC invites white papers that introduce groundbreaking AI/ML advancements in emerging and future computing paradigms. Offerors shall propose solutions that address one or more of the following objectives:

- Develop an AI/ML system with a modern software environment that can scale-up to an HPCMP Technology Insertion (TI) system size (no greater than approximately 1.2MW) and a test and development system (TDS) with identical architecture

- Support a wide variety of ML scenarios ranging from relatively large-scale training to inference workloads

- There will be a test and development system (TDS) deployed in an unclassified CUI environment and a larger system installed at the SECRET classification level (TI 26 Base System 1).

    - While the larger system (TI 26 Base System 1) will be ultimately deployed at SECRET classification, offerors are encouraged to propose solutions that will result in accelerated timelines to achieve full production environments.

- Solutions/approaches that result in speed from award to system delivery and acceptance.

- If successful, options to procure additional systems at classifications up to TS/SCI would be desired.

Proposed solutions should articulate clear technical architecture, maturity level (e.g., TRL), compliance with DoD security requirements and expected outcomes.

Constraints and Considerations:

- Facilities description in attached document
- Personnel should be able to operate in a SECRET environment
- Environment (e.g. computer plus software on computer) should include hardware, software and storage that will be located at ARL
- All contracted systems must meet all physical and information security requirements set by the DoD, the Government worksite, and the Information Systems Security Manager (ISSM), primarily detailed by the DISA Risk Management Framework (RMF) NIST SP 800-53r4. Additional detail may be found in DoD cybersecurity policies (e.g. DoDI 8500.01 and USCYBERCOM TASKORD 17-0019), CNSSI 1253, and applicable DISA Security Technical

Implementation Guides (STIGs). The ISSM will provide further guidance, where needed, regarding documented security requirements.
(https://gamechanger.advana.data.mil/#/gamechanger)

- Applicable STIGs may include, but are not limited to, those for any, network devices, internal databases and internal web servers. For Unix-type operating system distributions for which there is not a distribution-specific STIG available, the general Unix STIG will be used as appropriate. All deviations from STIG requirements, as described by the RMF, must be documented in a written Plan Of Action and Milestones (POAM), in a format provided by the ISSM. (https://www.cyber.mil/stigs)
- All provided nonvolatile storage must support full disk encryption utilizing a cipher approved for national security information.
- Initial solution proposed should be of sufficient size to validate a larger TI class system
- ARL will provide primary system administration support for this system, but will require TIER 2&3 technical support
- Full training regimen will be required for system administration and application support
- Bi-Annual training will be provided for customer focused application development system workflow development.
  - o Training must be directly relevant to (and consistent with) the technologies in the contracted systems.
  - o Training will be onsite or virtual and support up to 20 developers/customers.
- Hardware maintenance will be required for contracted systems for a 5-year term after acceptance.
  - o 24x7 support, with a 4-hour response time
  - o Support personnel will require SECRET clearances
  - o All personnel requiring administrative system access must comply with the latest versions of DoD Directive 8140.01 and DoD 8570.01-M and must have Information Assurance Technician (IAT) Level II or IAT Level III certification. Per DoD 8570.01-M, DFARS 525.239.7001 and AR 25-2, the Contractor employees supporting IA/IT functions shall be appropriately certified prior to be granted administrative access to systems on the Government's network.
- Hardware maintenance fees will be prorated on a monthly basis based on system availability to customers.
- Software maintenance will be required for contracted systems for a 5-year term after acceptance. All packages delivered with initial system will be fully supported and maintained via periodic updates/upgrades.
- Acceptance testing for systems will include full functionality tests for system and software packages over a multi-week availability and effective usage period. Details will be negotiated fully after selection of solution.

Estimated Government Funding Profile:
Funding is available for this effort. A minimum and/or maximum amount will not be provided. The government would like to see a variety of scalable technical solutions not bound by a minimum or maximum funding level.

Estimated Period of Performance: While the government prefers quick delivery, the period of performance will be based on the vendor's solution and may vary. The government may elect to award single and/or multi-year periods of performance

Desired End-state:

The anticipated outcome of this effort is the deployment and full acceptance of a state-of-the-art AI/ML supercomputer at Aberdeen Proving Ground, MD. This solution shall encompass not only advanced AI/ML hardware but also a fully integrated and optimized AI/ML software stack. The system must demonstrate both cutting-edge technical innovation and practical deployment in real-world mission environments, ensuring its relevance and utility for the Department of Defense (DoD).

A successful solution must deliver a fully operational and secure AI/ML supercomputer on the SECRET network, meeting all required security specifications, regulations, and accreditation standards. The system shall include a comprehensive software stack tailored for AI/ML workloads and must meet or exceed defined functional benchmarks prior to acceptance.

In addition, the system shall impact the DoD will be transformative, as this capability will empower DoD researchers to conduct mission-critical AI/ML research and development at TI-class scales.

This request for solution briefs is a two-step project announcement:

Step 1: This announcement is being issued to solicit solution briefs ONLY. The purpose of the solution brief submission is to identify potential partners that may have promising solutions relative to fulfilling the requirements herein. An offeror that describes a promising solution may be asked questions regarding their solution via email or requested to virtually attend a solution pitch with the Government project team. The Government reserves the right to move straight to Request for Proposal (RFP) based on solution brief only. Further, an offeror's inability to accept an invitation to provide a solution pitch does not preclude them from receiving an RFP.

Step 2: If a solution is selected and funding is available, the Government will issue an RFP. If a solution is selected and funding is not available, the Government may request that the solution brief be maintained in the electronic library for consideration and subsequent funding availability up to three years after submission. If a solution is not selected, the offeror will be notified generally within 30 days of submission.

SECTION B: SOLUTION BRIEF PREPARATION AND SUBMISSION

NOTE: The Government reserves the right to not select a solution if it omits any of the required information below.

DO NOT INCLUDE CLASSIFIED OR PROPRIETARY INFORMATION

1. **GENERAL FORMATTING REQUIREMENTS:** Solution briefs shall be **no more than ten pages** and submitted electronically. All submissions must be clear, legible, and conform to the following general formatting guidelines:

   - Paper: Pages shall be 8.5 x 11 inches, single sided, with each page numbered "X of Y pages."

   - Margins: Minimum of 1 inch on all sides.

   - Type Font: 12 point Times New Roman, single spaced.

   - Acronyms: Spell out all acronyms the first time they are used. One page of the proposal body is allocated to spell out acronyms, abbreviations and symbols.

   - Language: English.

- Electronic file format: PDF, compatible with current Adobe Acrobat Reader. File size less than 20 MB.

2. **TECHNICAL REQUIREMENTS**:

- Describe the proposed solution and how it will enhance the mission effectiveness of the agency. The proposed solution shall not simply repeat the Strategic Focus Area but rather provide convincing evidence that the proposed solution or potential capability fulfill a Government requirement, close capability gaps, or provide technological advancements. The following examples of convincing evidence are strongly encouraged

  o Authentic company URL or web address. Note: The Government may elect to use the information provided as part of its continuous market research. However, the government is not obligated to use the URL or web address as part of its evaluation process to determine the Selectee or Awardee.

  o Summary of product commercialization currently used in the open market.

  o Pictures, diagrams, models, or figures to depict the essence of the proposed solution.

- Describe how the proposed solution is "innovative" and the feasibility of the solution solving an agency challenge, including examples demonstrating possible application of the proposed innovation or existing use of the solution in the commercial marketplace.

  "Innovative" is defined as any technology, process, or method, including research and development, that is new as of the date of submission of a proposal, or any application that is new as of the date of submission of a proposal of a technology, process, or method existing as of such date.

3. **ROUGH ORDER OF MAGNITUDE (ROM)** – Estimated price ONLY. Further details will be requested for full proposal if selected.

4. **SUBMISSION**

SAM Registration: It is critical that offerors are registered in the System for Award Management (SAM), https://sam.gov/; offerors will not be eligible for an award if not registered in SAM at the time of submission. Additionally, entities are required to be registered to receive contracts (not just grants) and the address from the solution must match the registration information in SAM.

Solution Submission: For a solution to be evaluated for possible selection, it must be submitted via the electronic form at erdcwerx.org from the Transformative Artificial Intelligence/Machine Learning High-Performance Computing Capability CSO Submit Solution link; submissions will be accepted through **04 PM CST, October 16. 2025.** A hardcopy will not be accepted. Offerors may submit solution amendments any time prior to the deadline.

When a submission is made, a confirmation email will be sent by the ERDCWERX portal to the email address supplied in the submission form.

Please ensure that the email address listed in your proposal is current and accurate. Please contact ERDCWERX by emailing info@erdcwerx.org to share details of changed email address and/or company points of contact after proposal submission.

Due to the large amount of expected interest in this CSO, and to maintain a written record of questions, the ERDC will be accepting individual questions through the ERDCWERX portal by

using their Question Submission Form. All questions must be received NLT **29 September 2025**. The questions and answers will be published on the ERDCWERX Frequently Asked Questions (FAQ) page.

5. **SELECTION**

Solutions received in response to this announcement will be selected based upon an initial review of how innovative and feasible the solution is at solving an agency challenge, the potential to enhance the mission effectiveness of the agency, and funding availability.

If a solution is selected and funding is available, an RFP will be issued by the Contracting Officer, which shall include a request for further details or documents prior to award (i.e., contractor self-developed Performance Work Statement (PWS) or Scope of Work (SOW), delivery details… etc.). A PWS is similar to a Service Level Agreement (SLA) used in the commercial marketplace. The PWS shall detail the proposed work to be completed during the period of performance, deliverables, etc. As many solutions will likely be performed/provided at military installations, the Government will provide the applicable security requirements to be included in any award. As appropriate, the Government may engage in a collaborative process to develop the PWS/SOW, deliverables, data rights, and necessary terms and conditions for the award.

Issuance of a RFP does not guarantee award. Awards will be made once a proposal is accepted based on the proposal evaluation criteria in SECTION C.

The government reserves the right to select none of the submissions.

SECTION C: PROPOSAL EVALUATION

Proposals received in response to an RFP will be evaluated in accordance with the following evaluation criteria by scientific, technological, and/or other subject matter experts:

- **Technical requirements** will assess how innovative the solution is (as defined in this announcement) and the feasibility of the solution solving the agency's challenges.
- **Importance to agency** programs will assess the solution's potential to enhance the mission effectiveness of the agency.
- **Funds availability** will assess the availability of funding to procure the solution.

Additional evaluation criteria will be considered:

- **Value Proposition** – Perceived value of the solution (price/performance)
- **Schedule/Delivery** - Timeframe to field initial solution up to full scale system
- **Support/Training** - Ability to support AI/ML workloads in an DoD HPC Context.
- **Security** – Ability to support SECRET and above SECRET deployments

Price Reasonableness Determination: Price shall be considered to the extent appropriate, but at a minimum, the Contracting Officer will use market research as the primary method to determine that the price is fair and reasonable. The Government may elect to use external market research in the evaluation of the proposal. The ERDC must determine the price fair and reasonable prior to award using the procedures at DFARS subpart 212.209. In some circumstances, the Contracting Officer may request information from the offeror regarding recent purchase prices paid by the Government and/or commercial customers for the same or similar commercial items.

SECTION D: AWARD

All resultant contracts will be firm-fixed price. All items, technologies, and services (including research and development) procured via this CSO are treated as commercial. **Applicants from universities and/or non-profit organizations should be aware that commercial clauses will be integrated into the award and should coordinate proposals with associated legal counsel prior to submission.**

ERDC is conducting this CSO on a full and open basis and intends to award contracts in accordance with FAR part 12 and the FAR part that is deemed most appropriate for the solution proposed (i.e., FAR part 13, 15, and/or 35).

FAR / DFAR clauses will be integrated into contracts on a case-by-case basis based on proposed scope.

Additional terms and conditions may be required as circumstances necessitate; examples of such would be data rights, security, R&D, educational institutions, etc.

The government does not plan to engage in the debrief process outlined in FAR part 15 but will provide feedback to unsuccessful offerors as appropriate and at its discretion.

Award may be made using any appropriate vehicle (e.g., FAR-based contracts and Other Transactions) in accordance with applicable authorities that are effective at the time of the award.

Notional Project Schedule*: Project milestones include:

September 18	Project Announced, Submissions Open
September 29	Question Period Ends, FAQ Document Finalized
October 09	Submissions Close (4:00 PM CST deadline)
October 10-24	ERDC/Stakeholders Conduct Reviews
October 2025	EWX Facilitates Virtual Pitches (if needed)
November 2025	ERDC Finalizes Down-select Process
November 2025	Down selected Vendors Notified for Demo
December 2025	Award
2026	All systems delivered.

*Dates may vary to accommodate project team and participant availability.