I. Background and Purpose

The U.S. Army is seeking information from eligible small businesses across the U.S. regarding innovative concepts for an advanced autonomous unmanned system (UAV, UGV, and/or sensor network). The xTechOverwatch competition provides an opportunity to engage with the Department of Defense (DoD), earn prize money and have the opportunity to submit a Direct to Phase II (DP2) Army Small Business Innovation Research (SBIR) proposal.

The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) is partnering with Army Futures Command (AFC) to deliver the xTechOverwatch competition. The Army recognizes that the DoD must enhance engagements with U.S. small businesses by (1) understanding the spectrum of 'world-class' technologies being developed commercially that may benefit DoD; (2) integrating the sector of non-traditional innovators into the DoD Science and Technology (S&T) ecosystem; and (3) providing expertise and feedback to accelerate, mature, and transition technologies of interest to the DoD.

The xTechOverwatch competition will consist of three rounds:

(1) Call for concept white papers;
(2) Finals pitch event/demonstration; and
(3) Opportunity to submit a DP2 Army SBIR proposal.

Collaborations between Small Business Concerns (SBCs) and between an SBC and another entity is encouraged for submissions to this competition. The submitting organization must be eligible in accordance with Section II of this request for information (RFI). SBCs selected may have opportunities to collaborate during the course of the competition and following the competition to integrate their technologies into comprehensive autonomous systems.

The competition will award up to $1 million in cash prizes throughout the competition to selected participants. **Up to 40 applicants will receive a cash prize of $15,000 each and an opportunity to pitch and demonstrate their innovative technology solutions to a panel of Army and DoD subject matter experts (SMEs) at the Army Human Machine Integration (HMI) Summit in October 2025.** The Army intends to select up to 20 final winners of the competition to receive an additional cash prize of $20,000 each. Final winners of the competition with technologies that demonstrate sufficient maturity for direct prototype development will have the opportunity to submit a DP2 Army SBIR proposal worth up to $2 million, not to exceed 18 months in duration. Additional details on prize structure can be found in Section VII.

In addition to non-dilutive cash prizes, participants will have the opportunity to engage with Army and DoD representatives through information-sharing and networking opportunities.

The efforts described in this notice are being pursued under the authorities of 10 U.S.C. § 4025 to award cash prizes recognizing advanced technology achievements. Final winners will have the opportunity to submit a DP2 Army SBIR proposal under the provisions and requirements of 15 USC § 638.

While the authority of this program is 10 U.S.C. § 4025, the xTechOverwatch competition may generate interest by another U.S. Army, DoD or United States Government (USG) organization for a funding opportunity outside of this program (e.g., submission of a proposal under a Broad Agency Announcement). The interested organization may contact the participant to provide

additional information or ask for a request for proposal in a separate solicitation. Finalists of the prize competition may be invited to submit a separate proposal for further development of their proposed technology solution based on the needs of the Army. The Army may use a contract mechanism of their choice and will notify the participants accordingly.

All xTechOverwatch competition submissions are treated as privileged information, and contents are disclosed to government employees or designated support contractors only for the purpose of evaluation and program support.

The xTech Program will provide a feedback report to participants during each part of the competition. The purpose of providing this report is to assist in potentially accelerating transition of the technology to an Army end-user by providing insight on best applications for the technology, suggestions for product improvement for Army use and recommended next steps for development. However, the government may not respond to questions or inquiries regarding this feedback.

II. Eligibility Requirements

Small, for-profit, independent U.S. businesses. Restrictions exist about (1) the type of firm; (2) its ownership structure; (3) the firm's size in terms of the number of employees; and (4) prior, current, or pending support of similar proposals or awards, as follows:

(1) Type of Firm: An eligible firm must be organized as a for-profit concern and meet all the other small business requirements in 13 C.F.R. § 121.702. Non-profit entities are not eligible.

(2) Ownership and Control: A majority (more than 50%) of an eligible firm's equity (e.g., stock) must be directly owned and controlled by one of the following:

   a. One or more individuals who are citizens or permanent resident aliens of the U.S.;
   b. Other for-profit SBCs (each of which is directly owned and controlled by individuals who are citizens or permanent resident aliens of the U.S.); or
   c. A combination of (a) and (b) above.

   Note: If an employee stock ownership plan owns all or part of the concern, each stock trustee and plan member is considered an owner. If a trust owns all or part of the concern, each trustee and trust beneficiary is considered an owner.

(3) Size: An eligible firm, together with the affiliates, must not have more than 500 employees.

(4) Prior, Current, or Pending Support with Similar Technology: Proposals submitted in response to this prize competition must not be substantially the same as another proposal that was funded, is now being funded, or is pending contract award with another federal agency. **Small businesses with any question(s) concerning prior, current, or pending support of similar proposals or awards must disclose those as early as possible to the xTech Program Office.**

III. Topics and Problem Statements

The U.S. Army is interested in innovative autonomous systems capable of conducting overwatch and terrain-shaping tasks by leveraging advanced AI, robotics, secure networking,

and real-time data processing.

The competition seeks white papers for research and development efforts to produce ***well-defined prototype technology solutions*** for autonomous unmanned platforms (UAVs, UGVs, and stationary sensors) that can identify and occupy advantageous overwatch positions, adapt to terrain constraints, and execute mission objectives with minimal human intervention. These systems must integrate multi-modal sensor fusion, AI-driven target recognition, secure communications, and adaptive decision-making to enhance situational awareness and mission effectiveness.

Proposals are not required to address all technical areas listed below. SBCs with expertise in specific technical areas (listed below) are encouraged to apply, even if they do not provide a full-spectrum solution. However, it is the objective of this topic to provide selected SBCs opportunities to collaborate with additional selected SBCs, other Army partners, and Army research laboratories and engineering centers to cover any technical areas not addressed within their proposal.

The key technical areas of interest are:

- Autonomous Unmanned Systems (UAVs, UGVs, Stationary Sensors)
- Sensor Fusion, Data Integration, and AI-Driven Target Recognition & Classification
- Secure Communications and Networking
- Human-Machine Interface (HMI) for Effective Decision-Making
- Edge Computing for Onboard Processing
- Resilient Robotics for Adaptive Terrain Navigation
- Automated Self-Recovery Mechanisms
- Collaborative/Mission-Focused Autonomy
- UGV and UAS Payloads
- Modular & Open Architecture

Topic descriptions can be found in Appendix A of this solicitation. Final winners will have the opportunity to submit a DP2 Army SBIR proposal worth up to $2 million to produce a prototype solution.

IV. Program Submission

The xTechOverwatch competition is voluntary and open to all entities that meet the eligibility requirements listed in Section II (Eligibility Requirements). **Only one submission per eligible entity is permitted.**

The registration information and submission upload must be received by **5 p.m. ET on May 21, 2025.** Submissions received after the deadline will not be considered.

Register now by selecting the xTechOverwatch competition tile at:
https://www.xtech.army.mil/

V. xTechOverwatch Competition Structure

Part 1: Concept White Paper

All eligible entities shall submit a three-page concept white paper outlining their technology, Army benefits, technical approach, programmatic potential, and commercial potential. Each concept white paper will be reviewed by a panel of Army and DoD experts across the S&T ecosystem including Warfighter, acquisition, and research and development SMEs.

All concept white papers must adhere to the following requirements:

- All concept white papers must be submitted using the template found on the Valid Eval registration page, "Template_xTechOverwatch_White_Paper.docx." **Any proposals submitted in a format other than that provided will not be reviewed.**
- Please list your company name and proposal title **EXACTLY** how you would like them to appear on any contest marketing materials. Use a clear and concise proposal title to give readers and potential stakeholders an understanding of how your technology would benefit the Army.

Work submitted to xTechOverwatch must have been substantially performed by the proposing firm. Submissions cannot be based upon any prior or ongoing federally funded Army SBIR or Small Business Technology Transfer (STTR) work. Submissions that cannot attest to this will be disqualified.

Evaluators will review and score concept white papers using the following scoring criteria (further details on each scoring dimension can be found on the xTechOverwatch competition website registration page):

- Introduction – 3%
- Army Benefits – 15%
- Technical Approach – 35%
- Programmatic Potential – 20%
- Commercial Potential – 25%
- Proposal Quality – 2%

Upon conclusion of the concept white paper evaluation period, the xTech Program will select **up to 40 applicants to receive a prize of $15,000 each** and advance to Part 2: Finals.

xTech Collider Event

Selected winners from Part 1 will have an opportunity to participate in an optional Collider Event that may take place at or around Fed Supernova in Austin, TX from August 19-21, 2025, which will be widely publicized. This event is designed to provide finalists with a unique opportunity to network, exchange expertise, and explore strategic collaborations with other finalists or industry partners beyond the competition. We strongly encourage participants to consider teaming up to deliver a comprehensive solution for the Part 2: Finals and beyond—whether as independent entities providing a piece of a larger solution or as a unified team. While collaboration is highly encouraged, it remains optional and will not influence selection decisions. The government will not play a role in forming teams or structuring partnerships. The Collider Event exists solely to facilitate meaningful connections and potential synergies among participants.

Additional details on the collider event will be provided at a later date. **Dates and location are subject to change without notice.**

Part 2: Finals

Selected participants from Part 1 will conduct an in-person pitch of their solution to a panel of Army and DoD experts, tentatively scheduled to occur at or around the HMI Summit at the Bush Combat Development Center (BCDC) in Bryan, TX between October 27-29, 2025. The xTech Program will provide additional instructions and the detailed evaluation criteria at a later date. **Event details, location, and dates are subject to change.**

Upon conclusion of the finals, the xTech Program will select **up to 20 final winners of the competition to receive a cash prize of $20,000 each** and the opportunity to submit a DP2 Army SBIR proposal worth up to $2 million.

Direct to Phase II Army SBIR Proposal

The Army SBIR Program will issue a separate announcement with detailed instructions to submit the Army SBIR proposal materials.

The xTechOverwatch competition serves as the Army's mechanism to validate that each small business winner has completed the determinations described in Title 15 U.S.C. Section 638 (e)(4)(A) with respect to such project despite not having been provided a Phase I SBIR award. Winners selected from the xTechOverwatch Part 2: Finals will be the **only firms eligible** to submit a valid DP2 Army SBIR proposal and will receive detailed instructions upon selection. All other submissions will be ineligible.

Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. In accordance with the DP2 Army SBIR requirements, each eligible proposing SBC shall provide documentation or demonstrate feasibility of sufficient solution maturity to be eligible for a DP2 Army SBIR award along with the DP2 Army SBIR proposal. Work submitted within the feasibility documentation or demonstration must have been substantially performed by the proposing SBC and/or the principal investigator. If technology in the feasibility documentation is subject to Intellectual Property (IP), the proposing SBC must either own the IP or must have obtained license rights to such technology prior to proposal submission, to enable it and its subcontractors to legally carry out the proposed work.

VI. Proposed Schedule

The proposed schedule is outlined below and subject to change without notice.

Date	Activity
April 2 – May 21, 2025	Part 1: Concept white paper submission period
June 30, 2025	Finalists announced
August 2025	Collider event (exact date will be provided once finalized)
October 27-29, 2025	Part 2: Finals pitch event/demonstration
October 29, 2025	Final winners announced
November 12-25, 2025	DP2 Army SBIR proposal submission period

VII. Prizes and Incentives

Prizes will be offered under 10 U.S.C. §4025 (Prize Competitions). The total prize pool is $1 million. The Army SBIR contract awards will be offered under 15 U.S.C. §638 and are separate from the prize competition; DP2 Army SBIR awards will be up to $2 million each. The total Army SBIR funding pool is $40 million. Other non-monetary incentives are provided through the xTechOverwatch competition to help small businesses engage with the Army.

Phase	Winners	Prize	Army SBIR Award
Part 1: Concept White Paper	Up to 40	$15,000 each	N/A
Part 2: Finals Event	Up to 20	$20,000 each	N/A
Opportunity to Submit an Army SBIR Proposal	Up to 20	N/A	DP2 Army SBIR awards up to $2M each
	Total	$1,000,000	$40,000,000

VIII. Disclaimers

Registered participants are required to assume any and all risks and waive claims against the USG and its related entities, except in the case of willful misconduct, for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from their participation in this prize competition, whether the injury, death, damage, or loss arises through negligence or otherwise.

IX. Intellectual Property

The Army is a strong proponent of deliberate IP rights and management by the private sector and DoD. For the xTechOverwatch competition:

- The USG may not gain an interest in IP developed by a participant without the written consent of the participant;
- Nothing in this xTechOverwatch prize competition shall diminish the government's rights in patents, technical data, technical information, computer software, computer databases, and computer software documentation that the government had prior to this xTechOverwatch prize competition, or is entitled to, under any other government agreement or contract, or is otherwise entitled to under law; and
- The USG may negotiate a license for the use of IP developed by a registered participant in the prize competition.

Register now by selecting the xTechOverwatch competition tile at:
https://www.xtech.army.mil/

X. Point of Contact

The Army xTech Program Office
Office of the Deputy Assistant Secretary of the Army, Research and Technology
Email: usarmy.xtech@army.mil
Website: https://www.xtech.army.mil/

Appendix A – Problem Statement Descriptions

The key technical areas of interest and their corresponding technologies include:

Autonomous Unmanned Systems (UAVs, UGVs, Stationary Sensors)

- Technology: Autonomous aerial, ground, and fixed-position sensing systems that provide persistent situational awareness, threat detection, and environmental monitoring. This includes:
  - UGVs with self-adjusting mobility, real-time terrain navigation, and automated repositioning for optimal overwatch.
  - UAVs with adaptive flight control for ISR and dynamic mission execution.
  - Stationary sensor networks with low-power, persistent surveillance capabilities, capable of integrating with mobile platforms for distributed intelligence gathering.
- Requirement: The system(s) must autonomously identify, occupy, and adjust overwatch positions based on mission parameters and terrain constraints. Stationary sensors must provide long-duration situational awareness and integrate with mobile platforms for enhanced intelligence-sharing.

Sensor Fusion, Data Integration, and AI-Driven Target Recognition & Classification

- Technology: AI-powered sensor fusion systems that integrate data from sensor systems such as EO/IR, LiDAR, acoustic, and RF sensors to detect, classify and track threats in real time.
- Requirement: Solutions must provide robust multi-modal sensing, real-time analytics, and adaptable recognition capabilities in cluttered, low-visibility, or GPS-denied environments.

Secure Communications and Networking

- Technology: Encrypted, resilient, and scalable communication systems leveraging technologies like software-defined radios (SDRs), mesh networking, and low-power long-range protocols. Includes solutions for network redundancy and self-healing architectures.
- Requirement: Secure, adaptive networking solutions must enable real-time data sharing and collaboration across multiple autonomous systems without reliance on traditional infrastructure.

Human-Machine Interface (HMI) for Effective Decision-Making

- Technology: Advanced visualizations such as augmented reality (AR), and AI-driven decision-support systems to reduce cognitive burden on operators. Adaptive UIs can tailor information based on mission context and operator workload.
- Requirement: Systems must present critical data in a user-friendly format, enhancing situational awareness and rapid decision-making while minimizing distractions.

Edge Computing for Onboard Processing

- Technology: High-performance, low-power embedded AI accelerators for real-time onboard processing of sensor data, AI inference, and decision-making in the absence of network connectivity.

- Requirement: Solutions must support onboard processing for low-latency threat detection and terrain analysis while operating in disconnected or contested environments.

Resilient Robotics for Adaptive Terrain Navigation

- Technology: Mobility adaptation solutions, including variable tire inflation systems, articulated suspensions, and AI-driven path planning to navigate challenging terrain. Biomimetic robotic adaptations may also be explored.
- Requirement: Systems must demonstrate terrain-aware decision-making, with adaptive locomotion capable of handling obstacles, mud, snow, and unstable ground conditions.

Automated Self-Recovery Mechanisms

- Technology: Self-righting mechanisms, robotic manipulator arms, and cooperative recovery protocols using swarm-based assistance (e.g., one UGV assisting another). AI diagnostics for predictive maintenance.
- Requirement: Autonomous fail-safe capabilities must allow systems to recover from rollovers, entrapment, or hardware failures, ensuring sustained operational effectiveness.

Collaborative/Mission-Focused Autonomy

- Technology: Decentralized AI-based mission execution using multi-agent reinforcement learning (MARL), distributed decision-making, and swarm robotics. Includes AI models that enable agents to dynamically assign tasks.
- Requirement: Systems must coordinate autonomously, executing mission objectives with minimal human intervention while optimizing resource allocation across platforms.

UGV and UAS Payloads

- Technology: Modular ISR payloads for real-time reconnaissance, deployable terrain-shaping tools (e.g., automated barrier placement, excavation), and electronic warfare (EW) payloads for disrupting adversary sensors and communications.
- Requirement: Payloads must support mission-critical functions such as target detection, threat deterrence, and terrain modification while being compatible with modular architecture frameworks.

Modular & Open Architecture

- Technology: Plug-and-play hardware/software interfaces following Army Interoperability Profile (IOP), NATO Standardization Agreement (STANAGs), and other interoperability standards to ensure future upgrades and cross-platform compatibility. Includes standardized data protocols and API-based integration.
- Requirement: Solutions must be modular and allow seamless integration with existing military platforms and future autonomous technologies. Examples Below:
    - Army Ground IOP: NAMC RAS-G IOP Site
    - Army Standards & Specifications: Standards and Specifications
    - Modular Mission Payload Standard: https://apps.dtic.mil/sti/pdfs/AD1167779.pdf