#### I. Background and Purpose

The U.S. Army is seeking innovative technology solutions from eligible small businesses across the U.S. through the Expeditionary Technology Search (xTechSearch) competition. This platform offers participants the opportunity to pitch novel technology solutions—whether a new application for an existing technology or an entirely new technology concept—to the Army, engage with the Department of Defense (DoD), earn prize money, join an accelerator program, and have the opportunity to submit a Phase I Army Small Business Innovation Research (SBIR) proposal.

The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) recognizes the importance of strengthening partnerships with U.S. small businesses by (1) understanding the spectrum of 'world-class' commercial technologies that could benefit the DoD identifying and assessing a broad spectrum of cutting-edge commercial technologies with potential defense applications; (2) expanding the integration of non-traditional innovators into the Army and broader DoD Science and Technology (S&T) ecosystem; and (3) offering expert guidance, resources, and actionable feedback to accelerate development, increase technology maturity, and enable transition pathways into operational use.

The xTechSearch 9 competition will consist of three rounds:

- 1. Call for concept white papers;
- 2. Final pitch event; and
- 3. Opportunity to submit a Phase I Army SBIR proposal.

The competition will award up to \$900,000 in cash prizes throughout the competition to selected participants. Up to 60 finalists will receive a cash prize of \$5,000 each and an opportunity to pitch their innovative technology solutions to a panel of Army and DoD subject matter experts (SMEs). The Army intends to select up to 24 final winners of the competition to receive an additional cash prize of \$25,000 each. Final winners of the competition may submit a Phase I Army SBIR proposal worth up to \$250,000 that should support proof-of-concept demonstrations with a period of performance not to exceed six months. Additional details on prize structure can be found in Section VII.

The xTechSearch competition aims to accelerate the integration of small businesses into the Army's S&T ecosystem by facilitating research engagement opportunities with Army labs, including authorized access to the Army's organic intellectual and technical capital. Throughout the competition, participants will receive detailed, constructive feedback from Army and DoD stakeholders. Finalists will have an opportunity to participate in an xTech Accelerator, offering access to training, mentorship and transition-focused support to help align technology solutions with end users and acquisition stakeholders across the Army and broader DoD.

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 Phase I 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 xTechSearch 9 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 have opportunities 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.

The xTech Program competition is conducted in accordance with 10 U.S.C. § 4025, which authorizes the use of prize competitions to stimulate innovation and identify promising technologies for national security applications. As such, this competition serves as a competitive down select mechanism that enables government organizations to engage with finalists and winners through a variety of follow-on acquisition pathways, including but not limited to:

- 10 U.S.C. § 4114 Selection of contractors for prototype projects
- 10 U.S.C. § 4022 Prototype projects
- 10 U.S.C. § 4023 Procurement for experimental purposes
- 10 U.S.C. § 4001 Research and development
- 10 U.S.C. § 4021 Other Transaction Authority (OTA)
- 15 U.S.C. § 3703 Technology innovation partnerships
- 15 U.S.C. § 638 SBIR and Small Business Technology Transfer (STTR) Programs

Government organizations are encouraged to consider leveraging these statutory authorities to pursue follow-on awards with companies identified through the xTech competition process. This approach supports rapid technology maturation, accelerates the transition of innovative capabilities to the field, and promotes collaboration with non-traditional and small business performers.

All xTechSearch 9 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. These reports are intended to support the potential acceleration of technology transition by offering insights into relevant Army applications, recommendations for refinement to better meet Army needs, and suggested next steps for further development. Please note that while this feedback is provided as a resource, the government may not respond to individual questions or inquiries related to the content of the report.

#### 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.;

- Other for-profit small business concerns (SBCs) (each of which is directly owned and controlled by individuals who are citizens or permanent resident aliens of the U.S.);
- 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.

Companies that have previously participated in xTechSearch competitions are eligible to apply with new technology concepts or improvements to previously submitted proposals.

#### III. Army Focus Areas

xTechSearch is an open-topic competition designed to identify groundbreaking technologies with strong commercial traction that may also provide game-changing capabilities for the Army. This competition will be used to competitively down-select up to 24 winners who can submit a Phase I Army SBIR proposal under topic "A254-P039 – xTechSearch 9 SBIR Finalist Open Topic Competition" for a potential follow-on award of up to \$250,000. By partnering with the Army SBIR|STTR Program, technologies that are selected from this competition to have the highest potential impact on the Army will have a structured pathway to continue developing those solutions for Army systems alongside Army customers. xTechSearch encourages submissions that may not be familiar with the Army problem your technology can solve, but can clearly articulate the solution's advantage, the technical viability, and commercial potential. The xTechSearch competition is supported by a wide range of subject matter experts across the Army and DoD to help evaluate the potential of your technology to improve operational effectiveness, reduce lifecycle costs, and accelerate the transition of cutting-edge technology into Army systems.

The SBIR|STTR Program has aligned technologies that are experiencing rapid commercial traction with critical Army priorities into five portfolios of priority interest for this competition, each with core technology components identified. While xTechSearch encourages submissions aligned to the following SBIR|STTR portfolios and the associated core technology components, the program also welcomes proposals in any other technology domain with the potential to provide a disruptive advantage to the Army:

- **Sensors:** Devices that detect stimuli and produce an output, as well as onboard processing technologies that handle the output prior to transmission.
- **Immersive and Wearables:** Immersive focuses on the simulation or extension of the real world, such as XR. Wearables focuses on devices, garments, or equipment for readiness, performance, recovery, or protection.
- Al/ML: Technologies designed to enhance the full spectrum of Army operations and supplement decision-making capabilities. Includes advanced tools designed to augment

- business analytics and warfighting capabilities across multi-domain operations.
- **Energy Resiliency:** Focuses on expeditionary applications of energy technologies designed to produce systems that maximize efficiency, adapt Army systems to reduce net energy demand or reliance on logistic fuel supply, and meet the power demands of future Army systems across echelons.
- Contested Logistics and Sustainment: Strategic and operational technologies that involve planning and executing the movement and maintenance of forces and materials under adversarial conditions. Includes logistical operations, supply chain management, and sustainment activities.

Additional information on the TBTs can be found in Appendix A: TBT Core Competencies.

Technologies that fall exclusively within the portfolio of the U.S. Army Medical Research and Development Command, which include military infectious diseases, military operational medicine, chemical biological defense, and clinical and rehabilitative medicine, are excluded from xTechSearch.

#### IV. Program Submission

The xTechSearch 9 competition is voluntary and open to all entities that meet 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 June 4**, **2025**. Submissions received after the deadline will not be considered.

# Register by selecting the xTechSearch 9 competition tile at: <a href="https://www.xtech.army.mil/">https://www.xtech.army.mil/</a>

#### V. xTechSearch Competition Structure

#### Part 1: Concept White Paper

All eligible entities shall submit a **three-page concept white paper** outlining their technology, the potential impact on the Army, technology and concept viability, and descriptions of the dual-use technology applications for both the commercial and defense space. Each concept white paper will be reviewed by DoD experts across the S&T ecosystem which may include 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\_xTechSearch9 \_White\_Paper.docx".

Any proposals submitted in a format other than that provided by the template will not be reviewed.

Please list your company name, and proposal title <u>EXACTLY</u> 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.

Concept white papers will be evaluated and ranked in a two-stage process using the following scoring criteria (further details on each scoring dimension can be found on the xTechSearch 9 competition registration page):

- Introduction 5%
- Army Benefits 25%
- Technical Approach 40%
- Commercial Potential 25%
- Proposal Quality 5%

Upon conclusion of the concept white paper evaluation period, the xTech Program will select **up** to 60 applicants to receive a cash prize of \$5,000 each and advance to Part 2: Finals.

#### Part 2: Finals

Selected participants from Part 1 will conduct a virtual pitch to a panel of Army and DoD SMEs, tentatively scheduled to take place from September 8-19, 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 24 final winners of the competition to receive a cash prize of \$25,000 each** and may submit a Phase I Army SBIR proposal worth up to \$250,000 each.

#### Phase I Army SBIR Proposal

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

The xTechSearch 9 competition serves as the Army's competitive mechanism to identify and validate small business participants. The competition fulfills the requirement for a competitive selection process, enabling the Army to consider Phase I Army SBIR proposals from the selected winners. Winners selected from the xTechSearch 9 competition will be **the only firms** eligible to submit a Phase I Army SBIR proposal under this topic. All other submissions will be deemed ineligible.

Winners will be provided detailed instructions to submit the Army SBIR proposal materials under **Army SBIR Topic "A254-P039 – xTechSearch 9 SBIR Finalist Open Topic Competition"** for a potential follow-on award of up to a maximum of \$250,000 and a six-month period-of-performance. This topic will be released with the DoD SBIR 25.4 Release on May 8, 2025 that can be found on the <u>Defense SBIR|STTR Innovation Portal (DSIP)</u> and will remain in pre-release for the duration of the competition. Upon selecting competition winners, the open submission window for Phase I Army SBIR proposals will be made available.

In accordance with the Phase I Army SBIR requirements, each eligible proposing SBC shall focus on research or research & development to prove the proposed effort's scientific and technical feasibility, and commercialization potential, the successful completion of which is a prerequisite for further DoD support in Phase II. A separate Army SBIR announcement will be issued with detailed instructions on how to submit the Army SBIR proposal materials.

Participants that are selected and awarded a Phase I Army SBIR will have an opportunity to

submit a Phase II Army SBIR proposal at the conclusion of their Phase I Army SBIR contract. Only firms that were awarded a Phase I Army SBIR under this announcement will be eligible for a Phase II Army SBIR award under this topic. Additional instructions and details will be provided to the eligible firms.

#### xTechSearch 9 Accelerator

In addition to the prize money, finalists and winners will have the opportunity to participate in the xTechSearch 9 Accelerator, a cohort-based program designed to help develop participants through educational programming, diverse mentorship, venture building consulting, community building and strategic exposure. Additional details on the accelerator will be provided to the selected participants.

#### VI. Proposed Schedule

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

Date	Activity		
May 7 – June 4, 2025	Part 1: Concept white paper submission period		
May 21, 2025	Virtual Ask Me Anything Session		
August 1, 2025	Finalists announced		
August 2025	xTechSearch 9 Finalist Accelerator		
September 8-19, 2025	Part 2: Finals pitch event		
September 30, 2025	Winners announced		
October 6-24, 2025	Phase I Army SBIR proposal submission period		
October – November, 2025	xTechSearch 9 Winners Accelerator		

#### VII. Prizes and Incentives

Prizes will be offered under 10 U.S.C. §4025 (Prize competitions). The total prize pool is \$900,000. The Army SBIR contract awards will be offered under 15 U.S.C. 638; Phase I Army SBIR awards will be up to \$250,000 each. Other non-monetary incentives are provided through the xTechSearch 9 competition to help small businesses engage with the Army.

Phase	Winners	Prize	Phase I Army SBIR Award
Part 1: Concept White Paper	Up to 60	\$5,000 each	N/A
Part 2: Finals	Up to 24	\$25,000 each	N/A
Opportunity to Submit an Army SBIR Proposal	Up to 24	N/A	Up to \$250,000 each
	Total	\$900,000	Up to \$6M

#### VIII. Disclaimers

Registered participants are required to assume any and all risks and waive claims against the Federal Government 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 intellectual property (IP) rights and management by the private sector and the DoD. For the xTechSearch 9 competition:

- The Federal Government may not gain an interest in IP developed by a participant without the written consent of the participant;
- Nothing in this xTechSearch 9 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 xTechSearch 9 prize competition, or is entitled to, under any other Government agreement or contract, or is otherwise entitled to under law; and
- The Federal Government may negotiate a license for the use of IP developed by a registered participant in the prize competition.

#### Register by selecting the xTechSearch 9 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: <u>usarmy.xtech@army.mil</u>
Website: <u>https://www.xtech.army.mil/</u>

Appendix A: TBT Core Competencies



## PRIORITY TECHNOLOGY ECOSYSTEMS

We work with **independent technology scouts** to focus on **five technology ecosystems** with rapid innovation and market growth in the private sector. Honing our expertise in these key areas will maximize the likelihood of successful transition and integration with Army programs.

#### AI/ML



Al/ML technologies designed to enhance the full spectrum of army operations and supplement decision-making capabilities. Includes advanced tools designed to augment business analytics and warfighting capabilities across multi-domain operations.

#### **Energy Resiliency**



Focuses on expeditionary applications of energy technologies designed to produce systems that maximize efficiency, adapt Army systems to reduce net energy demand or reliance on logistic fuel supply, and meet the power demands of future Army systems across echelons.

#### Immersive & Wearables



Immersive focuses on the simulation or extension of the real world, such as XR. Wearables focuses on devices, garments, or equipment for readiness, performance, recovery, or protection.

#### Sensors



Devices that detect stimuli and produce an output, as well as onboard processing technologies that handle the output prior to transmission.

#### Contested Logistics & Sustainment



Strategic and operational technologies that involve planning and executing the movement and maintenance of forces and materials under adversarial conditions. Includes logistical operations, supply chain management, and sustainment activities.

# TECH SBIRISTTR

# ARTIFICIAL INTELLIGENCE/MACHINE LEARNING TBT CORE COMPONENTS

The AI/ML TBT focuses on technology that incorporates human intelligence into machines (AI), often by allowing machines to learn from data without being programmed explicitly (ML).

#### Synthetic data generation



Production data applicable to a given situation that are not obtained by direct measurement.

#### Automated detection and prevention



Automated systemic-based controls that can stop threats automatically as well as predict the next attack for better future prevention.

#### Automated data label



Quickly curate and label

#### **Biometrics**



Authentication is used in computer science as a form of identification and access

#### Natural language technology



Focused on programming computers to process and analyze large amounts of natural language data.

#### Explainable Al



Tools and frameworks used to ensure that the results of machine learning models can be interpreted by humans.

#### Supply chain resilience



Automating risks and vulnerabilities within the supply chains to prevent major impacts.

#### Predictive behaviors



Anticipating the needs of the customer.

#### Computer vision



Program in which computers can gain highlevel understanding from digital images or videos.

#### Cyber defense



Machine learning can bolster cybersecurity systems to prevent attacks.

#### Robotic process automation



Technology that makes it easy to build, deploy, and manage software robots that emulate humans' actions interacting with digital systems.

# Primary Component Secondary Component



The Energy Resiliency TBT focuses on technologies that maximize efficiency and reduce energy dependance across a range of technology areas, with emphasis on expeditionary power solutions.

#### Energy Storage



Energy storage systems (batteries, capacitors, hybrid devices & DC/DC converters) and solutions to optimize single cell, modules and vehicle-packaged cost, performance, safety, life, abuse tolerance, recycling and sustainability within production, use and disposal processes. The focus is on expeditionary power solutions.

#### Advanced Energy Generation



Advanced energy generation focuses on reliable and affordable ways to generate energy from renewable sources. including but not limited to solar, wind, water, nuclear, thermal and waste-to-energy-based energy solutions or a combination of these alone or with legacy power generation systems. The focus is on expeditionary power generation (installation systems excluded).

#### Micro-Grid



Devices and controlling digital information systems that optimize the efficiency, reliability and security of griddelivered power, including but not limited to management, energy storage, metering & monitoring, Al grid optimization, sensors, diagnostics/prognostics and analytics. The focus is on expeditionary and distributed power solutions (installation systems excluded).

#### Transportation Power Systems



Software and hardware solutions for electric and hybrid-electric systems for vehicles and aviation. Includes but is not limited to supporting infrastructure for operational energy availability and sustainment. Components may include platform rechargers with or without power generation sources, range extenders and battery technologies.

#### Efficient Industry Technologies



Examples of this include fuel alternatives, mining technologies, direct processes and associated tools for manufacturing.

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# TECH SBIRISTTR IMMERSIVE & WEARABLES TBT

#### CORE COMPONENTS

Immersive focuses on the simulation or extension of the real world, such as XR. Wearables focuses on devices, garments, or equipment for readiness, performance, recovery, or protection.

#### **HP Devices**



Wearable devices or equipment that collect physiological data, enhance musculoskeletal recovery, or augment human performance (HP).

#### E-Textiles



Garments or fabrics that contain textile-integrated sensor systems, powered electronics, and/or data transmission capabilities.

#### Interoperability



Capabilities that enable a hardware-agnostic wearables ecosystem, such as power sharing, data synchronization, data visualization/processing/ analytics, etc.

#### Soldier Survivability



Equipment or garments that protect Soldiers against harmful effects, such as traumatic brain injury, hearing loss, burns, hypothermia, injury, etc.

#### Environmental and Threat Sensors



Soldier-borne sensors that detect and assess harmful effects such as radiation, blast overpressure, altitude, and/or extreme temperatures.

#### Immersive Hardware



Hardware that enables AR/VR/MR (e.g., display technology), or physical technology supporting immersive environments (e.g., tactile feedback devices).

#### Immersive Software



Software for AR/VR/MR experiences, such as training, situational awareness, etc.

#### Human Machine Interface



Hardware or software that allows a user to interact intuitively with a machine, system, or device (e.g., eye tracking, gestures, haptics, spatio-temporal registration, etc.).

#### Other



Capabilities that align with the overall TBT definition but do not reasonably fit within one of the specified core components.

Immersive Tech
Wearable Tech
HP = Human Performance



### SENSORS TBT

## CORE COMPONENTS

The Sensors TBT focuses on devices that detect stimuli and produce an output, as well as onboard processing technologies that handle the output prior to transmission.

Radio Frequency Sensors



Sensors that detect within the radio frequency

Optical Sensors



Sensors that detect within the visible, infrared, or ultraviolet spectra.

**Acoustic Sensors** 



Sensors that detect within the acoustic spectrum (infrasound, audible, ultrasound, hydroacoustics).

Radiation Sensors



Sensors that detect the presence of alpha, beta, or gamma radiation (alpha/ beta particle detection) or the presence of X-ray / gamma rays.

Inertial Sensors



Sensors that detect inertial properties such as motion, orientation, and acceleration (e.g., gyroscope, accelerometer, magnetometer).

Quantum Sensors



Sensors that leverage quantum mechanics (e.g., photonic systems, solidstate systems).

Flow Sensors



Sensors that detect the rate at which a gas, liquid, or solid moves through a system (e.g., wind speed)

Pressure Sensors



Sensors that detect force exerted on a surface (e.g., barometers, piezoelectric pressure sensors, strain gauge pressure sensors, etc.).

Signal Processing



Capabilities to improve the speed and/or performance of converting external stimuli to digital signal (e.g., ROIC enhancements, signal processing algorithms).

Data Processing



Capabilities to improve extraction and transmission of key information from raw data (e.g., data fusion, object recognition, FPGA enhancements or other processing hardware).

Other



Capabilities that align with the overall TBT definition but do not reasonably fit within one of the specified core components

Detection

Onboard Processing

TECH SBIRISTTR

## **CONTESTED LOGISTICS & SUSTAINMENT TBT** CORE COMPONENTS

The Contested Logistics & Sustainment TBT focuses on strategic and operational technologies that involve planning and executing the movement and maintenance of forces and materials under adversarial conditions.

Demand Reduction



Reducing the amount of materials required to sustain a force through efficiency, conservation, or reclamation. This can include technologies that enable electrification to reduce (not eliminate) consumption of fuel. advanced power, and advanced manufacturing.

Assured Resupply



Inclusive of innovative platforms and maritime operations, as well as new approaches to resupply, including autonomous distribution. This can include technologies that enable the moving of convovs vertical lift, air delivery, decreased vessel detection, and rapid transfer of materials from point A to B.

Logistics System Defense



The physical defense of the logistics system and its physical network. This includes headquarters, logistic supply nodes, movement assets, communications networks and any other detached logistical element tied to physical logistics system.

Information Advantage



Technologies that collect process and disseminate information while denying adversary's ability to do the same; including AI/ML, automation, cloud-based communication, and big data analysis.

Internet of Things (IoT) & Sensing



Technologies that increase connectivity through sensors and chips that enable internet connectivity and data capture; including aerial imaging, data analytics, fiber optics cables, and predictive intelligence.

Supply Chain



Securing of hard and soft supply chains to ensure resiliency against a myriad of geopolitical cyber factors and the defense of logistics from kinetic or chemical attacks

Communications



Means of sending or receiving secure information to mitigate the impact of a degraded or wiped communications environment and advanced cyber, space, and electronic warfare (EW) interference.

Predictive Logistics & Maintenance



The moving, housing, and supplying of troops and equipment and continuous. scheduled maintenance of installations and platforms. Soldier Training Efficiency & Retention



Technologies addressing soldier equipment training and information retention challenges: bringing efficiency to information disbursement and training maintenance.