

The Army FUZE xTech Program – xTech|Phantom Competition Announcement

I. Background and Purpose

The U.S. Army is seeking innovative quantum sensor and photonics solutions from eligible small businesses across the U.S. through the xTech|Phantom competition. This platform offers participants the opportunity to engage with the Department of War (DoW), earn prize money and submit a Phase I Army Small Business Innovation Research (SBIR) proposal.

The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) is partnering with the Army Directorate for Strategy & Transformation (DAMI-ST) to deliver the xTech|Phantom competition. The Army recognizes that the DoW must enhance engagements with U.S. small businesses by (1) understanding the spectrum of world-class technologies being developed commercially that may benefit the DoW; (2) integrating the sector of non-traditional innovators into the DoW Science and Technology (S&T) ecosystem; and (3) providing expertise and feedback to accelerate, mature, and transition technologies of interest to the DoW.

The xTech|Phantom competition will consist of three (3) parts:

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

The competition will award up to \$200,000 in cash prizes throughout the competition to selected participants. **Up to 16 finalists will receive a cash prize of \$2,500 each and an opportunity to pitch their innovative technology solutions to a panel of Army and DoW subject matter experts (SMEs) in July 2026, at a Southwest Mission Acceleration Center (SWMAC) facility in Arizona.** The Army intends to select up to eight (8) final winners of the competition to receive an additional cash prize of \$20,000 each. Final winners may submit a Phase I Army SBIR proposal worth up to \$300,000. Phase I Army SBIR proposals will be considered under the topics within this request for proposal (RFP) for proof-of-concept demonstrations that are not to exceed six (6) 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 DoW representatives through information-sharing and networking opportunities.

The xTech|Phantom 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. Requirements for competition under 10 U.S.C. § 3201 are satisfied upon completion of the challenge and use of prize authority. 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)
- 10 U.S.C. § 3458 – Authority to acquire innovative commercial products and commercial services using general solicitation competitive procedures
- 15 U.S.C. § 3703 – Technology innovation partnerships
- 15 U.S.C. § 638 – SBIR and Small Business Technology Transfer (STTR) Programs

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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.

While the authority of this program is 10 U.S.C. § 4025, the xTech|Phantom competition may generate interest by another U.S. Army, DoW 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 xTech|Phantom 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 intends to provide feedback from evaluators to participants during each part of the competition. The purpose of providing this feedback is to help accelerate the transition of the technology to an Army end-user by providing insight into the 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 (1) of the following:
 - a. One (1) or more individuals who are citizens or permanent resident aliens of the U.S.;
 - b. 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.);
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.

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- (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 questions concerning prior, current, or pending support for similar proposals or awards must disclose those as early as possible to the xTech Program Office.**

III. Topics and Problem Statement

The U.S. Army is interested in cutting-edge technology solutions that will drive significant advancements in military capabilities while addressing complex challenges and enhancing national security.

The competition seeks white papers for research and development efforts to ***prove the feasibility and commercialization potential of technology solutions*** that fit within one (1) of the following topic areas:

- **Topic 1:** [Quantum Sensors and Quantum Clocks for Position, Navigation, and Timing \(PNT\)](#)
- **Topic 2:** [Quantum Radio Frequency Sensors](#)
- **Topic 3:** [Quantum Electromagnetic Sensors](#)
- **Topic 4:** [Photonics](#)

Topic descriptions can be found in [Appendix A](#) of this solicitation. Final winners will have the opportunity to submit a Phase I Army SBIR proposal worth up to \$300,000 to conduct a feasibility study.

IV. Program Submission

The xTech|Phantom competition is voluntary and open to all entities that meet eligibility requirements listed in Section II (Eligibility Requirements). **Only one (1) submission per topic, per eligible entity is permitted. If submitting an application to more than one (1) topic area, the technology solutions must be different.**

The registration information and submission upload must be received by **5:00 PM ET on May 13, 2026**. Submissions received after the deadline will not be considered.

Register by selecting the xTech|Phantom competition image at:

<https://www.xtech.army.mil/>

V. xTech|Phantom Competition Structure

Part 1: Concept White Paper

All eligible entities shall submit a **three (3)-page concept white paper** outlining their technology, Army benefits, technical approach, system scalability/economics, and commercial potential. Each concept white paper will be reviewed by DoW experts across the S&T ecosystem including Warfighter, acquisition, and research and development SMEs.

All concept white papers must adhere to the following requirements:

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- Concept white papers **must be submitted using the template found on the [Valid Eval](#)** registration page, “Template_xTech_Phantom_White_Paper.docx”. **Any proposals submitted in a format other than the template provided will not be reviewed.**
- List your company name and proposal title **EXACTLY** how you would like them to appear in 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.

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

Criterion	Weight
Introduction	5%
Army Benefits	20%
Technical Approach	25%
System Scalability/ Economics	20%
Commercial Potential	20%
Submission Quality	10%

Upon conclusion of the concept white paper evaluation period, the xTech Program will select **up to 16 applicants to receive a prize of \$2,500 each** and advance to Part 2: Finals.

Part 2: Finals

Selected participants from Part 1 will conduct an in-person pitch of their solution to a panel of Army and DoW SMEs at a **SWMAC facility in Arizona in July 2026**. The xTech Program will provide additional instructions, the detailed evaluation criteria and exact location at a later date. **Dates, times, and locations are subject to change.**

Upon conclusion of the in-person finals, the xTech Program intends to select **up to eight (8) final winners of the competition to receive an additional cash prize of \$20,000 each** and may submit a Phase I Army SBIR proposal worth up to \$300,000.

Phase I Army SBIR Proposal

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

Final winners selected from the xTech|Phantom 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 “ARM26BX01-NP003”** for a potential follow-on award of up to a maximum of \$300,000 and a six (6)-month period-of-performance. This topic be found on the [Defense SBIR|STTR Innovation Portal \(DSIP\)](#) 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.

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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 DoW 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.

VI. Proposed Schedule

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

Date	Activity
May 13, 2026	Part 1: Concept white paper submission deadline
June 19, 2026	Finalists announced
July 2026	Part 2: Finals pitch event
July 2026	Final winners announced
August 10-28, 2026	Phase I 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 \$200,000. The Army SBIR contract awards will be offered under 15 U.S.C. §638 and are separate from the prize competition. Phase I Army SBIR awards will be up to \$300,000 each. Other non-monetary incentives are provided through the xTech|Phantom competition to help small businesses engage with the Army.

Phase	Winners	Prize	Army SBIR Award
Part 1: Concept White Paper	Up to 16	\$2,500 each	N/A
Part 2: Finals Event	Up to 8	\$20,000 each	N/A
Opportunity to Submit an Army SBIR Proposal	Up to 8	N/A	Up to \$300,000 each
	Total	\$200,000	Up to \$2,400,000

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

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The Army is a strong proponent of deliberate IP rights and management by the private sector and the DoW. For the xTech|Phantom 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 xTech|Phantom 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 xTech|Phantom 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 xTech|Phantom competition image at:

<https://www.xtech.army.mil/>

X. Point of Contact

The Army FUZE 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

Topic 1: Quantum Sensors and Quantum Clocks for Position, Navigation, and Timing (PNT)

Topic Objective:

The objective of this topic is to advance and develop quantum sensor and quantum clock technologies that support non-GPS position, navigation, and timing (PNT) capabilities.

Topic Description:

The Army is seeking innovative quantum sensors and quantum clocks to supplement existing GPS systems and provide alternative PNT functionality in the event of GPS failure or non-availability:

1. Quantum sensors (e.g., inertial, magnetic, etc.) that enable accurate positioning information for ground vehicles, aircraft, and munitions navigation without requiring GPS.
2. Quantum clocks that provide precise time references, improve time-difference-of-arrival (TDOA) calculations, and enable reliable, non-GPS PNT solutions.

Topic 2: Quantum Radio Frequency Sensors

Topic Objective:

The objective of this topic is to advance the development of quantum sensor technologies that can provide field-demonstrable alternatives to existing radio frequency (RF) antenna systems.

Topic Description:

The Army is seeking novel radio frequency (RF) sensors leveraging quantum mechanics that provide wider access to the RF spectrum, more sensitive reception of signals, and greater flexibility in the size, weight and power (SWaP) compared to existing Army radio frequency (RF) systems. This topic intends to further develop these sensors with a focus on ruggedization (hardening for temperature and environmental conditions such as weather, dust, etc.) and miniaturization. Key application areas include:

1. Ultra-wideband RF sensing, with the ability to cover exceedingly large frequency ranges (ELF-EHF) from a single antenna aperture without the need to change hardware.
2. Ultra-sensitive RF sensing, with the ability to pull signals out of the noise floor of a loud RF environment or increase the range of detection of signals.

Topic 3: Quantum Electromagnetic Sensors

Topic Objective:

The objective of this topic is to advance the development of quantum sensor technologies with a narrower frequency range for detection of low power, non-RF electromagnetic fields.

Topic Description:

The Army is seeking quantum electromagnetic sensors outside of the radio frequency range that can augment use cases with narrower frequency ranges.

1. Detection of low power static fields:
 - a. Field sensors that can detect minute environmental anomalies, such as magnetic or gravitational disturbances, to identify subsurface, terrestrial, air and space vehicles (e.g., stealth aircraft, submersibles, etc.). Small, light, and low-power systems are preferable to enable sensors to be located on both aerial platforms (e.g., Group 1 and 2 UAS, High Altitude Balloon Systems, etc.) and ground

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- platforms (e.g., vehicles, robots, etc.).
 - b. Field sensors that can detect minute environmental anomalies, such as magnetic or gravitational disturbances, to identify hidden underground bunkers, tunnels, or resource caches. Small, light, and low-power systems are preferable to enable sensors to be located on both aerial platforms (e.g., Group 1 and 2 UAS, High Altitude Balloon Systems, etc.) and ground platforms (e.g., vehicles, robots, etc.).
2. Detection of bioelectric activity in the human body: Small form factor electric field sensors that can measure electrical signals in the human body (e.g., electroencephalograms and electrocardiograms) accurately and quickly to augment field medicine.

Topic 4: Photonics

Topic Objective:

The objective of this topic is to advance and develop innovative technologies that leverage photonics for secure, high-speed communication and data processing.

Topic Description:

The Army is seeking advanced and scalable photonics components and systems to enhance mission-critical capabilities in communication and edge processing. Key application areas include:

1. Secure, High-Bandwidth Communications:
 - a. High-speed optical electronics for rapid, high-volume data transfer.
 - b. Secure and resilient data links between assets (air-to-ground, ship-to-shore). Functionality through smoke, camouflage, and all weather is preferable, as well as resilience to electronic warfare attacks (e.g., jamming, interception). Data link range should reflect the targeted platform (e.g., 35km or less for Group 1 and 2 UAS, 1,000+km for high altitude platforms and jets, etc.).
 - c. High-bandwidth line-of-sight communications for transferring large files. Functionality through smoke, camouflage, and all weather is preferable, as well as resilience to electronic warfare attacks (e.g., jamming, interception). Multiple applications are of interest:
 - i. Transferring data from the edge to Battalion and Brigade headquarters at a range of 2-35km.
 - ii. Transferring data from brigade headquarters to Echelons above Corps at a range of 1,000+ km.
 - iii. Transferring data from on-the-move robots, vehicles, or aircraft traversing the battlefield to fixed sites at a range of 1,000+ km.
2. Edge Processing & Computing:
 - a. Photonic components or integrated circuits optimized for real-time, onboard analysis of sensor data at the point of collection, such as object recognition from hyperspectral video feeds and pre-processing of data on unmanned platforms. Applications of interest span multiple data types, from small microsensor outputs to large full motion video feeds.
 - b. Photonic components that replace conventional RF electronics (e.g., in voice and data radios, SATCOM, RADAR) to reduce size, weight, and power (SWaP) while increasing resilience and performance.