

The Army xTech Program – xTechSoldier Lethality Announcement

I. Background and Purpose

The U.S. Army would like to invite interested entities to participate in the xTechSoldier Lethality competition to showcase their innovative concepts for a Precision Grenadier System (PGS). This is an opportunity for eligible U.S. based small and large businesses to engage and pitch their novel technology solutions directly to the Department of Defense, earn prize money and potentially receive a contract award or agreement of up to \$2 million.

The U.S. Army Program Executive Office (PEO) Soldier has partnered with the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA(ALT)), to deliver the xTechSoldier Lethality competition. The Army recognizes that we must enhance engagements with industry by: (1) understanding the spectrum of ‘world-class’ technologies being developed commercially that may benefit DoD in the soldier lethality space; (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 DoD in support of the Soldier.

The xTechSoldier Lethality competition will consist of three-rounds:

- (1) Call for concept white papers;
- (2) Technology Pitch; and
- (3) Final Proof-of-Concept Demonstration

The competition will award up to \$975,000 in cash prizes to selected entities throughout the competition. Up to five winners will be selected from the concept white paper round, awarded \$15,000 each and invited to participate in the technology pitch round. Up to three companies will be selected from the technology pitch round and receive an additional \$300,000 each in cash prizes and the opportunity to come back in 6 to 18 months to conduct a final proof-of-concept demonstration. One final winner may be selected and awarded up to \$2M in a follow-on contract or agreement. Details regarding prize structure and phases are listed further in this announcement. In addition to non-dilutive cash prizes, participants will have an opportunity to engage with experts within PEO Soldier and across the DoD during each phase of the competition.

The efforts described in this notice are being pursued under the authorities of 10 U.S.C. § 4025 (formerly 2374a, Prizes for Advanced Technology Achievements) to award cash prizes as described in this announcement and potential follow-on contracts or agreements (10 U.S. Code §4023) to only those eligible and selected entities as described in this announcement. While the authority of this program is 10 U.S.C. § 4025, the xTechSoldier Lethality competition may generate interest by another U.S. Army, DoD or USG organization for a funding opportunity outside of this event. Interested organizations may contact the participant to provide additional information which may or may not result in partnership opportunities.

Competition finalists may be invited to submit a proposal for further development of their proposed technology innovation based on Army needs. The Army may use a contract mechanism of their choice and will notify participants accordingly. The efforts described in this Notice are being pursued under the authorities of 10 U.S.C. § 4025.

All xTechSoldier Lethality competition submissions are treated as privileged information and contents are disclosed to Government employees or designated support contractors strictly for the purpose of evaluation and program support.

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Feedback and results from the judge panel will be provided to participants throughout each phase of the competition. The purpose of providing this feedback is to help accelerate 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 will not respond to inquiries regarding this feedback.

II. Eligibility Requirements

Eligible entities include U.S. based nonprofit organizations, for-profit organizations (i.e., large and small businesses) only.

Each eligible entity:

- Shall be incorporated in, and maintain, a primary place of business in the U.S.
- Shall not be a U.S. Federal government entity or employ a U.S. Federal Employee acting within the scope of their employment;
- Shall not be currently under contract, agreement or other providing similar capabilities to the Government for work described in the problem statement.
- Is required to have or must be able to obtain a CAGE code if selected to advance in the competition. Instructions on how to obtain a CAGE code can be found on the xTechSoldier Lethality registration page.
- Entity eligibility shall be at the sole discretion of the Government.

III. Topics and Problem Statements

The U.S. Army is seeking submissions for a Precision Grenadier System (PGS) concept showing a path towards meeting or exceeding the following operational employment capabilities and attributes:

- The PGS shall be a Soldier portable, flat trajectory, semi-automatic, magazine fed, integrated armament system that enables precision engagements to destroy personnel targets in defilade and in the open with increased lethality and precision compared to legacy grenade launchers. The PGS is anticipated to be deployed as a Soldier's primary weapon system and provide organic close-quarters combat and counter-defilade capabilities through a family of ammunition, providing overmatch to comparable threat grenade launchers in near-peer formations in future operating environments to include urban, woodland, subterranean, and desert, in day, night, or obscured conditions.
- It is anticipated that the PGS shall create a more lethal and survivable force using a direct-fire round that travels above or past cover, precisely airbursts fragmenting warheads, and defeats the enemy without causing substantial collateral damage.
- The employment of this capability will increase squad lethality and reduce the dependency on other organizations for fire support. Existing squad and platoon assets are ineffective against an enemy in defilade because they are too imprecise, unable to penetrate the cover, too slow to employ, or cause extensive collateral damage. Other organizations who provide fire support (artillery, mortars, and attack aviation) also require too much time to get to the fight and can be unsuitable for the threat.

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- The PGS capability will increase survivability because Soldiers will not have to maneuver and expose themselves to gain an advantageous firing position to neutralize an enemy behind cover. The PGS gunner can stay behind cover, fire an airburst round, and defeat a covered/defilade target.
- The following attributes have been developed to inform and bound system developers towards U.S. Army deployment intent and enhance the PGS with various capabilities.
 1. **System Survivability:** It is desired for the system and its ammunition to be capable of functioning in cold, ambient, and hot conditions at all humidity conditions and be survivable and operational after exposure to chemical, biological, radiological, nuclear exposure (CBRNE) to include effects of electromagnetic pulse and cyber-attacks.
 2. **System Effectiveness:** The system must be lethal from distances of 35m to 500M or longer against unprotected soldiers in both the open and in cover.
 3. **Engagement Times:** Time to engage target is desired to be ≤ 5 seconds from decision to engage to trigger pull for a target out to 500 meters. After trigger pull, time of flight is desired to be no greater than 3 seconds to 500 meters.
 4. **Length:** Overall system length is desired to be less than 34 inches.
 5. **System Weight:** System weight is desired to be less than 14.5lbs (weapon, fire control, power supply).
 6. **Target Acquisition:** The system needs to be able to recognize and confirm targets of interest with a high degree of confidence for 500m or longer in clear conditions day or night, and 300m when conditions are obscured.
 7. **Powerless/Degraded Operation:** It is desired that the system retains a direct-view capability to continue the fight and engage targets, even when the fire control has no power or becomes damaged and inoperable.
 8. **Family of Ammunition:**
 - a. Counter Defilade Round: Round to precisely and quickly defeat personnel targets in defilade positions.
 - b. Training Round: Non-pyrotechnic round ballistically similar to the counter defilade round to train the PGS capability.
 - c. Close Quarters Battle Round: Round to precisely and quickly defeat personnel targets at ranges less than 35 meters.
 - d. Expanded Capabilities: Ability to expand capabilities is desired with different types of ammo such as:
 - i. Counter Unmanned Aerial System (UAS) Round
 - ii. Armor-Piercing Round
 9. **Variable Magnification:** System capable of having variable magnifications to enable accurate engagements within the range of the systems capability is desired.
 10. **Ranging/Far Target Location:** The system needs to be capable of accurate range determination to a man-sized target out to 800 meters and vehicle or troops in the open (squad sized targets) out to 1,000 meters in less than one second is desired.
 11. **Digital Overlay:** System needs to be capable of providing alpha-numeric display and a dynamic reticle within the fire control field of view out to a range of 1000 meters is desired. System can calculate a dynamic reticle for refined targeting including (but not limited to) range to target, atmospheric conditions, weapon orientation, and ballistics of the weapon/ammunition selected is desired. The computation time for the dynamic reticle to be displayed is desired to be no more than 1 second.
 12. **Firing Mode:** System capable of semi-automatic firing is desired.

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13. **Resolution:** System provides sufficient angular resolution to distinguish between hostile and non-hostile targets during daytime, clear air conditions from 0-600 meters and accurately determine threat characteristics (e.g., a threat light armored vehicle or armed squad size element in the open) during daytime, clear air conditions out to 1,000 meters.
14. **Ambidextrous:** System is desired to be capable of ambidextrous configuration without degradation of performance or safety.

IV. Program Submission

The xTechSoldier Lethality competition is voluntary and open to all entities that meet the eligibility requirements. **You may submit more than one application for this competition.** The registration information and submission upload must be received by **5:00 PM ET on July 12, 2023. Submissions received after the deadline will not be considered.**

Register now by selecting the xTechSoldier Lethality competition tile at:

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

V. xTechSoldier Lethality Competition Structure

Part 1: Concept White Paper

Applicants will submit a five-page concept white paper outlining their technology, concept of operations, integrated system, weapon attributes, ammunition, and fire control with an optional 3–5-minute video. 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 subject matter experts.

All concept white papers must adhere to the following requirements:

- All concept white papers must be submitted using the template found on the registration page, “xTechSoldier Lethality _WhitePaper_Template.doc”. 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 **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.

Concept white papers will be evaluated and ranked using the following scoring criteria (further details on each scoring dimension can be found on the xTechSoldier Lethality competition registration page):

- Concept of Operations – 20%
- Integrated System – 30%
- Weapon Attributes – 5%
- Ammunition – 20%
- Fire Control – 20%
- Submission Quality – 5%

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Upon conclusion of the concept white paper evaluation period, up to 5 applicants will be selected to receive a prize of \$15,000 each and an invitation to participate in Part 2: Technology Pitches, that will be held virtually and/or in-person. Additional details and requirements will be provided to selected participants.

Part 2: Technology Pitches

Selected participants from Part 1, will be asked to conduct a virtual and/or in-person pitch showcasing their technology concept, design, models, and data to a panel of Army and DoD experts, tentatively scheduled for August 30 - September 1, 2023. Each team will have **60-minutes to pitch**, followed by **30-minutes** for questions and answers with the judging panel.

Detailed instructions and evaluation criteria will be provided to those teams selected for Part 2 of the competition. Up to 3 teams will be selected as finalists and will receive a cash prize of \$300,000 and an invitation to participate in Part 3: Final Demonstrations.

Part 3: Final Demonstrations

The finalists selected from Part 2, will be invited back 6-18 months after being notified to conduct an in-person proof-of-concept demonstration, where they will have the opportunity to test out their system live with a panel of Army and DoD experts.

Detailed instructions and evaluation criteria will be provided to the finalists selected from Part 2 of the competition. Up to one team will be selected as the final winner of the competition and may receive a follow-on contract or agreement of up to \$2M to deliver their prototype system(s).

The location of the demonstrations has not yet been determined and will be coordinated directly with the finalists. The dates of the final demonstrations will be dependent on the selected participants and the current readiness level their current technology is at.

VI. Prizes and Incentives

Prizes will be offered under 10 U.S.C. §4025 (Prize competitions). The total prize pool is \$975,000. The follow-on contract award/agreement will be offered under 10 U.S. Code §4023, the contract award will be up to \$2M.

Phase	Winners	Prize	Contract Award
Part 1: Concept White Paper	Up to 5	\$15,000 each	
Part 2: Technology Pitches	Up to 3	\$300,000 each	
Part 3: Final Demonstrations	Up to 1		Up to \$2M
	Total	\$975,000	\$2M

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VII. Proposed Schedule

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

Date	Activity
June 14 – July 12, 2023	Application Round 1: Concept white paper submission period
August 15, 2023	Part 1 Winners/ Finalists Announced
August 29 –September 1, 2023	Part 2: Technology Pitches
September 8, 2023	Part 2 Winners Announced
March 2024 – March 2025	Part 3: Final Demonstration
April, 2025	Part 3 Winners Announced

VIII. Disclaimers

Registered participants shall be 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 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 DoD.

For the xTechSoldier Lethality 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 xTechSoldier Lethality 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 xTechSoldier Lethality 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.

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X. Point of Contact

The xTech Program Office

Office of the Deputy Assistant Secretary of the Army, Research and Technology

Email: usarmy.pentagon.hqda-asa-alt.mbx.xtechsearch@army.mil

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