EXPEDITIONARY TECHNOLOGY SEARCH (XTECHSEARCH)

Background Information:

The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) is announcing the second cohort of the Army Expeditionary Technology Search – xTechSearch – to be featured at the Association of the United States Army (AUSA) Global Force Meeting in Huntsville, AL, on 26 to 28 March 2019. xTechSearch will highlight opportunities for nontraditional defense partners to collaborate with the Army to tackle the most poignant Army modernization challenges.

The ASA(ALT) recognizes that the Army must enhance engagements with the entrepreneurial funded community, small businesses, and other non-traditional defense partners, by: (1) understanding the spectrum of technologies being developed commercially that may benefit the Army; (2) integrating the sector of nontraditional innovators into the Army's research and development ecosystem; and (3) providing mentorship and expertise to accelerate, mature, and transition technologies of interest to the Army.

The xTechSearch program will provide resourcing to select businesses to demonstrate proof of concept for their technologies pertaining to Army challenges. The program will also integrate these nontraditional innovators into the Army's Science and Technology (S&T) ecosystem by providing cooperative research opportunities with Army labs, including access to the Army's organic intellectual and technical capital. xTechSearch is an opportunity for businesses to pitch novel technology solutions – a new application for an existing technology or a new technology concept entirely – to the Army. The Army will provide non-dilutive seed prizes for the companies to demonstrate proof of concept in an Army-relevant challenge area.

Eligibility Requirements:

The entities allowed to participate in this competition are small businesses as defined under section 3 of the Small Business Act (15 U.S.C. § 638). Eligible businesses must fall within the Small Business Administration's size standard for the North American Industry Classification System (NAICS) codes 541713, 541714 and 541715: 1,000 employees (under 13 CFR Part 121 Section 121.201).

Sole proprietors may participate in xTechSearch if the individual is a citizen or permanent resident of the United States and the business is registered in the United States. Foreign companies may participate in xTechSearch by establishing a US domestic business relationship (e.g., wholly owned US subsidiary) or partner with a US based company. Companies that have previously participated in the xTechSearch competition are eligible to participate for new technology concepts or improvements to prior submitted proposals.

Each company:

- Shall provide registration information and upload proposal submission in the Challenge.gov portal by 11:59 PM PST on **31 December 2018**;
- Shall be incorporated in and maintain a primary place of business in the United States;
- May not be a Federal entity or Federal employee acting within the scope of their employment

Proposal Submission

The xTechSearch program is voluntary and open to all interested traditional and nontraditional businesses that meet the eligibility requirements.

The Phase I proposal must be a white paper describing the novel technology concept, innovative application concept and integration with one or more of the Army's technology focus areas. The Phase I proposal must be submitted via the Challenge.gov portal as a single searchable PDF file containing:

- Title
- Author(s)
- Army Technology Focus Area: Choose from the eight (8) Technology Focus Area(s) described below that the proposal addresses
- Keyword(s): Provide up to ten (10) keywords that describe the technology
- Abstract: Provide an abstract (up to 250 words)
- White Paper: Technology proposal concept, **no greater than 1000 words** (not including title, author(s), keywords, abstract, graphs, figures or images). The word limit on the White Paper submission will be strictly enforced.
- List of prior SBIR awards in the past 5 years: Include Date award received, Funding organization, Phase of awards, and Topic Title awarded
- Company Biography (Optional): Company background information, up to 1 page

The submission package must be provided to the xTechSearch Challenge.gov portal by 11:59 PM PST on **31 December 2018**. Submissions received after the deadline will not be considered.

Technology Focus Areas:

xTechSearch seeks novel, disruptive concepts and technologies to support the following Army technology focus areas:

- Long Range Precision Fires. Provide massed, mobile, operational-level kinetic and non-kinetic strike options to restore overmatch, improve deterrence, and disrupt Anti-Access/Area-Denial (A2/AD) on a complex, contested, and expanded battlefield. Potential technology areas include:
    - Propulsion for extended long-range missiles
    - Extended range cannon artillery
    - Enhanced guidance/navigation for weapon systems
    - Advanced energetics

    - Advanced warheads for cluster munitions
    - Next-generation RADARs
- Next Generation Combat Vehicle (NGCV). Develop replacements for current tanks and infantry fighting vehicles that realize weight, sustainment, and cost-per-unit savings. This will increase the capability of our existing formations and improve our ability to survive and win in the complex and densely urbanized terrain of an intensely lethal and distributed battlefield where all domains are continually contested. Potential technology areas include:
    - NGCV Design
    - Vehicle Protection against advanced threats
    - Robotics and autonomy for combat operations and logistics
    - Advanced power generation
    - Advanced materials
    - Efficient Manned-Unmanned Teaming Constructs
    - Artificial Intelligence, Machine Learning, and Autonomy
- Future Vertical Lift (FVL) to develop replacement aviation platforms that include unmanned and autonomous attack, reconnaissance, utility, and MEDEVAC with increased speed and extended range and station time to operate in complex, dense urban terrain on an intensely lethal, distributed, and expanded battlefield within contested air space. Potential technology areas include:
    - Platform development and demonstration
    - Next-generation unmanned aircraft system technologies
    - Aviation protection and aircraft survivability
    - Improved situational awareness
    - Integrated Mission Systems
    - Advanced power systems
    - Efficient Manned-Unmanned Teaming Constructs
    - Artificial Intelligence, Machine Learning, and Autonomy
- Network with hardware, software, and infrastructure to provide resilient mission command on the move to wage the maneuver ISR, joint fires, and sustainment fights to retain and exploit the initiative against a peer adversary in an inherently contested cyber and electromagnetic environment. Potential technology areas include:
    - Secure Tactical Communications
    - Interoperable hardware, software, and information systems
    - Cyber Electromagnetic Activities (CEMA)
    - Assured Position, Navigation, and Timing (PNT)
    - Persistent Intelligence, Surveillance, and Reconnaissance (ISR)
- Air and Missile Defense to reduce the cost curve of missile defense, restore overmatch, survive volley-fire attacks, and operate within sophisticated A2/AD and contested domains. Potential technology areas include:
    - Maneuver-Short Range Air Defense (SHORAD)
    - Smaller and more affordable missiles

    - High Energy Lasers
    - Gun-based counter-tactical and small unmanned air systems (UAS) capabilities
    - Advanced seekers
    - Advanced energetics and propulsion
    - Next-generation RADARs
- Soldier Lethality to improve Soldier and small unit performance, reduce surprise, increase protection, and enhance lethality in close combat on an intensely lethal and distributed battlefield and within complex, urban terrain. Potential technology areas include:
    - Advanced lethality and projection
    - Training
    - Improved Soldier protection equipment
    - Improved situational awareness and communications
    - Optimized and enhanced human performance
    - Asymmetric Vision and Decide Faster technologies
    - Prolonged field medical care
- Medical technologies optimized for use in austere environments that prevent, diagnose, treat, mitigate, or cure servicemember health threats such as injury, polytrauma, cognitive and psychological stress, and infectious diseases. Potential medical technology areas include:
    - Prevention of musculoskeletal injuries
    - Immediate cardiopulmonary stabilization and advanced, autonomous life support
    - Telehealth
    - Medical robotics
    - Diagnosis and treatment of mild traumatic brain injury
    - Enhancement of human physical, psychological, and cognitive performance and resilience
    - Suicide prevention
    - Prompt treatment of post-traumatic stress mitigating progression to PTSD
    - Prevention and treatment of infectious diseases
- Military Engineering Technologies, including 3D mapping and characteristics, cold regions science and engineering, and civil or military engineering applications. Potential technology areas include:
    - Geospatial intelligence analytics
    - Map-based mission planning
    - Underground sensing
    - Geo-Environmental Physics Modeling and Simulation

Evaluation Criteria and Process

Phase I: Concept White Paper Contest

The Concept White Paper phase invites all eligible contestants to complete a concept paper outlining their knowledge, skills, capabilities and approach for this challenge. Each concept paper will be reviewed by a panel of Army subject matter experts who will select the contestants to be invited to the xTechSearch Technology Pitch Forums. Companies selected by the panel will receive a prize of $4,000 and an invitation to *Phase II: xTechSearch Technology Pitches*.

Concept White Papers will be ranked using the following Scoring Criteria:

- Potential for Impact/Revolutionizing the Army – 50%
- Scientific and Engineering Viability – 50%

Phase II: xTechSearch Technology Pitches

The xTechSearch Technology Pitch phase invites companies to complete an in-person venture-capital style pitch to a panel of Army subject matter experts at locations across the United States. Companies will pitch their technology and a proposed live proof-of-concept demonstration for Phase III (15 minute pitch followed by 10 minutes for questions and answers). Finalists selected by the judging panel will receive a prize of $10,000 and an invitation to attend *Phase III: AUSA Innovators' Corner*.

Technology Pitches will be ranked using the following Scoring Criteria:

- Potential for Impact/Revolutionizing the Army – 40%
- Scientific and Engineering Viability - 40%
- Proof-of-Concept Demonstration Plan – 10%
- Team Ability – 10%

Phase III: AUSA Innovators' Corner

The AUSA Innovators' Corner phase provides up to twenty five (25) xTechSearch finalists to be featured at the AUSA Innovators' Corner at the AUSA Global Force meeting, 26-28 March 2019 in Huntsville, AL. The finalists will leverage Army-sponsored exhibit space to engage with Department of Defense (DoD) customers, Army leadership, industry partners, and academia.

Up to twelve (12) Phase III prize winners will be announced at AUSA and provided a prize of $120,000 and 6 months to demonstrate proof-of-concept for their xTechSearch technology at the *Phase IV: xTechSearch Capstone Demonstration*.

Phase IV: xTechSearch Capstone Demonstration

The xTechSearch Capstone Demonstration is an opportunity for each Phase III winner to demonstrate proof-of-concept for their technology solution to Army subject matter experts

and DoD leadership at the AUSA Annual Meeting, October 2019, Washington DC. A single grand-prize winner will be selected for the technology concept with the greatest potential for impact and to revolutionize the Army. The grand-prize winner of the xTechSearch will receive an additional $250,000.

Prizes & Incentives

Prizes will be offered under 15 USC §3719 (Prize competitions). The total prize pool is $2.18 M.

Each prize winner will also be offered opportunities to partner with one or more of the Army laboratories across the country, with access to Army subject matter experts, laboratory equipment, and other research support assets.

Phase	***Number of Winners***	***Prize***
Phase I. Concept White Paper	Up to 60	$4,000 Selection for Phase II
Phase II. xTechSearch Pitches	Up to 25	$10,000 Selection for Phase III
Phase III. Innovators' Corner	Up to 12	$120,000 Selection for Phase IV
Phase IV. xTechSearch Capstone Demonstration	1	$250,000
	Total	$2,180,000

Proposed Schedule (Subject to Adjustments):

Date	**Activity**
9 November 2018	**Solicitation period opens.**
31 December 2018	**Solicitation period closes.**
8 February 2019	**Phase II Selection Announcements**
25 February 2019 to 8 March 2019	**Phase II Technology Pitches**
11 March 2019	**Phase III Selection Announcements**
26 to 28 March 2019	**Phase III – AUSA Global Force, Huntsville, AL**
28 March 2019	**Phase IV Selection Announcements**
October 2019	**Phase IV Capstone – AUSA Annual Meeting, Washington DC**

Disclaimers

Registered participants shall be required to agree 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 a prize competition, whether the injury, death, damage, or loss arises through negligence or otherwise.

Participants shall be required to obtain liability insurance or demonstrate financial responsibility, in amounts determined by the Army, for claims by—

- Third parties for death, bodily injury, or property damage, or loss resulting from an activity carried out in connection with participation in a prize competition, with the Federal Government named as an additional insured under the registered participant's insurance policy and registered participants agreeing to indemnify the Federal Government against third party claims for damages arising from or related to prize competition activities; and
- Federal Government for damage or loss to Government property resulting from such an activity.

Intellectual property

The Army is a strong proponent of deliberate intellectual property (IP) rights and management by the private sector and the Department of Defense.

For the xTechSearch program:

- 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 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 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.

Point of Contact

The xTechSearch Coordinators are listed below:

Dr. Matt Willis and Mr. Joshua Israel

ASA(ALT)

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