EXPEDITIONARY TECHNOLOGY SEARCH (XTECHSEARCH)

Background Information:

The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) is announcing the third cohort of the Army Expeditionary Technology Search – xTechSearch – to be featured at the Association of the United States Army (AUSA) Annual Meeting in Washington, DC, on 14 to 16 October 2019. xTechSearch will highlight opportunities for small businesses to collaborate with the Army to tackle the most critical 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 entities, by: (1) understanding the spectrum of technologies being developed commercially that may benefit the Army; (2) integrating the sector of non-traditional defense entities into the Army's Science and Technology (S&T) 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 small businesses to demonstrate proof of concept for their technologies pertaining to Army challenges. The program will also integrate these small businesses into the Army's S&T ecosystem by providing 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 small businesses to demonstrate proof of concept in an Army-relevant challenge area.

The authority of this program is 15 United States Code (USC) §3719.

Eligibility Requirements:

The entities allowed to participate in this competition must be sole proprietors or small business concerns in accordance with Small Business Administration guidance under 13 Code of Federal Regulations § 121.201 or any entity willing and able to be registered as a small business if selected to participate in this competition.

Each eligible entity:
- 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

Sole proprietors may participate in xTechSearch if the individual is a citizen or national of

the United States or a lawful 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.

Program Submission:

The xTechSearch program is voluntary and open to all entities that meet the eligibility requirements. There may be only one submission per eligible entity. The registration information and upload submission must be received by **11:59 PM PST on 12 June 2019**. Submissions received after the deadline will not be considered.

Register now:

https://go.valideval.com/teams/army_xtech_3_0/signup

All xTech 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.

Written feedback will be provided to all participants at the end of each phase. The purpose of providing this feedback is to provide insight on the Government's application of the scoring criteria. However, the Government will not respond to questions or inquiries regarding this feedback.

While the authority of this program is 15 USC §3719, a concept white paper submitted to the xTechSearch program may generate interest by another Army organization for a funding opportunity outside of this program (*e.g.,* submission of a proposal under a Broad Agency Announcement). The interested Army organization may contact the participant to provide additional information.

Submission Format

The Phase I submission must be a concept white paper, submitted using the template found on the registration page. **Any proposals submitted in a format other than that provided by the template will not be reviewed.** Please name your submission file using your company's name (*i.e. ACME.pdf*). All submissions must be made at the registration site above and identify 1 or more of the following eight (8) Army Focus Areas that the technology supports.

Army Focus Areas

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

- <u>Long Range Precision Fires</u>. 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:

- o Propulsion for extended long-range missiles
- o Extended range cannon artillery
- o Enhanced guidance/navigation for weapon systems
- o Advanced energetics
- o Advanced warheads for cluster munitions
- o 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:
    - o NGCV Design
    - o Vehicle Protection against advanced threats
    - o Robotics and autonomy for combat operations and logistics
    - o Advanced power generation and storage
    - o Advanced off-road mobility
    - o Advanced materials
    - o Efficient Manned-Unmanned Teaming Constructs
    - o Artificial Intelligence/Machine Learning for Autonomy
    - o Close Combat Decisive Lethality
- 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:
    - o Platform development and demonstration
    - o Next-generation unmanned aircraft system technologies
    - o Aviation protection and aircraft survivability
    - o Improved situational awareness
    - o Integrated Mission Systems
    - o Advanced power systems
    - o Efficient Manned-Unmanned Teaming Constructs
    - o Artificial Intelligence, Machine Learning, and Autonomy
- Network with hardware, software, and infrastructure to provide reliable network communications in a congested environment that is secure against attack from peer adversaries. Using a unified network architecture, provide communications for command, control, and intelligence assets using a common operating environment for seamless plug-and-play operability. Potential technology areas include:
    - o Secure Tactical Communications
    - o Interoperable hardware, software, and information systems

- Cyber offensive and defensive technologies
- Artificial intelligence and machine learning for autonomous network functions
- Networking applications capable of distributed command/control and rapid decision making
- Electromagnetic wave threat identification, location, and spoofing
- Assured Position, Navigation, and Timing (PNT) in a signal denied environment
- Cyber in support of persistent Intelligence, Surveillance, and Reconnaissance (ISR) missions
- Mesh networking techniques using commercial and military satellite constellations

- <u>Air and Missile Defense</u> 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

- <u>Soldier Lethality</u> 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 small arms weapons, ammo and fire control
  - Simulation Training
  - Improved Soldier protection equipment (e.g. body armor, head borne protection)
  - Improved situational awareness and communications
  - Digital Soldier technologies (e.g. AR/VR displays)
  - Optimized and enhanced human performance
  - Aerial re-supply systems
  - Carried weight/load reduction technologies

- <u>Medical technologies</u> 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 and semi-/autonomous care systems

- o Diagnosis and treatment of mild traumatic brain injury
- o Enhancement of human physical, psychological, and cognitive performance and resilience
- o Suicide prevention
- o Prompt treatment of post-traumatic stress mitigating progression to PTSD
- o 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:
  - o Geospatial intelligence analytics
  - o Map-based mission planning
  - o Underground sensing
  - o Geo-Environmental Physics Modeling and Simulation

Evaluation Criteria and Process

Phase I: Concept White Paper Contest

The Concept White Paper phase invites all eligible entities to submit a concept white paper outlining their knowledge, skills, capabilities and approach for this challenge. Each concept white paper will be reviewed by a panel of Army subject matter experts. Up to 50 small businesses with the highest ranking white papers will receive a prize of $5,000 and a written invitation to *Phase II: xTechSearch Technology Pitches*.

Concept White Papers will be ranked using the following Scoring Criteria (further details on each scoring dimension can be found in the attached Scoring Criteria Guide):

- Potential for Impact/Revolutionizing the Army – 45%
- Scientific and Engineering Viability – 45%
- Proposal Quality – 10%

Phase II: xTechSearch Technology Pitches

The xTechSearch Technology Pitch phase invites selected small businesses from Phase I to complete an in-person venture-capital style pitch to a panel of Army subject matter experts at locations across the United States. Small businesses will pitch their technology concept and team ability (15 minute pitch followed by 10 minutes for questions and answers). Up to 24 small businesses with the highest ranking pitch will receive a prize of $10,000 and a written invitation to attend *Phase III: AUSA Innovators' Corner*.

Technology Pitches will be ranked using the following Scoring Criteria (further details on each scoring dimension can be found in the attached Scoring Criteria Guide):

- Potential for Impact/Revolutionizing the Army – 40%
- Scientific and Engineering Viability - 40%
- Team Ability – 10%
- Presentation Quality – 10%

Phase III: AUSA Innovators' Corner

The AUSA Innovators' Corner phase will provide the invited Phase II participants with Army-sponsored exhibit space at AUSA Innovators' Corner at the AUSA Annual Meeting, 14-16 October 2019 in Washington, DC. Phase III participants will leverage the exhibit space and will present a 15-minute presentation open to the public (no proprietary information should be presented) within Innovators' Corner to engage with Department of Defense (DoD) customers, Army leadership, industry partners, and academia in attendance.

In addition to the opportunity to showcase the participants' technology with exhibit space and a 15-minute public presentation, Phase III participants will present an "elevator pitch" to a panel of Army subject matter experts at their exhibit space to summarize their Phase II Pitch on their technology concept, their team's ability, and a 6-month plan to conduct a live proof-of-concept demonstration if they were to proceed to Phase IV. (5 minute pitch followed by 10 minutes for questions and answers). Up to 12 small businesses with the highest ranking pitch and proof-of-concept demonstration plan will receive a prize of $120,000 and 6 months to demonstrate proof-of-concept for their xTechSearch technology at the *Phase IV: xTechSearch Capstone Demonstration*.

AUSA Innovators' Corner Pitches will be ranked using the following Scoring Criteria (further details on each scoring dimension can be found in the attached Scoring Criteria Guide):

- Phase II Results – 70%,
- Proof-of-Concept Demonstration Plan – 20%
- Elevator Pitch – 10%

Phase IV: xTechSearch Capstone Demonstration

The xTechSearch Capstone Demonstration is an opportunity for each Phase IV finalists to demonstrate proof-of-concept for their technology solution to a panel of Army subject matter experts and DoD leadership at the 2020 AUSA Global Force Symposium and Exposition, March 17-19, 2020, in Huntsville, AL. A single grand-prize winner will be selected for the technology concept with the greatest potential for impact to revolutionize the Army and be awarded a prize of $250,000. The eleven (11) other finalists will each receive a $10,000 prize.

Capstone Demonstrations will be ranked using the following Scoring Criteria (further details on each scoring dimension can be found in the attached Scoring Criteria Guide):

- Potential for Impact/Revolutionizing the Army – 30%
- Scientific and Engineering Viability - 30%
- Team Ability – 10%
- Demonstration Execution - 20%
- Presentation Quality – 10%

Prizes & Incentives

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

$2.29 M.

Phase	Number of Winners	Prize
Phase I. Concept White Paper	Up to 50	$5,000 Selection for Phase II
Phase II. xTechSearch Technology Pitches	Up to 24	$10,000 Selection for Phase III
Phase III. Innovators' Corner	Up to 12	$120,000 Selection for Phase IV
Phase IV. xTechSearch Capstone Demonstration	Up to 12	1st Place: $250,000 2nd-12th Place: $10,000
	Total	$2,290,000

Proposed Schedule (Subject to Adjustments):

Date	Activity
30 April 2019	**Solicitation period opens.**
13 June 2019	**Solicitation period closes.**
15 July 2019	**Phase II Selection Announcements**
05 August 2019 to 22 August 2019	**Phase II Technology Pitches**
23 August 2019	**Phase III Selection Announcements**
14 to 16 October 2019	**Phase III – AUSA Annual Meeting, Washington, DC**
16 October 2019	**Phase IV Selection Announcements**
March 2020	**Phase IV Capstone – AUSA Global Force meeting, Huntsville, AL**

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 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 this 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.

Register now:

https://go.valideval.com/teams/army_xtech_3_0/signup

Point of Contact

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