The Army xTech Program – xTechIgnite Competition Announcement

I. Background and Purpose

The U.S. Army invites interested entities to participate in the xTechIgnite competition, a competition for eligible small businesses across the U.S. to engage with the Department of Defense (DoD), earn prize money and submit a Phase I or Direct to Phase II (D2PhII) Army Small Business Innovation Research (SBIR) proposal.

The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) is partnering with six of the Army's Program Executive Offices (PEOs) including, JPEO Armaments & Ammunition (A&A), PEO Command, Control, Communications & Network (C3N), PEO Combat Support & Combat Service Support (CS&CSS), PEO Enterprise, PEO Ground Combat Systems (GCS), and PEO Intelligence, Electronic Warfare, & Sensors (IEW&S) to deliver the xTechIgnite competition.

The Army recognizes that the DoD must enhance engagements with U.S. small businesses by (1) understanding the spectrum of world-class technologies being developed commercially that may benefit the DoD; (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 the DoD.

The xTechIgnite competition will consist of three rounds:
(1) Call for concept white papers;
(2) Final pitch event/demonstration; and
(3) Opportunity to submit a Phase I or D2PhII Army SBIR proposal.

The competition will award up to $400,000 in cash prizes throughout the competition to selected participants. **Up to 64 finalists will receive a cash prize of $2,500 each and an invitation to pitch their innovative technology solutions to a panel of Army and DoD subject matter experts (SMEs) in May 2025 during an in-person event.** The Army intends to select up to 24 final winners of the competition, each eligible for a $10,000 cash prize. Final winners of the competition will have the opportunity to submit a Phase I Army SBIR proposal worth up to $250,000 or a D2PhII Army SBIR proposal worth up to $2,000,000, depending on the topic area and the proposed work. Phase I Army SBIR proposals will be considered under topic areas 1-3 for proof-of-concept demonstrations that are not to exceed six (6) months in duration. D2PhII Army SBIR proposals will be considered under topic areas 4-8 for technologies that demonstrate sufficient maturity for direct prototype development and are not to exceed 18 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 DoD representatives through information-sharing and networking opportunities.

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. All final winners will be eligible to submit for a Phase I or D2PhII Army SBIR proposal under the provisions and requirements of 15 U.S.C. § 638.

While the authority of this program is 10 U.S.C. § 4025, the xTechIgnite 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 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 xTechIgnite 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. The purpose of providing this report is to assist in potentially accelerating 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 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 of the following:

   a. One or more individuals who are citizens or permanent resident aliens of the U.S.;
   b. Other for-profit small business concerns (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.

(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.**

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.

For topic areas 1-3, the competition seeks white papers for research and development efforts to ***prove the feasibility and commercialization potential of technology solutions*** that fit within one of the following topic areas:
- Topic 1: Innovative Operations for Treatment and Processing of Wastewater
- Topic 2: Generative AI-enabled Tactical Network
- Topic 3: Bridge Health Monitoring (BHM) System

For topic areas 4-8, the competition seeks white papers for research and development efforts to produce ***well-defined prototype technology solutions*** that fit within one of the following topic areas:
- Topic 4: Ruggedized Sensors to Increase Driving Visibility and Vehicle Safety
- Topic 5: Artificial Intelligence for Aided Driving of Ground Combat Vehicles
- Topic 6: AI – Enabled Source Selection
- Topic 7: AI – Enabled Portfolio Management
- Topic 8: Novel AI Techniques for Insights in Various Environments (NATIVE)

Topic descriptions can be found in Appendix A of this solicitation. Winners selected from this competition from topic areas 1-3 will have the opportunity to submit a Phase I Army SBIR proposal worth up to $250,000 to conduct a feasibility study; and winners selected from topic areas 4-8 will have the opportunity to submit a D2PhII Army SBIR proposal worth up to $2 million to produce a prototype solution.

IV.   Program Submission

The xTechIgnite competition is voluntary and open to all entities that meet eligibility requirements listed in Section II (Eligibility Requirements). **Only one submission per topic, per eligible entity is permitted; if submitting an application to more than one topic area, the technology solution must clearly be different and be clearly aligned to the topic area selected.** If a proposal aligns to more than one topic area, select the topic area that best fits your solution.

The registration information and submission upload must be received by **5 p.m. ET on March 12, 2025**. Submissions received after the deadline will not be considered.

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Register by selecting the xTechIgnite competition image at:
https://www.xtech.army.mil/

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V.   xTechIgnite Competition Structure

Part 1: Concept White Paper

All eligible entities shall submit a three-page concept white paper outlining their technology, problem and solution; the potential impact on the Army; technical approach; and commercial potential. Each concept white paper will be reviewed by DoD experts across the S&T ecosystem including 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_xTechIgnite_White_Paper.docx". **Any proposals submitted in a format other than the template provided will not be reviewed.**
- Please list your company name and proposal title **<u>EXACTLY</u>** as 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 xTechIgnite competition website 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 64 applicants (up to eight applicants per topic area) to receive a prize of $2,500 each and an invitation to Part 2: Finals.

<u>Part 2: Finals</u>

The xTech Program will invite selected participants from Part 1 to conduct an in-person pitch of their solution to a panel of Army and DoD SMEs in May 2025. The xTech Program will provide additional instructions, the detailed evaluation criteria, and exact dates and location for the finals event at a later date. ***Dates and times are subject to change.***

The xTech Program intends to select up to 12 final winners across the following topic areas (up to four winners per topic area) to receive a $10,000 non-dilutive cash prize and the opportunity to submit a Phase I Army SBIR proposal worth up to $250,000:
- Topic 1: Innovative Operations for Treatment and Processing of Wastewater
- Topic 2: Generative AI Enabled Tactical Network
- Topic 3: Bridge Health Monitoring (BHM) System

The xTech Program intends to select up to 12 final winners across the following topic areas (up to four winners for Topic 4 and up to two winners per topic area for Topics 5-8) to receive a $10,000 non-dilutive cash prize and the opportunity to submit a D2PhII Army SBIR proposal worth up to $2 million:
- Topic 4: Ruggedized Sensors to Increase Driving Visibility and Vehicle Safety
- Topic 5: Artificial Intelligence for Aided Driving of Ground Combat Vehicles
- Topic 6: AI – Enabled Source Selection
- Topic 7: AI – Enabled Portfolio Management
- Topic 8: Novel AI Techniques for Insights in Various Environments (NATIVE)

Part 3: Army Phase I or Direct to Phase II Army SBIR Proposal

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

Winners selected from Part 2: Finals will be the **only firms eligible** to participate and submit a Phase I Army SBIR proposal under topic areas 1-3, or a D2PhII Army SBIR proposal under topic areas 4-8 and will receive detailed instructions upon selection. All other submissions will be ineligible.

For topic areas 1-3, winners will have the opportunity to submit a Phase I Army SBIR proposal. In accordance with the Phase I Army SBIR requirements, each eligible proposing small business concern 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.

For topic areas 4-8, winners will have the opportunity to submit a D2PhII Army SBIR proposal. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. In accordance with the D2PhII SBIR requirements, each eligible proposing small business concern shall provide documentation or demonstrate feasibility of sufficient solution maturity to be eligible for a D2PhII Army SBIR award along with the D2PhII proposal. Work submitted within the feasibility documentation or demonstration must have been substantially performed by the proposing small business concern and/or the principal investigator. If technology in the feasibility documentation is subject to Intellectual Property (IP), the proposing small business concern must either own the IP or must have obtained license rights to such technology prior to proposal submission, to enable it and its subcontractors to legally carry out the proposed work.

VI.   Proposed Schedule

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

Date	Activity
February 5 – March 12, 2025	Part 1: Concept white paper submission period
April 24, 2025	Finalists announced
May 2025	Part 2: Finals pitch event
May 2025	Final Winners announced
June 12 – July 9, 2025	Phase I or D2PhII 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 $400,000. 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 $250,000 each, and D2PhII Army SBIR awards will be up to $2 million each. The total Army SBIR funding pool is $27 million. Other non-monetary incentives are provided through the xTechIgnite competition to help small businesses engage with the Army.

Phase	Winners	Prize	Army SBIR Award
Part 1: Concept White Paper	Up to 64	$2,500 each	N/A
Part 2: Finals Event	Up to 24	$10,000 each	N/A
Part 3: Opportunity to Submit an Army SBIR Proposal	Up to 24	N/A	Phase I Army SBIR awards up to $250,000 each (Topics 1-3) and D2PhII Army SBIR awards up to $2M each (Topics 4-8)
	Total	$400,000	$27,000,000

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

The Army is a strong proponent of deliberate IP rights and management by the private sector and the DoD. For the xTechIgnite competition:
- The USG may not gain an interest in IP developed by a participant without the written consent of the participant;
- Nothing in this xTechIgnite 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 xTechIgnite prize competition, or is entitled to, under any other government agreement or contract, or is otherwise entitled to under law; and
- The USG may negotiate a license for the use of IP developed by a registered participant in the prize competition.

Register by selecting the xTechIgnite competition image 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: usarmy.xtech@army.mil
Website: https://www.xtech.army.mil/

APPENDIX A – Problem Statement Descriptions

Topic 1: Innovative Operations for Treatment and Processing of Wastewater.
Topic Objective: The Ammonium Perchlorate Rocket Motor Destruction (ARMD) is designed for the closed disposal of Ammonium Perchlorate (AP) based rocket motors via thermal treatment. Innovative approaches are required to reduce process time and volumes associated with wastewater/ effluents generated from the ARMD operations. The main objectives of the industrial wastewater treatment are to boost operational throughput, reduce costs, and improve overall environmental posture. The end goals of these improvements are to increase process efficiency in solid and liquid waste processing.

Topic Description: Through the support of the Product Director for Demilitarization (PD Demil), the US Army Aviation and Missile Command (AMCOM) Missile Demil Office and the Combat Capabilities Development Command (DEVCOM) Aviation and Missile Research Center (AvMC) have been implementing the Ammonium Perchlorate Rocket Motor Destruction (ARMD) capability at the Letterkenny Munitions Center (LEMC). The ARMD is designed for the closed disposal of Ammonium Perchlorate (AP) based rocket motors. The destruction of rocket motors consists of enclosed firing of the rocket into a chamber, processing of the combustion gasses through a pollution abatement system (PAS), and disposal of the combustion solids and PAS brine materials. The confined burn of rocket motors allows for the combustion exhaust products to be captured and treated rather than being released directly into the environment. The ARMD is designed to process a wide range of rocket motors of various sizes. The PAS is designed to remove greater than 98% of the acid gasses and greater than 99% of the solid particulates from the exhaust stream.

The ARMD transitioned to Full Rate Production (FRP) operations in 2022. However, one of the limiting factors in production throughput is the processing and handling of the combustion effluents/brine water. The ARMD system requires large amounts of water to neutralize the combustion gasses and to wash out the solid particulates for each motor burn cycle. The solid particulates are removed through a series of settling tanks and filter presses. The ARMD recycles the water in the system, but the filter press system is slow, cumbersome and requires considerable maintenance. The solids are removed from the filter presses through manual operations. The ARMD system is paused numerous times throughout the operational day waiting on the system to "catch up" and process enough water to use on the subsequent cycles. It is also paused to remove the solids from the filter presses and the catch bins.

Additionally, large amounts of neutralized brine water (magnesium salt water) are generated from the combustion process. This salt water is reutilized in the system up to ~20% salt content. Once the water reaches the salt limit it is transferred to holding tanks. Trucks are required to pump the wastewater out of the holding tanks for eventual disposal at a commercial water treatment facility as non- hazardous waste. The ARMD operations must be halted when the trucks arrive to transfer the water. Additionally, costs for disposal of this water continue to increase due to pressures from inflation.

The DEVCOM AvMC seeks innovative approaches related to operational processing and chemical treatment of the wastewater. Operational improvements of interest include overall processing efficiency optimization and methods to remove manual processes related to filter press clean up. Chemical treatment areas of interest include novel Brine Concentration Technologies (BCT) to improve filtering of solid particulates and novel treatment methods that can reduce the amount of wastewater that is sent for offsite disposal.

Topic 2: Generative AI Enabled Tactical Network.
Topic Objective: The objective of this topic is to create a realistic modeling and simulation environment using Generative AI (GenAI) for the Next Generation Command and Control (NGC2) system. NGC2 is the Army's new approach to a data-centric C2 architecture to enable real time access to critical data despite limited connectivity environments and little to no tactical communications.

Topic Description: GenAI would be used to create realistic tactical data streams to create a diverse set of scenarios representing current threat, blue force, and logistics Command and Control and maneuver operations. The environment should reflect a realistic tactical network (DDIL environment) with multiple data access and delivery demands in real time.

The generated data would be at scale and based on realistic models (e.g. tracks should be following likely routes/roads based on local terrain at a realistic pace and elevation vs randomly placed on a map at a random time and space). Another objective is the use AI (or some other technique) to simulate limited bandwidth as data is 'exchanged' from producer to consumer to model a Denied, Disrupted, Intermittent, and Limited (DDIL) environment that logically aligns to the scenario fed by the GenAI data. DDIL environments can restrict real-time communication, limit data transfer, and make it difficult to coordinate across military units and systems.

The Army's Next Gen Command and Control program is a large part of the effort to modernize the Army's network. It will provide commanders with the adaptive C2 architecture needed to make rapid decisions in a contested environment. NGC2 is the Army's joint effort with industry to build a "data-centric" command and control system enabled through network transport. The goal is to recreate the service's enterprise data architecture and renew its operational software framework.

Topic 3: Bridge Health Monitoring (BHM) System.
Topic Objective: The current methods for assessing military bridges rely on Preventative Maintenance Check and Services (PMCS) combined with fatigue monitoring crack gauges, which have proven insufficient for accurately determining a bridge's remaining service life. This inaccuracy forces the Army to maintain a surplus of bridges to mitigate the risk of unexpected failures. Research highlights that vehicle crossings, rather than environmental factors, are the primary determinants of bridge health, with the impact varying significantly by vehicle type.

To address this, the Bridge Health Monitoring (BHM) system seeks to revolutionize bridge assessment and management through an integrated approach combining advanced sensor technology, onboard data storage, and adaptable communication capabilities. By continuously monitoring and recording vehicle traffic, structural stress, and environmental conditions, the BHM system will enable precise predictions of a bridge's remaining service life. This innovation promises to reduce reliance on manual inspections, enhance situational awareness for battlefield commanders, and optimize bridge asset utilization, ensuring military readiness and operational efficiency.

Topic Description: The Bridge Health Monitoring (BHM) project will develop a robust, modular, and scalable technology suite for real-time monitoring and assessment of military and commercial bridge health. This integrated system will empower battlefield commanders and sustainers by providing actionable insights into bridge readiness and lifespan. The proposed solution should address a combination of advanced sensors, onboard storage systems, and

secure communication technologies to achieve the following objectives:

1. Types of Bridges

The BHM system must prioritize adaptability to a variety of bridge types. These include:

- Portable All-Metal Bridges: Commonly used in military operations, these structures require rapid deployment capabilities and sensors that can withstand frequent assembly, disassembly, and storage.
- Composite Bridges: Combining concrete and metal, these structures are often used for their durability and lightweight properties.
- Reinforced Concrete Bridges: Found in both military and civilian applications, these bridges are vulnerable to environmental factors such as corrosion and require monitoring for cracks and stress.
- Suspension and Cable-Stayed Bridges: Complex commercial structures where cable tension and tower integrity are critical monitoring points.
- Precast Modular Bridges: Often used for temporary or emergency infrastructure, these bridges benefit from scalable monitoring solutions for varying sizes and configurations.

2. Real-time and Periodic Monitoring

The BHM system will monitor key indicators of structural integrity, including stress, fatigue, and damage, through a modular sensor suite. While real-time communication may be beneficial for specific use cases (e.g., commercial highway bridges), the primary focus is on:

- Onboard Storage: Capturing and securely storing critical data directly on the bridge.
- Periodic Data Retrieval: Allowing personnel, vehicles, or UAVs to retrieve stored data as needed, minimizing security risks and operational costs associated with trackable continuous transmissions.
- Future Adaptability: Ensuring the system design allows for the potential of wireless communication integration in future phases if operational needs evolve.

3. Predictive Analytics and Storage Monitoring

In addition to operational bridges, the BHM system must maintain information on the health of portable bridges during storage. This capability ensures readiness for deployment. Predictive analytics should incorporate:

- Usage data, including crossings and load impacts, are recorded before storage.
- Modular components enable cost-effective monitoring and allow reusable components to be deployed elsewhere once the portable bridge is stored.

4. Indefinite Data Storage and Management

The system must include a robust mechanism for the indefinite storage of bridge health data. This includes maintaining detailed historical records of usage, environmental exposure, and maintenance activities. The solution should employ secure, scalable storage systems, ensuring data integrity and accessibility for lifecycle management and continuous improvement.

5. Sensor Suite Requirements

The sensor package must be:

- Modular: Adaptable to different bridge designs and operational needs.
- Scalable: Capable of monitoring bridges of various sizes, materials, and load capacities.
- Durable: Resistant to environmental stresses such as extreme temperatures, corrosion, and vibration.
- Comprehensive: Equipped with advanced tools, such as strain gauges, ultrasonic sensors, fiber-optic monitoring systems, RFID readers, and AI-powered traffic classification capabilities.

- Focused on Storage Data: Ensuring essential data components and other non removable components remain with the bridge while advanced systems (e.g. communications, power) can be redeployed to other bridges still in use.

6. Energy Efficiency and Environmental Resilience

The solution must function autonomously with portable power sources for mobile bridges and integrate with fixed power systems for stationary bridges. Sensors must operate reliably in diverse and challenging environments, from combat zones to urban areas.

7. Secure, Adaptable Data Communication

Data collected by the system will be securely transmitted when necessary. For initial feasibility, the focus is on:

- Localized, onboard data storage with retrieval options for personnel or vehicles.
- Secure communication mechanisms for direct connection, selective transmission, including burst transmissions or UAV retrieval.
- Flexibility for future enhancements to support continuous or real-time monitoring if required.

Topic 4: Ruggedized Sensors to Increase Driving Visibility and Vehicle Safety.
Topic Objective: Vehicle drivers could benefit from sensor systems that provide enhanced awareness of the vehicle surroundings and improve the driver's ability to operate the vehicle in Degraded Visual Environments (DVE), such as nighttime or low-visibility weather conditions. This topic seeks to provide ruggedized sensor systems that can integrate into vehicles to increase driving visibility and vehicle safety by enabling ADAS capabilities such as Forward/Reverse Collision Warning, Blind Spot Warnings, Automatic Brake Assist, and Road Departure Mitigation. These sensor systems could also enhance visibility of the vehicle's exterior for situational awareness, such as vehicle security or visibility of the rear exterior during towing operations.

Topic Description: The objective of this topic is to develop and integrate or ruggedize commercial sensor technology that could enhance the ability of a driver to maneuver and operate ground combat vehicles. This sensor technology will help increase the driver's awareness of the vehicle surroundings, enable advanced driver-assistance systems (ADAS) for improved vehicle safety and maneuverability, and enhance overall visibility while driving during daytime, nighttime, or combat operations.

Topic 5: Artificial Intelligence for Aided Driving of Ground Combat Vehicles.
Topic Objective: Develop and integrate Artificial Intelligence (AI) technology that can augment current and future sensor hardware enhancing the ability of the driver to maneuver and operate large, heavy, ground combat vehicles. These vehicles typically weigh 40 to 80 tons and have limited to zero direct line of sight making it difficult for the driver to safely maneuver the vehicle.

Topic Description: Develop and integrate Artificial Intelligence and Machine Learning technology that can augment current and future sensor hardware enhancing the ability of the driver to maneuver and operate large, heavy, ground combat vehicles. This can be done by improving driver vision and situation awareness with AI/ML based crew aids such as using AI for computer vision and object detection and/or using a large language model AI. This capability will support an AI Driver Assist System similar to Apple's Siri or Amazon's Alexa that is tailored toward driver combat scenarios. This capability will provide the foundation towards partial autonomy and could also lead to a fully autonomous system in the future.

Topic 6: AI – Enabled Source Selection.

Topic Objective: Provide a comprehensive software-as-a-service (SaaS) solution that automates and standardizes the evaluation and source selection processes while tailoring the user experience to the Army's unique conditions/constraints.

Topic Description: This solution should address principal challenges experienced during the evaluation and source selection processes including length of time required to conduct evaluations; varying levels of experience possessed by evaluators; inconsistent treatment of Offerors by evaluators; and deviation from solicitation instructions and evaluation criteria, potentially leading to protest. This solution is critical to accelerate the overall acquisition process, field capabilities more rapidly to the Soldier, and significantly improve contract outcomes including fewer successful protests.

The Army's pursuit of a software solution to automate, standardize, and accelerate the evaluation and source selection processes represents a novel and innovative approach to a challenge traditionally addressed using general-purpose capabilities such as Microsoft Word and Excel or outmoded procurement systems. Additionally, the current processes are heavily error-prone due to individual evaluator inexperience, human mistakes, and evaluator fatigue.

The envisioned solution seeks to transform this process by harnessing of the power of AI and related private sector innovations to perform many functions traditionally performed manually by human staff. Many activities in the areas of review, analysis, and quality assurance can be performed at scale by AI and related commercial technologies. Reviewing and analyzing large amounts of evaluation data for inconsistencies, traditionally performed by humans over many weeks, can now be performed at scale through AI tools that perform these functions in just seconds.

Topic 7: AI – Enabled Portfolio Management.
Topic Objective: This platform will integrate tools and best practices in a central portal to modernize the Army's acquisition process, supporting both Business-to-Business (B2B) and Business-to-Consumer (B2C) needs. The envisioned solution for this topic is an IT Acquisition Requirements Intake and Portfolio Management solution that will serve as the front-end to the Army's modernized acquisition process, assessing new software, hardware, and services requirements against qualification criteria and against existing capabilities. Without this, the Army risks creating unnecessary contracts, developing redundant systems, and wasting resources on needs that could be met with existing capabilities or contracts.

Topic Description: This solution will address key challenges in Acquisition requirements intake and portfolio management including:

1. Lack of consistent processes and templates for intake, review, analysis, and acceptance of new IT Acquisition requirements;

2. Inconsistent governance for prioritizing and sequencing new Acquisition requirements;

3. Limited visibility into the status of approved requirements during the acquisition process;

4. Insufficient visibility into the Army's portfolio of services, contracts, and hardware/software assets; and

5. Inadequate scanning of available contracts and hardware/software during portfolio review and requirements approval.

Each of the above challenges is addressed by development of a modern Acquisition requirements intake and portfolio management capability built on advanced AI capabilities and leveraging commercial market research and development (R&D).

Topic 8: Novel AI Techniques for Insights in Various Environments (NATIVE).
Topic Objective: Organizations across various sectors are increasingly inundated with vast amounts of data, making it challenging to identify and analyze anomalies and patterns effectively. Traditional methods often fall short in handling the scale and complexity of modern datasets, leading to missed opportunities and potential risks.

Topic Description: In today's data-driven world, organizations, including the Army, face the challenge of managing and making sense of vast amounts of diverse data. This data comes from various sources, such as sensors, communication systems, operational logs, and more. The sheer volume and complexity of this data make it difficult to identify critical anomalies and patterns that could impact decision-making and operational effectiveness.

The desired outcome of this topic is to develop and implement innovative AI technologies that can efficiently process and analyze terabytes of data, including imagery, text, and signals, to detect anomalies and uncover patterns. Anomalies are deviations from the norm that could indicate potential issues, threats, or opportunities. This effort will also involve detecting biases and deficiencies within the datasets, ensuring that relevant data is identified for labeling, so that the AI models built from the SBIRs are not only accurate but also fair and reliable.

By leveraging advanced AI techniques, such as machine learning, deep learning, and natural language processing, we aim to create AI models that can automatically and accurately identify these anomalies and patterns.