TWO-STEP BAA, CALL ANNOUNCEMENT

BAA-21-R-NCFT, WHITE PAPER CALL #

Title: Predicted Combat Power using AI/ML
Date:

FEDERAL AGENCY NAME: Army Contracting Command-Aberdeen Proving Ground (ACC-APG) on behalf of the Army Futures Command (AFC), Network Cross-Functional Team (Network-CFT)

BROAD AGENCY ANNOUNCEMENT NUMBER: BAA-21-R-NCFT
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CONTRACTING POINT OF CONTACT:
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CALL SCHEDULE: Dates: TBD

Event
BAA Released on beta.SAM.gov
Call: TBD
White Paper (WP) Submission Opens
WP Submission Closes (TBD)
Government begins notifying Vendors of WP evaluations:
• Selected for Further Consideration (Invitation to participate in the no-cost technological demonstration)
• Not Selected for Further Consideration
Technological Demonstration
Government begins notifying Vendors of results of technological demonstration:
• Selected for Further Consideration (Invitation to submit proposal)
• Not Selected for Further Consideration
Government begins accepting proposals from selected Vendors
Government begins notifying Vendors selected for award (if any)

*White papers received after the due date/time shall be governed by the provisions of FAR 52.215-1(c) (3).

BAA TYPE: This is a call for WPs only, and will be governed by the two-step process described in

General Information of the BAA-21-R-NCFT. **Offerors that submit a proposal without first submitting a WP will not be eligible for award.**

WP INSTRUCTIONS: Detailed instructions on format for WPs and the two-step submission process can be found in the overarching BAA.

Important

Please assess the entire solicitation carefully prior to any response. The Network-CFT BAA utilizes a two-phase process to solicit offers and select a source for award.
- **Phase One – Step One: Submission of White Papers**
             *Step Two: Technological Demonstration (By Invitation Only)
- **Phase Two – Submission of Proposals (By Invitation Only)**

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*Please note the Government reserves the right to skip step two of phase one and go directly to Phase Two after white paper evaluations.

WP SUBMISSION: All WPs shall be submitted via Joint Tactical Networking Center (JTNC) Joint Communications Marketplace (JCM) Technical Exchange Meeting (TEM) Industry Community, via https://jtnc.experience.crmforce.mil/TEMIndustry/s/. If there are any technical difficulties during your submissions, please email WPs to the Network-CFT Mailbox, usarmy.apg.futures-cmd.list.ncft-market-research@mail.mil. Please use the subject line: Network-CFT BAA (i.e., Call for WP Number and Topic/Subtopic Number *(example: Call for WP 0001, Subtopic #: N2104A)*.

TECHNOLOGY AREAS OF INTEREST:

The U.S. Army Program Executive Office Command Control Communications-Tactical (PEO C3T), in support of Network Modernization priorities, is issuing this call for WPs in association with Topic Number XXXXXX. To be eligible for consideration and possible contract award, the WP shall be of basic research, applied research, and/or that part of development not related to the development of a specific system or hardware procurement in the following "Technology Areas of Interest" specific to this call:

    A. **TOPIC NUMBER: 0006**

Operational Description of the Problem:
The Requirements Definition Package (RDP) for the Command Post Computing Environment (CPCE) requires the "ability to generate a contextual view of integrated information from multiple sources for current and future operations enabling the operations process and supports continuous monitoring and assessing of tactical situations and operations." The CPCE RDP also requires "Common CP activities (including planning, orders production, battle tracking, maintaining running estimates, conducting update briefings, and maintaining the common operational picture) directly contribute to the commander's ability to understand, visualize, describe, direct, lead, and assess operations." These statements drive the need to converge and integrate all Warfighting Function capabilities to enable Mission Command throughout the Operations Process (Plan, Prepare, Execute and Assess), including unit sustainment (Logistical Status, Logistics Running Estimate, In-Transit Visibility and Asset Visibility) and personnel managements functions.

Background/Gap. Currently, unit sustainment staff sections conduct many of their staff tasks manually or with basic office applications that require time-intensive preparation and data entry, frequently having to re-input of data collected from one method, format, or tool into one or more others that may be required to generate and communicate logistical information of value. The expected growth in the scale and complexity of the technology footprint in all warfighting functional domains will only serve to increase

the difficulty of information management tasks without automation. This increased administrative burden requires increased personnel in a staff section and additional time to perform tasks. It also limits the quality of staff analysis by preventing the S4 to do even more detailed analysis that would produce more beneficial situational understanding and insight to mission commanders and other staff that would accelerate logistical and tactical decision-making.

Unit sustainment and personnel primary staff (S4 and S1) sections at brigade and battalion echelons routinely shoulder the burden of concurrently coordinating logistics activities, conducting mission planning, and estimating current and future logistics status and readiness. As part of a continuous staff estimate process, S4s and S1s are expected to rapidly and continuously collect and evaluate sustainment and other warfighting function information to assess and report the unit's logistical situation, report the unit's combat power, predict combat power and logistical readiness for future operations, identify logistics risk to operations, and contribute logistical planning inputs and courses of action (COAs) to the unit Military Decision Making Process (MDMP).

A unit S4 section must take into consideration the availability of supplies, transportation, and logistics personnel, maintenance status, as well as the need and prioritization of units requiring sustainment support. Unit sustainment staff must maintain timely awareness of higher, adjacent, lower, and supporting unit supply chains and an understanding of how the mission, enemy, terrain, resources, and time available may impact logistical activity and overall unit readiness. A unit S4 section relies on information gathered or shared from a variety of sources that includes the unit's other staff section personnel and C2 systems, tactical unit logistical status reporting, enterprise logistical information systems, organizational reference data, logistical assets available across the theater of operations, In-Transit visibility of supplies moving to the theater of operations, and collaboration tools. A unit S4 must be able to quickly digest and synthesize collected data into information and analysis that must be communicated in a meaningful way to inform commanders, other staff sections, higher headquarters, and subordinate units.

Technical Description of the Problem:
Unit sustainment personnel at Battalion through Army Service Component Command (ASCC), in all formation types, require tools that can quickly provide current and predicted logistical status, combat power and running estimates that enable Commanders to rapidly decide throughout the Operations Process. These tools would consider both deterministic data such as supply and maintenance status, priorities and location, transportation options, and competing needs, as well as probabilistic models based on historical data about usage rates and transportation times.

Required Capabilities:
Sustainment staff sections requires software application tools that automate staff tasks and perform the following:

- Use data from a variety of sources that include tactical mission command information systems, enterprise logistical information systems, combat ground and air vehicular systems, dismounted soldier systems, tactical logistical platform sensors, accessible data repositories, and geospatial information systems.

- Access and extract relevant data and information from unit and higher headquarters mission orders, plans, control measures, courses of action, logistics and maintenance status reports, organization reference datasets, position location information, and unit collaboration. Specific areas of focus include:

- o (Asset visibility data) Data on the quantity, type, and organizational holding of supplies accessible from Army enterprise logistical information systems and tactical logistical information systems.

- o (In-transit visibility data) Visibility of supplies in transit throughout the Army supply chain enterprise where relevant to maneuver, support, or functional brigade force types. This includes supply movements between CONUS supply points, ports of embarkation, operational theater ports of debarkation, and distribution throughout operational and tactical supply chains.

- o (Organizational and Logistical reference data) Data from authoritative enterprise and expeditionary data sources that provide an understanding of organic and mission-specific support relationships, priorities, and logistical consumption factors.

- o (Operational mission and mission environment data) Data from mission command and enterprise information systems that maintain an authoritative source of mission, personnel, equipment, supplies, terrain, and status.

- o (Operational mission planning data) Data from mission command information systems that maintain staff planning course of action data such as areas of responsibility, task organization, mission tasks, force allocations/arrays, scheme of maneuver, scheme of fires, scheme of support, mission timelines, execution phases, decision points, and desired endstate.

- o PPMx: Army's Prognostic and Predicative Maintenance; will provide advanced situational awareness to reduce downtime and help the Army identify trends, such as a piece of equipment failing in certain regions or climatic conditions, thus improving fleet management and tactical planning.

- Where applicable, apply artificial intelligence / machine learning technology to automate and assist logistical users to perform the following tasks:
  - o Evaluate logistical feasibility and risk of mission planning courses of action using available information on mission, enemy, terrain, troops, and time.
  - o Recommend appropriate logistical resource allocation to support planning courses of action, while providing appropriate supporting information on the level of confidence or certainty of recommendations. These recommendations should incorporate the following considerations:
    - Timeliness of supply / resupply
    - Economy of support / supplies
    - Location/placement of supply assets
    - Prioritization of support
    - Re-allocation of distribution resources
    - Risk of supply shortfall
  - o Manage and visualize relevant logistical staff planning estimate information, analysis, and recommendations.
  - o Share relevant logistical staff estimate and COA analysis with mission command information system users for incorporation into mission plans, mission orders, mission execution matrices, and decision support tools.

Desired Capabilities (Listed in order of priority): N/A

Technical Constraints/Dependencies: These current and predictive logistical status and combat power tools will be initially designed to execute within the Army Common Operating Environment fielded as part of Capability Set 25, utilizing both tactical and enterprise data, available computing resources, technologies, data fabrics and/or networks. These tools will be scalable in design to support task organizations from Battalion to ASCC echelons and extensible to potential future additional data sources and computing resources.

These tools will consider available data sources and transport (i.e., data fabric), availability of compute resources to build the data model (assuming constrained network bandwidth), data classifications, and work with the government sponsor to extend existing ontologies to provide the data reasoning required.

Enclosures (References):N/A

** If applicable, the vendor shall identify any current ongoing same/similar efforts associated with the proposed white paper solution/technology area. The vendor shall provide the contract/agreement number and a brief description of the effort.

WP QUESTIONS/ANSWERS: Government will publish WP Q&As in the JCM TEM Industry Community applicable Topic Collaboration Group area. Instructions for the Q&A session shall be posted to the JCM TEM Industry Community (https://jtnc.experience.crmforce.mil/TEMIndustry/s/) when the call is issued.

WP PREPARATION, SUBMISSION, AND REVIEW PROCESS: Instructions for submissions of WPs, including response content and format, are covered in Section B of the baseline BAA, BAA-21-R-NCFT. The submitted white paper should not exceed eight (8) pages.

TECHNOLOGY READINESS LEVEL (TRL): For all the subtopic areas listed above, the maturity of the proposed technology should be at a TRL 6 or higher (please see enclosed TRL definitions). The end state of the effort should be a set of demonstration/proof-of-concept systems that can be tested in a field environment.

WP EVALUATION CRITERIA:
The Government will evaluate WPs to determine which have the potential to best meet the Network-CFT's needs utilizing a two-part evaluation criteria as follows:

- **Part One (1)**: **WPs will be evaluated using "Go" or "No-Go" gate criteria listed below.** The "Go" or "No-Go" requirements are listed below which will determine if the WP will receive further consideration. If during the evaluation one of the "Go" or "No-Go" requirements is not met, that evaluation will automatically receive a "No-Go" determination and will not receive further consideration.

    - **Affordability.** The Government will review the Offeror's Rough Order of Magnitude (ROM) cost estimate for affordability. Affordability targets for any single award will be capped at **$2M**, however the Government will review the ROM's to determine the best value based on the proposed approach. . *(Need Senior leadership's inputs)*
    - **TRL.** The Government will review the Offeror's TRL to ensure it meets requirements as detailed in the Call for WP. Offeror must meet at a minimum TRL 6

at delivery.

- o **Schedule.** The Government will review the Offeror's proposed schedule to ensure the Offeror meets the period of performance, when the Government specifies a Not-to-Exceed schedule. The *Not-to-Exceed* schedule for this effort is 24 Months (one 12 month base period and one 12 month option period). If either the base or option period proposed exceeds 12 months, the white paper will be considered "No-Go" and not receive further consideration.
- o **Compliance with all white paper submission requirements outlined in BAA-21-R-NCFT.**

- **Part Two (2): WP will be evaluated using the following factors, which are listed in descending order of importance:**

  - o **Importance to Agency Programs (Relevance/Potential for Impact).** The Government will review the Offeror's description of the technology proposed on how it solves the capability/gap/problem presented, the relevance to the Highly Desired/Desired Capabilities, scalability of the solution, and assess its worth in relation to the stated "Technology Areas of Interest." WPs will be scored as highly likely, likely, or marginally likely to address the stated operational and technical descriptions of the problem.
  - o **Technical Merit/Challenge (Innovative or Revolutionary Technology (Scientific & Engineering Viability)).** The Government will review the Offeror's technology proposed to satisfy the technical challenges and design objectives by reviewing the Offeror's enabling technology (innovative or revolutionary approach); feasibility; technical risk and mitigation plan; alternatives (other technical data/information conveyed); technology maturation (the ability to achieve technology maturity); and time to field solution. WPs will be scored as fully or partially meeting or exceeding the stated Highly Desired and Desired capabilities.
  - o **Schedule.** The Offeror's schedule will be evaluated based on the reasonableness of the allocation of time to meet major activities/milestones, deliverable, metrics measures of success, potential risks, and mitigation plans. WPs will be scored as having a preferable, acceptable, or questionable schedule for delivery.

TECHNOLOGICAL DEMONSTRATION EVALUATION CRITERIA:

Note: The process outlined below is subject to change.
"Technology demonstration" entails a prototype sample presented by an offeror to showcase the proposed characteristics of the offered product described in the whitepaper as well as expand on aspects of the product that cannot be adequately be described by specifications, purchase descriptions, or white paper (e.g. ease of use, quality of user experience, etc.). Demonstrations of capabilities not yet ready for a practical demonstration may be provided by an in-person paper or slide show presentation. This demonstration is also an opportunity to clarify and expand upon concepts not fully explored in the white paper and to field Government questions about the proposed prototype solution.

The Contractor must present the technology demonstration during the time specified in the Invitation to Demo. Individual time slots will be allotted to the Contractors selected to attend. If the Contractor fails to present the technology demonstration on time the Government will reject the invitation to continue through the selection process

1. Unless otherwise specified in the solicitation, technology demonstration shall be:
   (1) Presented at no expense to the Government.
   (2) Operated and maintained by the Contractor during technology demonstration evaluation.

2. The Government will not be liable for any damages to technology demonstration during evaluation or shipping.

Rules & Expectations

The Contractor's technology demonstration will be observed during a 45 minute session. Time slots will be provided to afford Contractors time to prepare for the demonstration at the venue.
The technology demonstration evaluation will consist of the following:

Activity	Time Allotted
Setup/Tear Down:	Up to 5 min
Technology demonstration Fixes:	10 min if needed
Presentation:	45 minutes
Total Technology demonstration Time:	**45-60 Minutes**

The Government will allow the Contractor to prepare their equipment in a classroom prior to beginning of the event. It is recommended not to show up more than 60 minutes prior to demonstration time to prevent crowding of the classroom.

The Government will allow each Contractor up to 5 minutes to move their equipment from the classroom to the demonstration area which is approximately 30 feet from the classroom door.

The Government will allow each Contractor up to 10 minutes to fix any problems encountered between the classroom and demonstration area. After 10 minutes has elapsed, the timer will start for the 45 minute formal evaluation.

The Government will provide the Contractors a space to deliver their technology demonstration. This area will consist of a table, podium, and a projector with screen. The Contractors should expect 3-4 Government leaders presiding over the demonstration event with supporting technical evaluators seated behind. Contractors invited to attend the event will only be allowed in the demonstration area during their allocated time until the day has concluded.

Please note, that due to the ongoing COVID-19 Pandemic, the Government reserves the right to eliminate the technical demonstration and go directly to a Request for Proposal, OR hold the technical demonstration virtually.

EXPECTED NUMBER OF AWARDS: The Government reserves the right to award as many (or as few) contracts as it deems appropriate. There are no set percentages of funding allocated to each investment category.

AWARD INFORMATION: The Army may elect to award a base period with an option period as follows:

- **Base Period: Design and Build a Prototype (Up to 12 Months)**

    (a) The Offeror shall deliver the prototype(s) necessary to prove their technology proposed.
- A Safety Assessment Report (SAR) shall be delivered with the prototype.

    (b) The Offeror shall provide training after prototype delivery that will allow the Government to conduct an operational assessment of the technology proposed.
- In support of the training/operational assessment, the Offeror shall conduct a training for Government personnel (i.e., N-CFT, PEO C3T, and other C5ISR representatives) onsite at Aberdeen Proving Ground (APG) and provide draft training materials.
Note: Training during Phase 1 is for the program office and support organizations only. Soldier touch-point training will occur during Phase 2 as delineated below.
- Contractor shall specify exact prototypes.

Before the completion of the base period, the Government will conduct an assessment of the technology proposed, looking at the broad areas of technical performance and suitability for experimentation with Army units. Based on this assessment, the Government may decide to exercise the option period.

- **Option Period: Follow-On Training and Experimentation (12 Months)**

    (a) The Contractor shall provide follow-on training and experimentation for the prototype solution at a location in the Continuous United States (CONUS) with an equipped Army unit. Contractors shall provide:
- A training and experimentation session at a U.S. military installation and/or facility. Contractor shall propose the number of days required to train an Army unit on their proposed solution(s).
- User and training manuals.
- Technical support necessary to make repairs and replace parts as required to keep the proposed technology operational throughout this phase.

The Rough-Order-of-Magnitude (ROM) shall be broken out by base and option period, as the Government may only fund the base period and not the option period.

ANTICIPATED FUNDING: Base period awards under this call are expected to range from **$0 to $2M**; however, the Government reserves the right to award smaller or larger contracts or assistance instruments. The Government reserves the right to select all, part, or none of the WPs received, subject to the availability of funds.

NOTE: The funding profile is an estimate only and not a contractual obligation for funding. All funding is subject to change due to Government discretion and availability. Potential offerors should be aware that due to unanticipated budget fluctuations funding in any or all areas may change with little or no notice.

ANTICIPATED TYPE OF CONTRACTS/INSTRUMENTS: The Government reserves the right to award the instrument best suited to the nature of research proposed.

PERIOD OF PERFORMANCE: The contract(s) will have one (1) 12 month base period and one 12 month option period. The option period is not guaranteed and is subject to funding availability.

CALL AMENDMENTS: Offerors should monitor the beta SAM site, via https://beta.sam.gov/, and Joint Tactical Networking Center (JTNC) Joint Communications Marketplace (JCM) Technical Exchange Meeting (TEM) Industry Community, via https://jtnc.experience.crmforce.mil/TEMIndustry/s/, for additional notices to this Call that may permit extensions of the WP submission date or otherwise modify this announcement.

APPLICABILITY OF BASELINE BAA: All requirements of BAA-21-R-NCFT apply. For complete information regarding BAA-21-R-NCFT, refer to the BAA announcement as posted on beta SAM. It contains information applicable to all calls issued under the BAA and provide information on the overall program, proposal preparation and submission requirements, proposal review and evaluation criteria, award administration, agency contacts, etc. If there is conflicting information, this call for white paper and instructions contained herein takes precedent over the BAA.