W911NF-23-S-0010

SOURCES SOUGHT NOTICE

REQUEST FOR WHITE PAPERS

BAA TOPIC II A.2.d: ASSESSING AND DEVELOPING TECHNOLOGICAL FLUENCY FOR THE FUTURE FORCE

"Impacts of Organizational and Contextual Factors on Technological Fluency: Model Expansion"

INTRODUCTION

Broad Agency Announcement (BAA) W911NF-23-S-0010 was publicized on SAM.gov and Grants.gov on 01 May 2023. This Sources Sought Notice calls for White Paper submissions in reference to the BAA Topic II A.2.d: ASSESSING AND DEVELOPING TECHNOLOGICAL FLUENCY FOR THE FUTURE FORCE. The United States Army Research Institute for the Behavioral and Social Sciences (ARI) Broad Agency announcement W911NF-23-S-0010, issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation, provides for the competitive selection of basic and applied research and that part of development not related to the development of a specific system or hardware procurement. A Proposal submitted in response to this BAA and selected for award is considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369, "The Competition in Contracting Act of 1984," and subsequent amendments. Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. Any award related to the submission of a White Paper and subsequent Proposal requested by this Notice is subject to funds availability and priorities. ARI may choose not to select any new award due to unavailability of funds or other factors.

The sequence of steps leading to an award is:

1) Request for White Paper initiated by ARI through this Sources Sought Notice.

2) Submission of a timely White Paper **no more than six pages in length (one page is the cover page)** to the POC for the U.S. Army Contracting Command, megan.a.deluca.civ@army.mil, and copy furnish (CC) the ARI Technical Point of Contact (TPOC), Dr. David Martinez, david.martinez689.civ@army.mil.

3) The ARI will provide written or telephonic feedback for whitepapers submitted and will provide a response with either "encouraged to submit a proposal" or "not encouraged to submit a proposal." as per established criteria presented in Part III.

4) If the White Paper merits it, a request of a formal proposal initiated by ARI.

5) Submission of a timely, formal proposal.

6) Evaluation of the formal proposal as per established criteria presented in Part III.

7) Award for selected proposal based on availability of funds or other factors.

This sequence allows earliest determination of the potential for funding and minimizes the labor and cost associated with submission of a full proposal that has minimal probability of being selected for funding.

Note that an interested Applicant **must** submit a White Paper electronically to be eligible to submit a formal proposal under this Notice. This Notice requires that a White Paper be submitted electronically no later than **3 July 2025, 5:00 PM Eastern Daylight Time**. See Part V, Deadlines, for additional details. BAA W911NF-23-S-0010 allows several potential instrument types (e.g., contract, grant, cooperative agreement) to result from a successful proposal. For this Notice, the intention of the Government is to award a contract.

THOSE SUBMITTING A WHITE PAPER/PROPOSAL ARE CAUTIONED THAT ONLY A GOVERNMENT CONTRACTING OR GRANTS OFFICER CAN OBLIGATE THE GOVERNMENT THROUGH AWARD OF A LEGAL INSTRUMENT INVOLVING EXPENDITURE OF GOVERNMENT FUNDS.

This Sources Sought Notice for a Requested White Paper consists of eight parts as follows:

- Part I: Research and Development Interests of the Requested White Paper
- Part II: Preparation and Submission
- Part III: Evaluation Criteria
- Part IV: Feedback
- Part V: Deadlines
- Part VI: Inquiries
- Part VII: References
- Part VIII: Appendix

ACC (APG) RTP Agency Point of Contact:

The POC for the US Army Contracting Command (Aberdeen Proving Ground) Research Triangle Park Division is: Ms. Megan Deluca, (919) 541-4682, megan.a.deluca.civ@army.mil.

ARI Agency Point of Contact:

The ARI POC for technical matters for this White Paper topic is: Dr. David Martinez, (571) 373-0076, david.martinez689.civ@army.mil.

I. RESEARCH AND DEVELOPMENT INTERESTS OF THE REQUESTED WHITE PAPER:

The United States Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. ARI contracts with educational institutions, non-profit organizations, and private industry for research and development (R&D) in different areas, including the areas specifically identified in Section II - A W911NF-23-S-0010. Efforts funded under this White Paper request will only include Applied Research and/or Advanced Technology Development.

Applied Research provides a systematic expansion and application of knowledge to design and develop useful strategies, techniques, methods, tests, or measures that provide the means to meet a recognized and specific Army need. Applied Research precedes system specific technology investigations or development, but it should have a high potential to transition into the Advanced Technology Development (ATD) Program.

The ARI ATD Program includes the development of technologies, components, or prototypes that can be tested in field experiments and/or simulated environments. Projects in this category have a direct relevance to identified military needs. These projects should demonstrate the general military utility or cost reduction potential of technology in the areas of personnel selection, assignment, and retention; training strategies and techniques; leader education and development; performance measurement; and team and inter-organizational mission effectiveness. These projects should be focused on a more direct operational benefit and if successful, the technology should be available for transition.

WHITE PAPER TOPIC: Impacts of Organizational and Contextual Factors on Technological Fluency: Model Expansion

To maintain dominance in the Future Operational Environment, the Army needs to rapidly field emerging technologies and ensure its people can adopt and adapt these technologies faster than its adversaries (Department of the Army, 2019; Driscoll & George, 2025). Ongoing work at the U.S. Army Research Institute (ARI) is identifying the competencies and knowledge, skills, and abilities (KSAs) Soldiers need to be *technologically fluent* (TF), or able to quickly and creatively use, synthesize, and adapt emerging technologies. However, individuals are situated within organizations, departments, units, and teams. The Army needs to understand the meso and macro organizational and contextual factors that affect TF. To that end, ARI wishes to expand the current TF model (see the Appendix) by incorporating meso and macro organizational and contextual factors that interact with TF attributes to produce TF behaviors. The expanded model will be used to guide future research on TF assessment and training.

A variety of organizational and contextual factors can inhibit or promote behaviors and performance in organizations generally and through interactions with individual factors. Examples of organizational factors that can affect performance include the communication values; offering of training, incentives, and resources; and recruitment of individuals who display valued behaviors (de Jong & Hartog, 2007; Kristof-Brown et al., 2022; Laufer et al., 2024; Meredith et al., 2017; Oh et al., 2018). Contextual factors, such as job complexity and supervisory style, can also impact behaviors (Oldham & Cummings, 1996). Importantly, organizational and contextual factors can interact with individual characteristics, such that one individual might be motivated by or resilient to an external factor, while another individual is not (Tett et al., 2021).

Within the Army, the interplay of organizational, contextual, and individual factors likely influence technological fluency. For instance, Army leadership is currently encouraging creativity (Beagle, 2023), providing training to develop creative thinking and problem solving (Upton et al., 2024), and supplying the means to pursue innovative solutions (e.g., Hirschi, et al., 2020; South, 2024). Whether or not individuals are able to avail themselves of these opportunities will depend on whether they are made aware of available resources, motivated, capable, and supported by their immediate supervisors.

Many other individual, overlapping, or interacting organizational and contextual factors may impact TF or specific KSAs. By identifying and modeling the organizational and contextual factors that impact TF KSAs, this effort will inform what and how a variety of factors influence TF predictors and outcomes in the Army and inform future research, training, and policy recommendations.

Objectives

The overarching objective of this effort is to expand the current TF model by incorporating meso and macro organizational and contextual factors that interact with KSAs and affect the expression of TF. The expanded model will be used to guide future research on TF assessment and training.

In order to accomplish this objective, the offeror shall:

1) Complete a literature review to identify macro and meso organizational and contextual factors that are likely to impact technological fluency performance and behaviors in U.S. Army Soldiers.

2) Collect data from Soldiers to inform this expansion of the current technological fluency model.

3) Synthesize results.

4) Present findings and, based on the model, recommendations to support technological fluency assessment and training in the Army.

In addition to adhering to the instructions provided in Part II (below), a successful white paper will:

1) Include a budget for travel.

2) Consider the existing ARI technological fluency competency model.

3) Consider garrison, training, and combat organizational and contextual factors.

4) Consider the impact this work will have on assessment and training of TF KSAs.

The award will be a 12-month period of performance with a budget not to exceed $350,000.

The Army Contracting Command- Aberdeen Proving Ground, RTP Division has the authority to award a variety of instruments, to include contracts, grants, and cooperative agreements. The ACC (APG) RTP Division reserves the right to use the type of instrument most appropriate for the effort proposed (contract, cooperative, or grant).

II. PREPARATION AND SUBMISSION OF A WHITE PAPER:

Preparation of White Paper

A White Paper should focus on describing details of the proposed research for both the base and if applicable, option (s) approach, including how it is innovative and how it could substantially advance the state of the science. Army relevance and potential impact should also be described, as well as an estimate of total cost for both the base and option approach. White Papers should present the effort in sufficient detail to allow evaluation of the concept's technical merit and its potential contributions to the Army mission.

A White Paper must be limited to six (6) pages (page one is the cover page) and an addendum in which the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience as discussed below. All files and forms

must be compiled into a single PDF file or MS Word document before submitting. Reviewers will be advised that they are only to review the cover page and up to five pages plus the addendum. Any pages submitted in excess of the six (6) page limit will not be reviewed or evaluated.

TECHNICAL INFORMATION FOR A WHITE PAPER:

1. Technical Approach: A detailed discussion of the effort's scientific research objectives, approach, relationship to similar research, level of effort, and estimated total cost; include the nature and extent of the anticipated results, and if known, the manner in which the work will contribute to the accomplishment of the Army's mission related to this request and how this would be demonstrated.

2. Requests for Government Support: The type of support, if any that the Applicant requests of the Government (such as facilities, equipment, demonstration sites, test ranges, software, personnel or materials) shall be identified as Government Furnished Equipment (GFE), Government Furnished Information (GFI), Government Furnished Property (GFP), or Government Furnished Data (GFD). The Applicant shall indicate any Government coordination that may be required for obtaining equipment or facilities necessary to perform any simulations or exercises that would demonstrate the proposed capability.

3. The cost portion of the whitepaper shall contain a brief cost estimate including research hours, burden, material costs, travel, etc.

4. Key Personnel Biographical Information: As an addendum to the White Paper, the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience.

RESTRICTIVE MARKINGS ON WHITE PAPERS:

1. The Applicant must identify any proprietary data the Applicant intends to be used only by the Government. The Applicant must also identify any technical data or computer software contained in the White Paper that is to be treated by the Government as limited rights or restricted rights respectively. In the absence of such identification, the Government will assume to have unlimited rights to all technical data or computer software presented in the White Paper. Records or data bearing a restrictive legend may be included in the White Paper but must be clearly marked. It is the intent of the Army to treat all White Papers as procurement sensitive information before the award and to disclose their contents only to Government employees or designated support contractors for the purpose of procurement related activities only. Classified, sensitive, or critical information on technologies should not be included in a White Paper.

2. An Applicant is cautioned that portions of White Papers may be subject to release under terms of the Freedom of Information Act, 5 U.S.C. 552, as amended.

Submission of White Paper

White Papers must be submitted by e-mail to the POC for the U.S. Army Contracting Command, megan.a.deluca.civ@army.mil**,** and cc'd to the ARI Point of Contact (POC), Dr. David Martinez, david.martinez689.civ@army.mil**,** in electronic MS Word document format or PDF file format. **Cite "ARI BAA W911NF-23-S-0010, Impacts of Organizational and Contextual Factors on Technological Fluency: Model Expansion" in the e-mail subject line.**

III. EVALUATION CRITERIA:

White Papers and full Proposals received in response to this request will be evaluated by the ARI designated point of contact identified in this request using the following factors/criteria:

1. Scientific and Technical Merit- The overall scientific and/or technical merits of the proposed research.

2. Potential Contribution- The potential contributions to ARI's mission.

3. Qualifications/Capabilities- Proposed principal investigator and key personnel qualifications, capabilities, related experience, and techniques and institutional resources and facilities.

4. Cost- Addresses the level of support requested. Will be considered for realism, affordability, and appropriateness, and may be grounds for rejection independent of evaluation on other factors.

The request for a proposal will be made based on the overall evaluation of a White Paper using the four criteria listed above. The overall scientific and/or technical merit of the proposed approach will be weighted more strongly than all of the other non-cost factors combined. All evaluation factors/criteria other than cost, when combined, are significantly more important than cost or price. A request for proposal may not necessarily be made to the lowest proposed price. During the evaluation of White Papers, ARI's POC for technical matters may request a telecon with an Applicant, but telecons are not guaranteed nor required for competition and award purposes. ARI's POC for technical matters reserves the right to evaluate a White Paper and request a proposal without discussions. The Applicant's initial submission should contain the Applicant's best terms from a technical and price standpoint. Once a full proposal has been requested, all communications must go through the POC for the U.S. Army Contracting Command.

If the White Paper evaluation results in the request and submission of a full proposal, the proposal will be evaluated by a panel of scientific peers using the same factors/criteria as those listed above under Evaluation Criteria. A request for a full proposal does not guarantee an award. The decision to award will be based on feedback from the panel, considerations presented by ARI's POC for technical matters identified in this document, and other factors like budgetary constraints. ARI may choose not to select any award due to unavailability of funds or other factors.

IV. FEEDBACK:

Written or telephonic feedback will be provided to the Applicant regarding the White Paper's scientific merit and potential contributions to the ARI's mission. If the Government decides to request a full proposal, a written request will be sent to the Applicant. The Written Request will, at a minimum, invite a full proposal. The request may also include feedback intended to improve the proposal's potential for award.

V. DEADLINES:

Electronic versions of the White Paper must be received by the POC for the U.S. Army Contracting Command and the ARI POC, with e-mail subject line **"ARI BAA W911NF-23-S-0010, Impacts of Organizational and Contextual Factors on Technological Fluency: Model Expansion"** by e-mail no later than **5:00 PM Eastern Daylight Time on 3 July 2025.** Any extension to the White Paper submission deadline will be posted to SAM.gov and Grants.gov as an amendment to this Notice. Note

that a White Paper received within the deadline will be evaluated to be determined if a proposal request will be issued.

Please refer to the BAA, W911NF-23-S-0010 for instructions for the submission of a full Proposal.

An Applicant is responsible for submitting an electronic White Paper or full proposal so as to be received and accepted at the Government site indicated in this Notice no later than the date and time specified above. When sending electronic files, an Applicant shall account for potential delays in file transfer from the originator's computer to the Government website/computer server. An Applicant is encouraged to submit their response early (48 hours if possible) to avoid potential file transfer delays due to high demand or problems encountered during submission.

An Applicant should receive confirmation of delivery at the Government site, not just successful relay from the Applicant's system. Acceptable evidence to establish the time of receipt at the Government site includes documentary and electronic evidence of receipt maintained by the Government site. All submissions shall be submitted before the deadline identified above in order to be considered – no exceptions.

If an emergency or unanticipated event interrupts normal Government processes so that a White Paper or full proposal cannot be received at the site designated for receipt by the date and time specified above, then the date and time specified for receipt will be deemed to be extended to the same day and time specified in this Notice on the first workday on which normal Government processes resume.

An Applicant agrees to hold the terms of their White Paper and any subsequent proposal valid for 180 calendar days from the date of submission.

VI. INQUIRIES:

ACC (APG) RTP Agency Point of Contact (Contractual Questions)

The POC for the US Army Contracting Command (Aberdeen Proving Ground) Research Triangle Park Division is: Ms. Megan Deluca, (919) 541-4682, megan.a.deluca.civ@army.mil**.**

ARI Agency Point of Contact (Technical Questions)

The ARI POC for technical matters for this White Paper topic is: Dr. David Martinez, (571) 373-0076, david.martinez689.civ@army.mil.

VII. REFERENCES:

Beagle, M. H. Jr., & Gaines, T. (2024). Creating Strategic Problem Solvers. *Military Review.* https://www.armyupress.army.mil/journals/military-review/online-exclusive/2024-ole/creating-strategic-problem-solvers/

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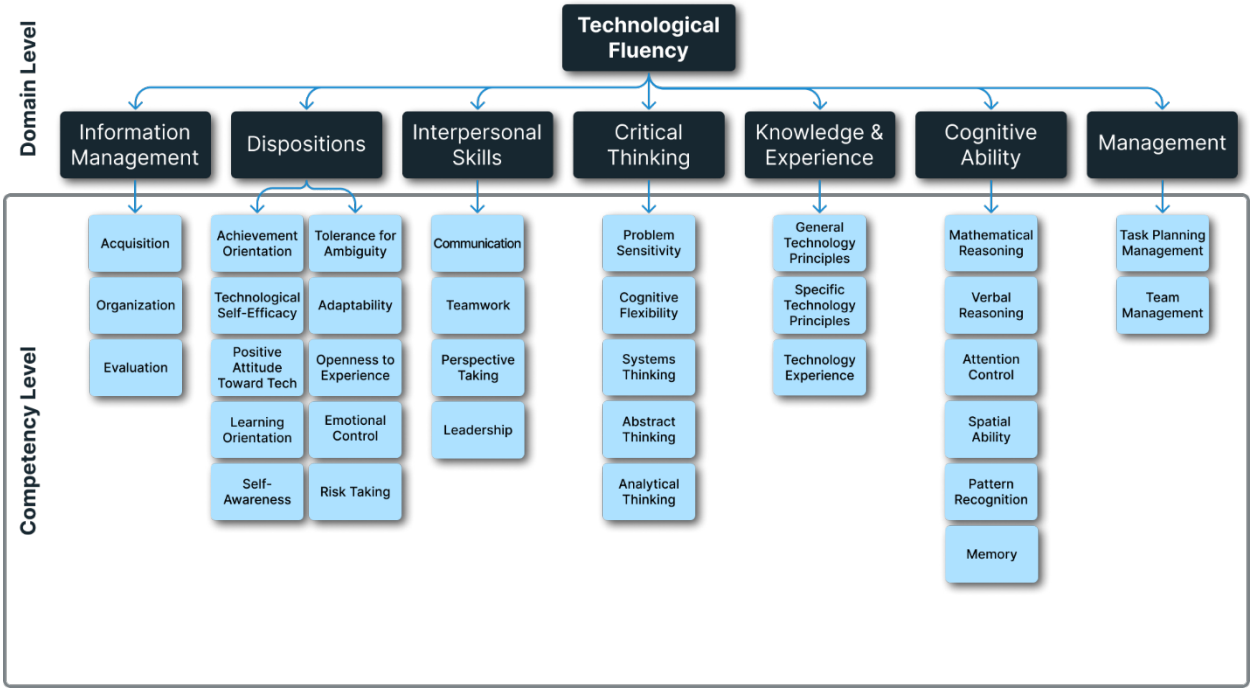
APPENDIX

TF Model Figure



TF Competency Definitions

Information Management

Information Acquisition: *Gathers information from various sources; identifies information that is useful and pertinent to fill knowledge gaps.*

Information Organization: *Is familiar with information management systems and how to use these systems to organize and maintain information, data, and/or files.*

Information Evaluation: *Evaluates the reliability of information as well as sources of information; uses information to conduct analyses, identify patterns, and draw inferences.*

Dispositions

Achievement Orientation: *Sets challenging goals and standards, is willing to give one's best effort, works hard to achieve difficult objectives, and is confident and resourceful in striving for accomplishment.*

Technological Self-Efficacy: *Is confident in one's ability to succeed, effectively meet challenges, and overcome obstacles when using technology.*

Positive Attitudes Toward Technology: *Trusts and enjoys engaging with technology and fixing technology-related issues; finds value in using technology for various purposes.*

Learning Orientation: *Seeks out learning opportunities, enjoys acquiring new knowledge and skills, and is comfortable applying new knowledge and skills to different contexts.*

Self-Awareness: *Recognizes and monitors one's thoughts, feelings, and behavior.*

Tolerance for Ambiguity: *Tolerates situations where the right goal or correct path to the goal is unclear, vague, or ill-defined.*

Adaptability: *Modifies behavior or plans as necessary to reach goals. Is able to maintain effectiveness in varying environments with various tasks, responsibilities, or people.*

Openness to Experience: *Tendency towards intellectual curiosity and willingness to try new things.*

Emotional Control: *Acts rationally, displays a generally calm and even mood, maintains composure, and is not overly distraught by stressful situations.*

Risk Taking: *Inclined to consider risky ideas; willing to cautiously engage in high-risk endeavors.*

Interpersonal Skills

Communication: *Effectively communicates through written and spoken word.*

Teamwork: *Works with others to achieve a goal or complete a task effectively and efficiently.*

Perspective Taking: *Understands how people interpret events and interpersonal interactions.*

Leadership: *Influences people, either formally or informally, by providing purpose, direction, and motivation to meet goals or complete tasks.*

Critical Thinking

Problem Sensitivity: *Identifies when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.*

Cognitive Flexibility: *Considers new approaches to solving problems, creates new plans and ideas, and initiates and accepts change and innovation.*

Systems Thinking: *Considers the factors of a situation or a solution as a system of interrelated parts with inputs, processes, outputs and feedback.*

Abstract Thinking: *Comprehends ideas that aren't tangible or concrete.*

Analytical Thinking: *Analyzes information and applies general rules and logic to address work-related issues and problems.*

(continued on next page)

Knowledge and Experience

General Technology Principles: *Knows and is able to apply general information regarding technological principles, systems, equipment, operation, and repair.*

Specific Technology Principles: *Possesses deep expertise in how specific types of technology works. Uses specialized technology effectively and/or is able to diagnose and correct problems with technology or machines.*

Technology Experience: *Demonstrates a history of engagement with and/or regular use of technology (e.g., in childhood, grade school).*

Cognitive Ability

Mathematical Reasoning: *Uses the right mathematical methods or formulas to solve a problem.*

Verbal Reasoning: *Reasons and draws conclusions based on verbal or written materials.*

Attention Control: *Focuses and controls one's attention, processes multiple sources of sensory information while avoiding distractions, and identifies what information or sources require attention.*

Spatial Ability: *Is aware of one's physical location in relation to the environment or where other objects are in relation to oneself. Identifies and mentally manipulates the position or direction of objects or points in space.*

Pattern Recognition: *Detects similarities or differences in objects, words, or numbers.*

Memory: *Retains and recalls information without using external tools or aids.*

Management

Task Planning and Management: *Manages time, budget, equipment, and resources for appropriate task completion.*

Team Management: *Oversees people, either formally or informally, to accomplish a mission. Delegates tasks and provides guidance as needed.*