The JAIC is seeking solutions, technologies, and/or capabilities (collectively referred to as "solutions" throughout) under the identified problem sets. The Government reserves the right to add, change, and/or remove problem sets at any time. Interested solution providers are encouraged to frequently check https://tradewindai.com for any updates to the problem sets under the Call.

AI ACCELERATOR (Opportunity ID: TW-22-0001)

Vulcan Scout Card Deadline: October 15, 2021 at 9am

Vulcan Link *(https://vulcan-sof.com/login/ng2/submission?collectionUuid=fcdf32c8-112b-4be3-910c-f605ab4c8ab4)*

***Vulcan Scout Card Guidance*:** Solution providers should fill in as much information as possible for the information fields requested when creating a new Scout Card or reviewing an existing Scout Card for submission. Having adequate information helps Government reviewers make a quick determination on which solution providers will be invited to subsequent Phases of competition. Please also pay particular attention to address the following:

- ***Description Field:*** provide an overview of your solution *and how the solution addresses the problem/operational gap*.
- ***Differentiators Field:*** What sets your product apart from other similar solutions?
- ***Other:*** It is encouraged to not leave any fields blank, but leaving the following fields blank may put a solution provider at risk of not being selected for subsequent Phases: TRL, Product Rights, and Points of Contacts.

Questions: Please submit any administrative or procedural questions regarding this opportunity to submissions@tradewindai.com. You must include the Opportunity ID (TW-22-0001 and preformatted here for your convenience) in the subject line, otherwise your inquiry may not be immediately addressed.

Problem Statement:

BACKGROUND. Achieving decision advantage is a strategic priority for the Department of Defense as it accelerates progress towards Joint All-Domain Command and Control (JADC2). As part of that effort, Joint Force Commanders need better technology to conduct rapid JADC2 in competition, crisis, or conflict.

OPERATIONAL GAP. Operators at Combatant Commands (CCMDs) rely on siloed, vertically integrated applications that often isolate a user's view to a small subset of sensors, effectors, and/or domains. This forces a user to "swivel-chair" between multiple systems or contend with a constrained view of their area of interest. Many of these legacy systems lack the interoperability to easily interface with downstream applications. Since the architecture does not exist to connect these disparate systems together, human operators function as the connectors, manually transmitting relevant information via email, chat, or voice communications. Ultimately, this paradigm results in Joint Force Commanders unable to make data-driven decisions, with decisions made at slower speeds, with less available information and less actionable insights.

DESIRED SOLUTION. To address this challenge, the Joint AI Center (JAIC) is seeking novel solutions to build a prototype for an open architecture platform and workflow automation applications initially focused on real-time, sensor-to-sensor use cases. The JAIC believes the envisioned solution will be an operating system (OS)-like platform that is designed with open application programming interfaces (APIs) to integrate with sensors, effectors and potentially other data sources. This platform must have easy interoperability with third party systems and

would likely have a software developer toolkit (SDK) to enable future development of third party applications.

Under this prototyping effort, the JAIC also envisions an initial set of applications built on top of the platform that focus on automating decision workflows for the CCMDs.

Example applications/workflows are:

- An AI-assisted application that fuses data from multiple sensor modalities and domains to enhance real or near real-time targeting. This application would be able to conduct machine-to-machine (or sensor-to-sensor) tasking, with humans either on or in the loop.
- An AI-assisted application that fuses Red and Blue force data to be able to rapidly generate data-informed operational-level courses of action (CoAs).

The entire solution must be designed to scale and set the foundation for an ecosystem of AI-enabled applications that support a broader set of JADC2 use cases following the completion of this prototype.

Please note any and all solutions that may or may not align with the detailed desired solution are welcome and HIGHLY encouraged for consideration. Further, solution providers do not have to solve the problem in its entirety. The JAIC recognizes that solutions may require different areas of expertise and is looking for solutions to any part of the operational gap.

CHALLENGES/CONSTRAINTS. Solutions will be operating under the following conditions and must consider the following:

1. Designed for near real-time integration with multiple sensor types (e.g. NTM, EO/IR Full Motion Video Feeds, Synthetic Aperture Radar (SAR), Multi-Spectral Imagery, Hyper-Spectral Imagery, Radar Sensors, Indication & Warning Sensors, etc.) that provide low latency ingest of raw data feeds.
2. Designed for near real-time integration with multiple assets on tactical data links or weapon systems (e.g. VMF, L-16, TTNT, NIFE, etc.).
3. Designed for near real-time integration with other data feeds (e.g. GCCS-J, GDI, mIRC, logistics, OPORDs, etc.) that provide low latency ingest of raw data feeds.
4. Designed to interface with Service-level JADC2 systems and applications (e.g. Army Project Convergence, Navy Project Overmatch, Air Force ABMS).
5. Initially deployable on-premises and/or on-cloud infrastructure operating at the SECRET level to provide access to users at CCMDs. The Government is interested in solution providers who can provide hardware or cloud infrastructure as part of the solution. Future implementations may require deployment to TS/SCI and SAP networks.
6. Enable transport and federation of data or software via bi-directional cross domain solutions between security domains.
7. Provide frequent leave-behind capability to users at CCMDs enabled by user-driven collaboration sessions with operational stakeholders at CCMDs to regularly gather feedback throughout iterative development. Embed capability demonstrations prior to delivery through experimentation (virtually constructed and live fire) events.
8. Promote scaling of JADC2 capabilities across warfighting functions through APIs, SDKs, open architectures, and appropriate data rights paradigms.
9. Designed to use open source or vendor agnostic system architecture to the maximum extent practicable.
10. Designed, developed, acquired, and used in a responsible and ethical manner in

accordance with the DoD's AI Ethic Principles, and further described in the Department's recently issued memorandum on implementing Responsible AI.