Department of the Navy SBIR/STTR Transition Program

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Topic # N193-A01

EVReadi

Knowledge Based Systems, Inc.

WHO

SYSCOM: NAVAIR

Sponsoring Program:

Transition Target:
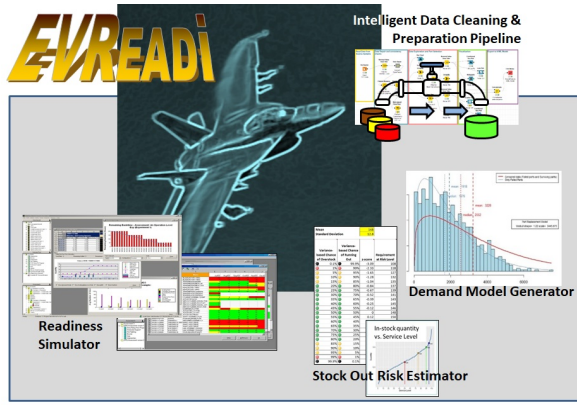
TPOC:
(407)381-8936

Other transition opportunities:
Operational commanders of embarked air assets (e.g., VMFA-112)

Weapons platforms - PMA-265 (F/A-18), PMA-299 (H-60)

Logistics organizations - NAVSUP Weapon System Support (WSS), Logistics Cell (LOGCELL)

Analytics organizations - CNAF Force Readiness Analytics Group (FRAG)

VIRIN: 201016-N-FA490-1072.JPG Photo by: Petty Officer 3rd Class Andrew Langholf

WHAT

Operational Need and Improvement: Aircraft readiness depends on an effective and efficient supply chain. It is especially important in keeping a frontline offensive supplied and ready. Doing so requires generating accurate projections of parts needs and keeping suppliers aware of current and future demands. Those forecasts are only as good as the data and models used to make those projections. Erroneous parts-related data can lead to shortages or stock outs, which decreases readiness and operational capability. The main objective of this effort is to develop innovative Artificial Intelligence (AI) and Machine Learning (ML) technologies that can predict and prescribe items for resupply.

Specifications Required: The Navy objective addressed by this topic is "Improve Readiness while reducing costs." The readiness target set by the SECDEF calls for a Mission Capability rate of 80 percent for Navy aviation. It also supports National Defense Strategy (NDS) Line of Effort, National Defense Business Operations Plan (ND BOP) Strategic Objective 1.1, and DON BOP Strategic Objective 1.1.A

Technology Developed: The EVReadi solution consists of four complementary technologies, each of which attacks a key dimension of capability involved in spare parts demand forecasting, risk-based provisioning planning, and the systematic improvement of unit readiness. They include, (i) an Intelligent Data Cleaning and Preparation Pipeline, (ii) a Machine-Learning-based Demand Model Generator, (iii) a Stock Out Risk Estimator / Visualizer, and (iv) a Readiness Simulator.

Warfighter Value: Successful development will enable the warfighter to receive the correct material at the right time and place, contributing to increased readiness and sustainment.

WHEN

Contract Number: N68335-20-F-0561 **Ending on:** June 1, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Technology Hardening	Low	Sponsor Acceptance	TRL 4	November 2021
Interim Prototype Demonstration	Low	Sponsor Acceptance	TRL 5	November 2021
Final Prototype Demonstration	Low	Sponsor Acceptance	TRL 5	March 2022
Final Report	Low	Sponsor Acceptance	N/A	April 2022

HOW

Projected Business Model: The business model options listed below were considered:
(i) Direct sales – Customization project with training
(ii) Technology provider - Partner with tool vendors to enhance their product (SABRE model)
(iii) Consulting service – Keep technology in-house, use to support contract consulting (Robbins-Gioia model)
Currently, we would lean toward a combination of options i and ii.

Company Objectives: At the FST event, our objective is two-fold: First, we will be seeking a Phase II.5 sponsor and funding to accelerate prototype development, testing, demonstration, and transition activities. Second, we will seek Phase III funding/partnerships to support spare parts demand forecasting for DoD and/or commercial fleets. These activities will support the company's objective to become a technical leader recognized for accurate spare parts demand forecasting and demand-signal-based provisioning planning.

Specific programs or primes to meet include PMA-265, NAVSUP WSS, LOGCELL, CNAF FRAG, VMFA-112, SAP, companies with large aircraft fleets (e.g., FedEX, Amazon), etc.

Potential Commercial Applications: Potential commercial applications include (i) spare parts demand forecasting for aviation fleet components (e.g., FEDEX, DHL), (ii) reliability improvement project cost tradeoff analysis, and (iii) stock out risk analysis.

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