Global Strategic Solutions LLC:
SMART AVIONICS SYSTEMS ENVIRONMENT FOR AUTOMATIC TEST SYSTEMS

NCMS Technology Showcase
FRC East

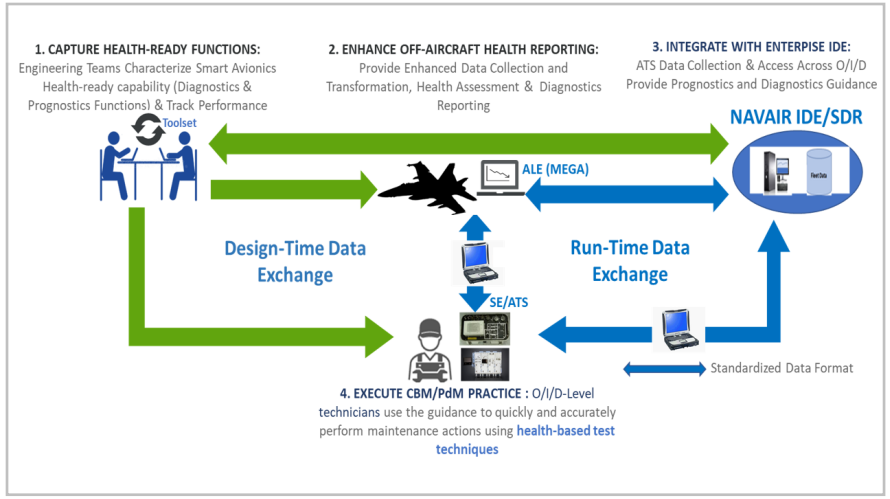
PROBLEM STATEMENT

NAVAIR is undertaking significant digital transformation initiatives to improve and sustain weapon system readiness. One of these initiatives is Condition Based Maintenance Plus (CBM+). CBM+ turns rich data into information about components, weapon systems, and fleet conditions to forecast maintenance requirements, improve readiness, and enhance cost efficiencies. The CBM+ practice involves leveraging aircraft data to perform maintenance based on evidence of need and fix components before they fail. An integral piece to operationalizing this maintenance practice requires advancing current software technologies and test techniques to integrate Automatic Test Systems (ATS) into the CBM+ process.

BENEFITS

- Data transfer and exchange using industry standards to connect BIT data, Unit Under Test (UUT) report files, and ATS results to incorporate and enhance condition-based maintenance operations
- Greater understanding and connection of data from O-Level maintenance operations to I-Level testing to isolate and identify UUT faults
- Improved Test Program Set (TPS) data and Smart TPS application within NAVAIR's IDE through ingesting and storing UUT test results in a common format
- Enhances potential utilization of machine learning applications within the sustainment process

TECHNOLOGY SOLUTION

Global Strategic Solutions' (GSS) Smart Avionics Systems Environment Application enables CBM+ practices by capturing and exchanging ATS results data, aircraft Built-In-Test (BIT) data, and maintenance action information within NAVAIR's IDE. The solution captures health-ready functions through characterizing smart avionics systems' health state data, standardizing aircraft health reporting utilizing an exchange format using industry standards, integrating ATS data through a centralized repository, and operationalizing all functions using a software application to enable and support maintenance operations. Aircraft on-board health monitoring system data is underutilized in the sustainment process and GSS' solution is another digital transformation step in the domain of ATS.

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