AFLCMC/RO

RAPID SUSTAINMENT OFFICE

Quarterly Report

July - September 2022

RAPID SUSTAINMENT OFFICE RSO

Approved for public release: AFLCMC-2022-0302

CONTENTS

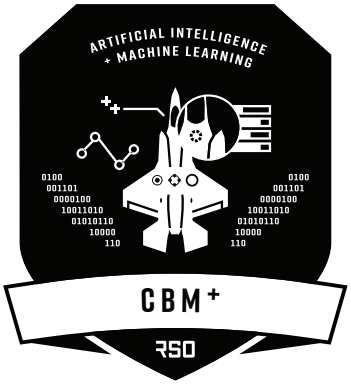
VISION

TRANSFORM THE ACQUISITION APPROACH AND SUSTAINMENT ENTERPRISE VITAL TO THE WORLD'S MOST ADVANCED AIR FORCE

OBJECTIVE

THROUGH AGILE ACQUISITION PROCESSES, INCREASE MISSION READINESS BY IDENTIFYING, APPLYING, AND SCALING TECHNOLOGY AND INNOVATIVE SOLUTIONS TO ADVANCE AND MODERNIZE SUSTAINMENT OPERATIONS OF THE UNITED STATES AIR FORCE

RSO PROGRAM OFFICES



We apply machine learning and artificial intelligence (AI) to optimize fleet maintenance, increase aircraft availability, and minimize aircraft downtime.

Our most prominent application of AI is within our **Condition Based Maintenance Plus (CBM+) Program Office**. This technology employs AI that enables us to improve maintenance data quality and evaluate large sets of aircraft sensor data and maintenance history to predict component failures. These applications empower our CBM+ program to save thousands of maintenance hours every year.

The Department of the Air Force **Advanced Manufacturing Program Office (AMPO)** scales organic capability and serves as the Air Force's focal point for the application of AM in matters related to acquisition and sustainment.

The AMPO executes four major functions:

- Technology Assessment
- Airworthiness Certification Support
- Product Support Management
- Deployment Across the Enterprise

Vision

Empowering Supply Chain Management and scaling AM across the Department of the Air Force to ensure continuous Warfighter advantage and readiness anytime, anywhere in the world.

KEY ENGAGEMENTS

10-12 AUG 2022
Air Force Life Cycle Management Center Life Cycle Industry Days (LCID)

12-15 JULY 2022
Cold Spray Summit, Ellsworth AFB SD

23-24 AUG 2022
Additive Manufacturing Technical Interchange with the Air Force Sustainment Center, Dayton, OH

13-14 SEPT 2022
Dayton-Wright AFCEA Wright Innovative Technology Summit, Dayton, OH

30 SEPT 2022
Lighthouse Maintenance Evaluation Team at Nellis AFB NV

28 SEPT 2022
Joint Defense Manufacturing Council (Virtual)

12-14 | 12-15 | 10-12 | 16-18 | 23-24 | 8 | 8-12 | 13-14 | 13-15 | 27-28 | 28 | 30

12-14 JULY 2022
KC-135 All-in Constraint Analysis, Tinker AFB OK

16-18 AUG 2022
America Makes MembersMeeting & Exchange, Youngstown, OH

IOT/AI STRIKEWERX and Air Force Global Strike Command Demo at Barksdale AFB LA

8 SEPT 2022
C3 AI Defense Forum

8-12 SEPT 2022
Parcell Smart Tool Cabinet Install at MacDill AFB FL

13-15 SEPT 2022
CBM+ Roadshows, Tinker AFB OK (B-1. B-2, B-52, and KC-135 System Program Offices)

27-28 SEPT 2022
CBM+ Roadshows, Hill AFB UT (F-16. A-10, and F-22 System Program Offices)

RSO SPOTLIGHT

INTRODUCING THE RSO AIMS TEAM

Two RSO teams formerly known as Innovation & Integration, or i2, (technology scouting) and Product Management (technology management and maturation) merged to become the Accelerating Innovation & Modernization to Scale (AIMS) Team in July 2022 to streamline the RSO's technology management pipeline to more quickly acquire sustainment technologies that keep our Air Force always at the ready.

"The two teams were joined together to shorten technology delivery timelines and to create a more responsive and agile team," states Heath Wiseman, AIMS Chief. "This new team's ultimate objective is also its name - Accelerating Innovation and Modernization to Scale."

The RSO AIMS Team is dedicated to driving and leading the rapid adoption of sustainment-centric technologies to improve readiness and positively impact costs, be that in-garrison, or in both a contested and uncontested deployed environment, while exploiting modern tools to increase expertise, eliminate waste, enhance situational awareness, and produce and restore mission-critical materiel for the Air Force.

The AIMS Team discovers, develops, and matures sustainment technologies within the following focus areas:

AUTOMATION & ROBOTICS

We apply automation and robotics to eliminate maintenance tasks that are repetitive, labor-intensive, or hazardous, making it possible to accomplish these tasks safely and efficiently with a high degree of accuracy.

DATA & DIGITAL ENVIRONMENTS

We standardize maintenance and sustainment data collection to serve as a connector of data sources across the Air Force. Our process is to collect the data, identify what's useful, turn it into a functional format, and then leverage it to inform smart and proactive decisions.

AUGMENTED & VIRTUAL REALITY

Augmented and Virtual Reality (AR/VR) technology creates an immersive environment for Airmen to train and execute more efficiently and effectively. The immersive access to digital resources allows the Air Force to predict, analyze, and solve problems faster, leading to a decrease in sustainment costs and increase in Airmen readiness. The AR/VR Product Team aims to continuously collaborate with users, characterize problems, and design and scale turn-key technological solutions that benefit the entire sustainment enterprise.

RAPID & AUSTERE MAINTENANCE ENVIRONMENTS

We provide Airmen with effective tools, leveraging modern, cross-cutting technologies to reduce the Air Force's logistical footprint and enhance mission capability. We are working toward becoming the Air Force's leading office for rapidly implementing emerging and solution-oriented technologies in austere environments.

BY THE NUMBERS

AM

Total parts delivered

4,404

Individual AM part numbers delivered

458

Total AM parts flying

308

Individual AM part numbers flying

171

Completed Technical Data Packages

319

CBM+

Aircraft platforms fielded

16

C-5, KC-135, C-130, C-17, B-1, B-2, B-52, AC/MC-130, F-15, RC-135, HH-60, F-16, A-10, EC/HC-130, CV-22, U-2

Aircraft actively monitored across the USAF

3,110

eRCM removals since implementation (April 2019)

1233

Sensor Based Algorithm maintenance alerts issued resulting in **287** scheduled maintenance actions completed since implementation (October 2018)

452

Active users registered in PANDA

684

Aircraft platforms transistioned to the Predictive Analytics and Deciion Assistant (PANDA)

16

B-1, F-15, B-2, B-52, KC-135, C-5, C-130, AC/MC-130, EC/HC-130, F-16, C-17, A-10, RC-135, HH-60, CV-22, U-2

Primary features delivered as part of PANDA release 3.2.1 (9 Sept 2022)

10

DELIVERING CAPABILITIES

The RSO AIMS Team successfully delivered multiple technologies to CONUS and OCONUS users during the quarter, including three Solar Powered Integrated Structure (SPIS) systems to the following units: the 621st Contingency Response Wing, the 53rd Air Traffic Control Squadron, and the Pacific Air Forces 15th Wing Agile Combat Employment Unit.

The RSO AMPO, in collaboration with the Air Force Life Cycle Management Center Engineering and Technical Management Services Directorate, published the first Safe Use Determination (SUD) circular for a 3D-printed high-performance polymer, ULTEM 9085, using the new processes outlined in AFMC/EN's Technology Assessment Policy Letter, dated 22 March 2022, which supports the employment of novel or substitute materials, processes, and product forms for Enterprise technologies.

With the release of this new SUD, additional Air Force platforms will be able to rapidly design, test, and implement ULTEM 9085 3D-printed parts, including cabin components, crew bunk areas of the aircraft, overhead panels, reading and emergency light covers, window reveals, gasper panels, and other interior trim items required to meet stringent Flame, Smoke and Toxicity requirements, as well as chemical compatibility, tensile, and wear requirements.

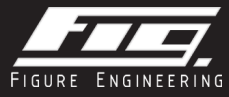
COMPANY HIGHLIGHTS:

This report highlights two companies in support of our Pathways to scale pipeline phase

RedShred is partnering with the RSO to deliver a cloud-hosted content transformation pipeline (CTP). Once fully developed, this will provide the capability to convert Air Force technical orders into a single application programming interface-accessible data format that will support augmented and virtual reality applications for operators. The CTP will also extract, interpret, and reproduce structured graphics used for diagnostics to support tools that train and assist operators in troubleshooting tasks.

ARCS Aviation's Paint ScannAR system combines inspection tools with augmented reality to reduce time and material waste in the aircraft painting process. By using the Terametrix thickness scanner, paint teams are able to display the thickness of paint through an AR headset and make corrections before it dries, greatly reducing the labor-intensive dry paint repair process. Paint ScannAR also provides real-time feedback cues on an operator's painting technique by using the AR headset's sensors to track sprayer speed and distance from the surface.

PARTNERSHIPS




Keystone
Synergistic Enterprises


MACHINA LABS


OPTOMEC


PACIFIC AIR FORCES


PLATFORM ONE
SMOKEY
WATERFALL. ONLY YOU CAN PREVENT


PAVCON


Perfect Point


pvilion


UNITED STATES SPACE FORCE
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LUNA


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TITAN
ROBOTICS


TRACO


TRAXyL


University of Dayton
Research Institute


U.S. AIR FORCES IN EUROPE


UNITED STATES
ARMY


UNITED STATES
SPECIAL OPERATIONS COMMAND


UNITED STATES
NAVY


UNITED STATES
NAVAL SPECIAL WARFARE COMMAND


VEXTEC


WILDER
SYSTEMS

CUSTOMERS

AFWERX

RSO

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