



# RAPID SUSTAINMENT OFFICE

Quarterly Report  
January - March 2022



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## VISION

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**MODERNIZE THE MAINTENANCE OPERATIONS  
AND SUSTAINMENT ENTERPRISE VITAL TO THE  
WORLD'S MOST ADVANCED AIR FORCE**

## OBJECTIVE

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**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 TECHNOLOGY FOCUS AREAS



## ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

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

Our most prominent use of AI is our Condition Based Maintenance Plus (CBM+) program. Employing AI has enabled us to improve maintenance data quality and evaluate large sets of aircraft sensor data and maintenance history to predict component failures. These applications enable our CBM+ program to save thousands of maintenance hours every year.



## ADVANCED MANUFACTURING

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



## 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.

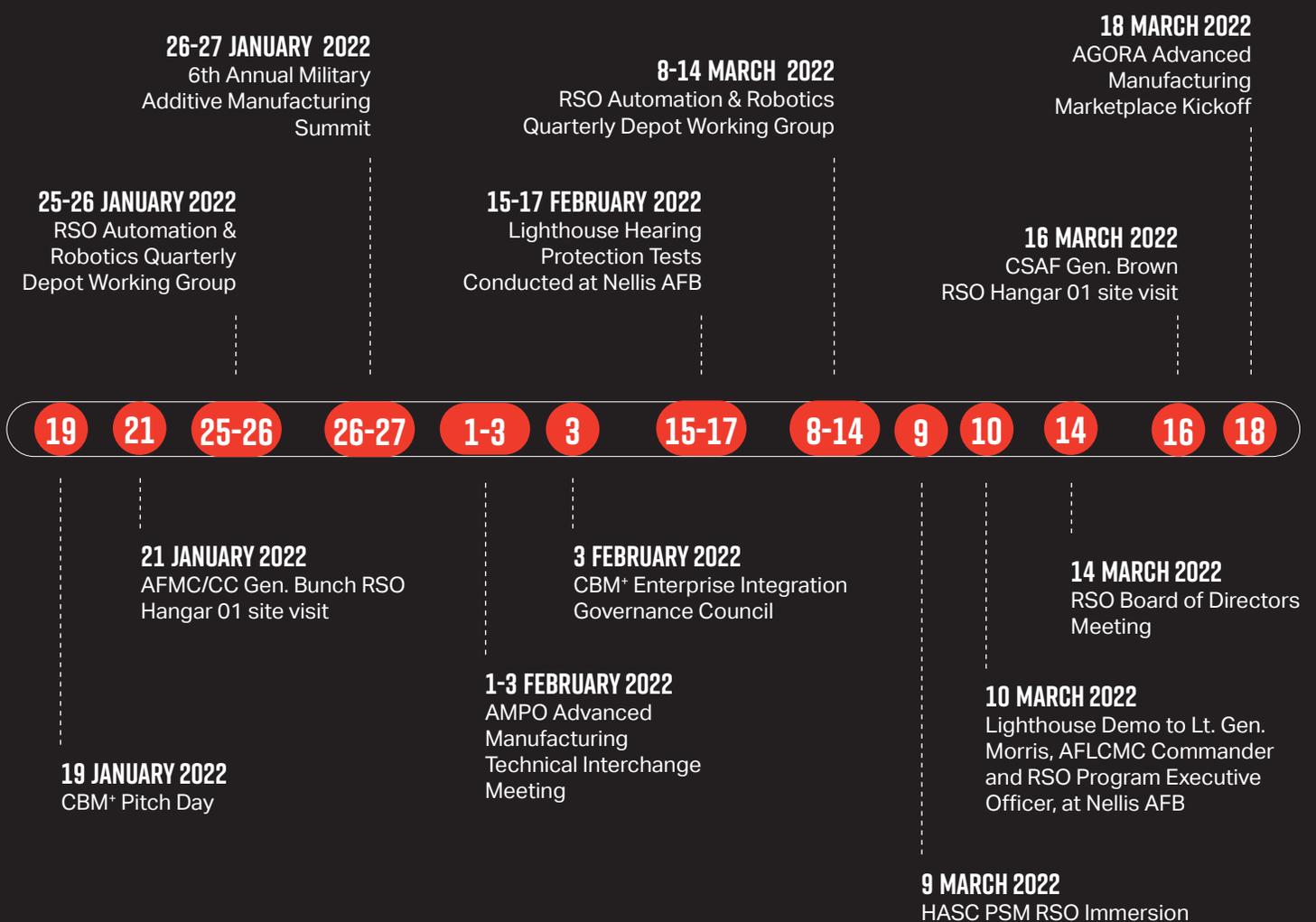


## RAPID & AUSTERE MAINTENANCE ENVIRONMENTS

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.



## KEY ENGAGEMENTS





# RSO SPOTLIGHT

## RSO DEMONSTRATES PROGRESSION OF LIGHTHOUSE TECHNOLOGIES INTEGRATION TO PROGRAM EXECUTIVE OFFICER

The RSO Lighthouse Team conducted a successful technology demonstration for Lt. Gen. Shaun Q. Morris, Air Force Life Cycle Management Center Commander and RSO Program Executive Officer, and representatives from the Nellis AFB 57th Maintenance Group and the 57th Aircraft Maintenance Squadron, March 10, 2022.

This demo showcased live integrations between the Aircraft Information Readiness System (AIRS) work stream management tool and the Maintenance Augmented Reality System (MARS) enhanced assistance suite through the Lighthouse Integration Technology Engine (LITE), where the LITE platform offered seamless information exchange between technologies and a unified landing page interface for information and system accessibility.

Additionally, the demo showcased the Automated Tool Control at Nellis AFB's 57th Strike Aircraft Maintenance Unit utilizing a smart toolbox, TRAXyL deployment for flightline connectivity, and three enhanced hearing protection capabilities.

Representatives from RSO vendors also supported the event, including Google, Beacon Interactive Systems, and 3D Media.

This demonstration presented the significant progress made towards a system-of-systems solution to enhance flightline maintenance activities to improve aircraft availability.



## RSO WELCOMES AIR FORCE SENIOR LEADERS TO HANGAR 01

### January 2022 – Gen. Arnold W. Bunch, Jr., Commander, Air Force Materiel Command and RSO Board of Directors Co-Chair

We welcomed Air Force Materiel Command Commander and RSO Board of Directors Co-Chair, General Arnold Bunch, to our Hangar 01 – RSO headquarters for a facility tour and program immersion. Accompanied by Air Force Life Cycle Management Center Commander and RSO Program Executive Officer Lt Gen Shaun Morris, General Bunch received overviews and real-time demonstrations of innovative sustainment technology developments from our Advanced Manufacturing Program Office with our onsite Essentium, Inc. Printer, the CBM+ Program Office regarding its recently fielded predictive maintenance tool, the Product Management team’s use of a model based systems engineering tool to accelerate programs within its Lighthouse pathways to scale initiative, and how the RSO is implementing virtual and augmented reality technologies to enhance Air Force maintainer operations.



**March 2022 – Gen. Charles Q. Brown, Jr., Air Force Chief of Staff**

Air Force Chief of Staff Gen. Charles Q. Brown Jr. visited the RSO as part of a larger tour of ongoing Air Force Materiel Command (AFMC) missions in the Wright-Patterson Air Force Base area. Joined by Gen. Arnold W. Bunch, Jr., AFMC Commander, and Lt. Gen. Shaun Q. Morris, Air Force Life Cycle Management Center Commander and RSO Program Executive Officer, Gen. Brown was immersed in many of the RSO’s groundbreaking sustainment technologies, including Condition Based Maintenance Plus and Advanced Manufacturing. The RSO is proud to be a part of 75 years of excellence in executing the Air Force mission to fly, fight, and win – delivering airpower anytime, anywhere in defense of our nation.





## BY THE NUMBERS



**AM**

Total parts delivered

**3,421**

Individual AM part numbers flying

**167**

Individual AM part numbers delivered

**436**

Total AM parts flying

**287**

Completed Technical Data Packages

**292**

**RSO**



**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)

Maintenance units trained

**563**

Aircraft actively monitored across the USAF

**3,260**

eRCM removals since implementation (April 2019)

**1059**

Sensor Based Algorithm maintenance alerts issued resulting in **250** scheduled maintenance actions completed since implementation (October 2018)

**399**

Active users registered in PANDA

**203**

Aircraft platforms transitioned to the Predictive Analytics and Decision Assistant (PANDA)

**5**

(B-1, F-15, B-2, B-52, KC-135)

## DELIVERING CAPABILITIES

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**The RSO Innovation and Integration (i2) team continues to identify small businesses to execute prototype contract efforts addressing RSO focus areas and the RSO's objective of increasing mission readiness and decreasing sustainment costs.**

The RSO Innovation & Integration team has a total of 21 Small Business Innovation Research (SBIR) projects being prototyped and evaluated in the Apply phase as fifteen 20.3 SBIR Phase II projects were awarded last quarter. Five projects are in the process of transition to the Advanced Manufacturing team for follow-on work.

## HIGHLIGHTS FROM 4 COMPANIES IN SUPPORT OF OUR PATHWAYS TO SCALE PIPELINE PHASE:

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3D Media is a woman & veteran-owned small business founded on the idea of creating better training and execution for all through AR/VR technology. The company supports the RSO AR/VR focus area, in the development of the Maintenance Augmented Reality System (MARS). MARS enhances maintenance activities through hands-free intuitive access to tech data and virtual assistance. The system is currently under evaluation at Nellis AFB as part of the RSO Lighthouse integration effort and Tinker AFB.



Beacon is a non-traditional defense contractor focused on driving organization readiness and operational resilience through digital transformation at the edge. RSO and Beacon have partnered to create the Aircraft Infrastructure Readiness System (AIRS), a web based workflow management and aircraft status tool. AIRS has been developed hand in hand with the flightline users to deliver a fit-for-purpose product that streamlines maintenance activities to decrease aircraft downtime. The system is currently under evaluation at Kirtland AFB, Holloman AFB, and Nellis AFB.



Google Cloud is a global leader in digital technology and data integration. The RSO has partnered with Google to develop a cloud-based, API-centered platform in order to rapidly integrate a variety of new technologies and legacy government systems. LITE (the Lighthouse Integration Technology Engine) unlocks distributed functionality in a system of systems approach, designed to enhance daily maintenance activities and streamline flightline operations. Google and LITE support the RSO Lighthouse effort by providing a flexible, secure, and scalable means for technology integration and enterprise adoption.



Traxyl is a Virginia-based small business driven to help connect the unconnected. Under SBIR contracts with the RSO, the FiberTrax solution has been refined to lay shielded broadband fiber lines on top of roads and flightlines, delivering resilient connectivity at the point of need without trenching. The ability to lay 1000 feet of fiber per hour under a UV cured protective coating unlocks rapid base recovery & beddown operations as well as immediate installation enhancements.

# PARTNERSHIPS





# CUSTOMERS



To contact the RSO, please email: [AFLCMC.RSO.workflow@us.af.mil](mailto:AFLCMC.RSO.workflow@us.af.mil)



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