



RAPID + SUSTAINMENT OFFICE

Quarterly Report
April - June 2024

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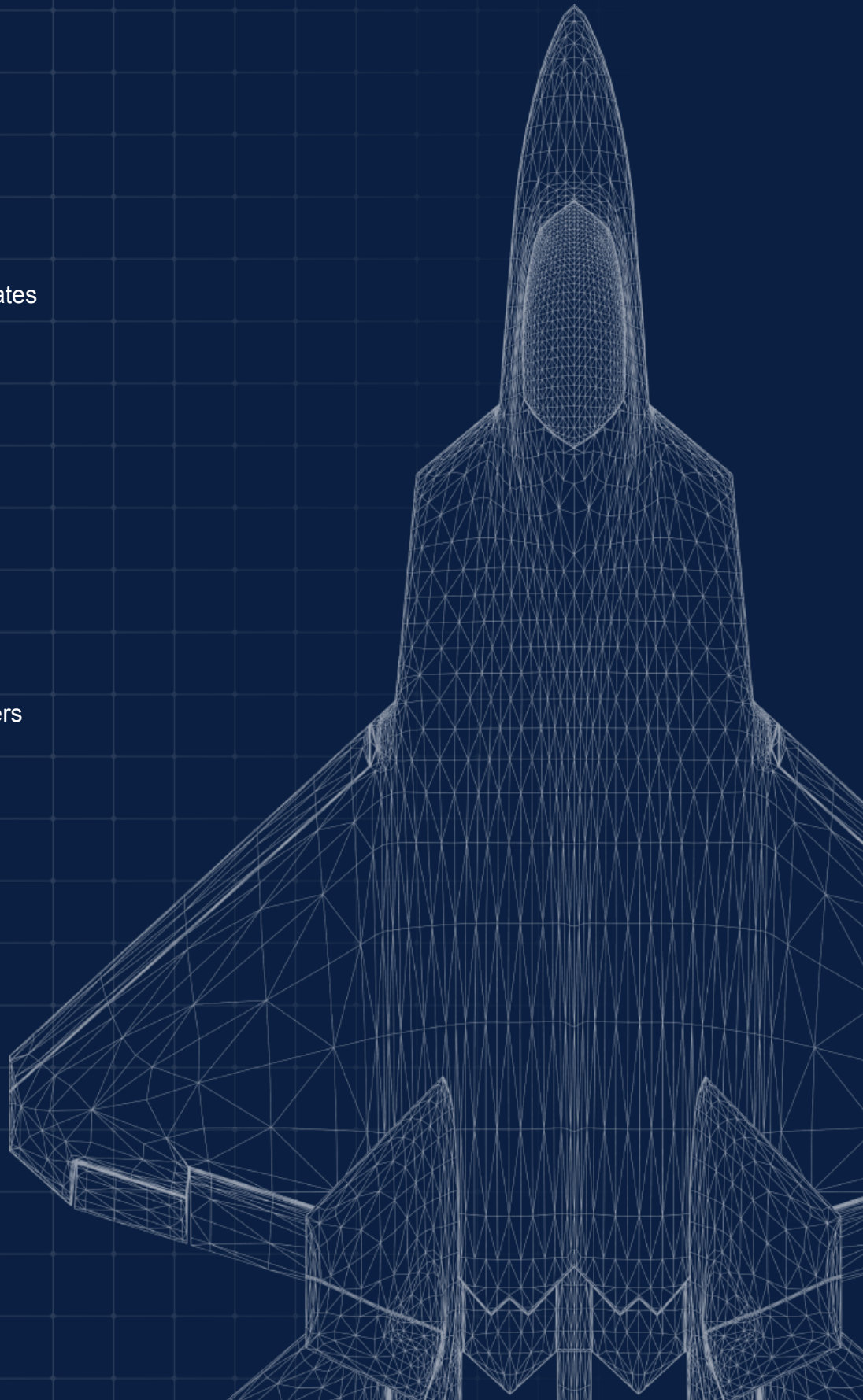
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PURPOSE

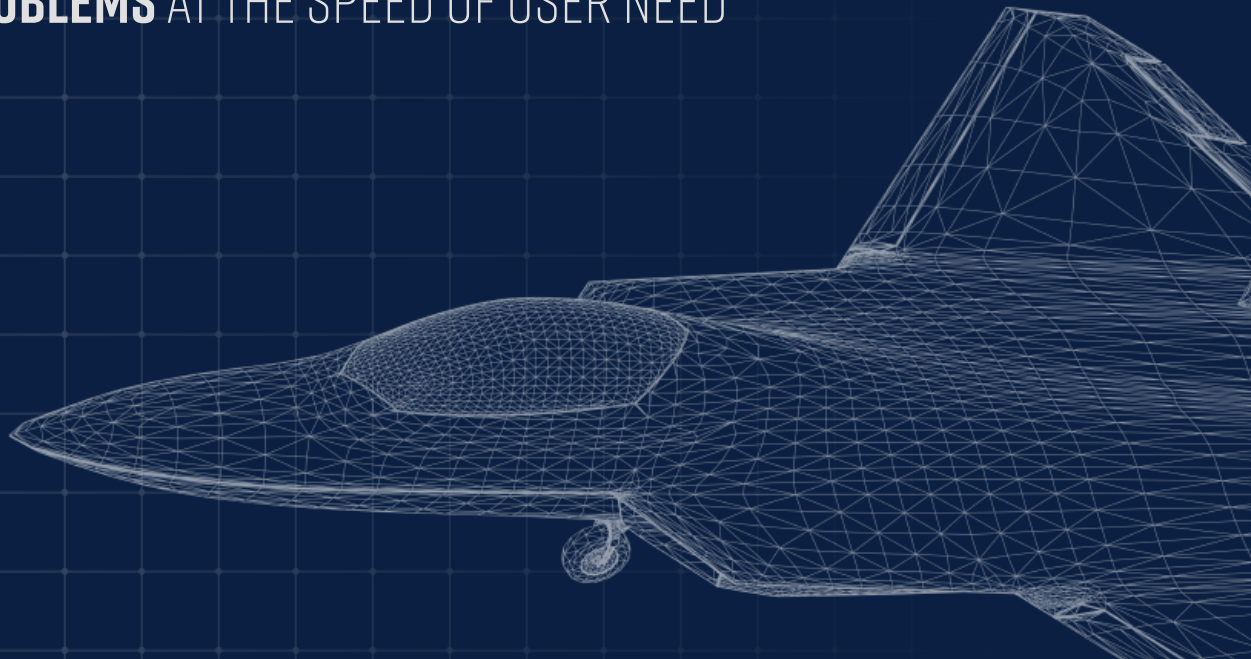
ACCELERATE DELIVERY OF CRITICAL OPERATIONAL SOLUTIONS
TO THE DEPARTMENT OF THE AIR FORCE SUSTAINMENT ENTERPRISE

MISSION

OPTIMIZE WARFIGHTER READINESS BY **EXPLOITING TECHNOLOGIES**
TO REVOLUTIONIZE SUSTAINMENT OPERATIONS

VISION

TO BE THE PREEMINENT DEPARTMENT OF DEFENSE SOLUTIONISTS
THAT CHALLENGE CONVENTIONAL MINDSETS, PUSH THE
BOUNDARIES OF INNOVATION, AND GENERATE CONCEPTS THAT
SOLVE PROBLEMS AT THE SPEED OF USER NEED





POWERING MISSION READINESS THROUGH DISRUPTIVE MODERNIZATION.

AIRMEN-CENTRIC

We take on real issues that come from Airmen, maintainers, and logisticians in the field and on the flightline. They have a need. We have the skill set to answer it.

ACQUISITION DNA

Our capabilities come with a massive wingspan. From requirement to engineering, prototyping to contracting, and full lifecycle production, we create solutions and execute them at scale across the USAF.

COLLABORATION

We're acquisition professionals, partnering with industry, academia, and government to develop the right, viable, proven solutions.

FUTURE-FOCUSED

We're relentless in our pursuit of a mission-ready tomorrow. As sustainment needs accelerate, we exist to anticipate, create, and execute mission-critical capabilities.

RSO TEAM QUARTER UPDATES



Artificial Intelligence & Machine Learning (AI/ML)

We apply AI and ML 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 office to save thousands of maintenance hours every year.

NOTABLE CBM+ TEAM ACCOMPLISHMENTS

ACCOMPLISHMENT:

The CBM+ Program Office provisioned Release 4.4 of the Predictive Analytics and Decision Assistant (PANDA) to Production, April 19, 2024. Additionally, the program office initiated development for PANDA Release 5.0 on 23 May, which will upgrade the core tech stack of PANDA and provide several SBA enhancements to end users, projected for production in September 2024.

IMPACT:

Release 4.4 introduced several new capabilities to end users, including Sensor Explorer, which provides visualization tools within PANDA for end users to analyze sensor data, and Guided Case Workflow, which standardizes the process for users to combine and adjudicate maintenance recommendations for SBA cases. Release 5.0, through its upgraded tech stack, will enable new capabilities such as Generative AI, enhanced data visualization capabilities, and an end-to-end low-code AI application development environment.

ACCOMPLISHMENT:

The CBM+ Program Office successfully executed an Acquisition Strategy Panel, May 22, 2024, requesting approval to begin implementing the strategy to transition PANDA to a Program of Record via the Software Acquisition Pathway.

IMPACT:

This approval will provide the PANDA program authority to execute a tailored acquisition strategy throughout its expected 20+ year lifecycle.

SENSOR BASED ALGORITHMS (SBA) PATHWAY

Legacy:

C-130 and C-5 remain in legacy system

466

scheduled maintenance actions completed since implementation (October 2018)

Modern (PANDA):

26

failure modes (67 models) operational for B-1B, C-5, & KC-13

10,055

alerts generated

1,601

cases created

136

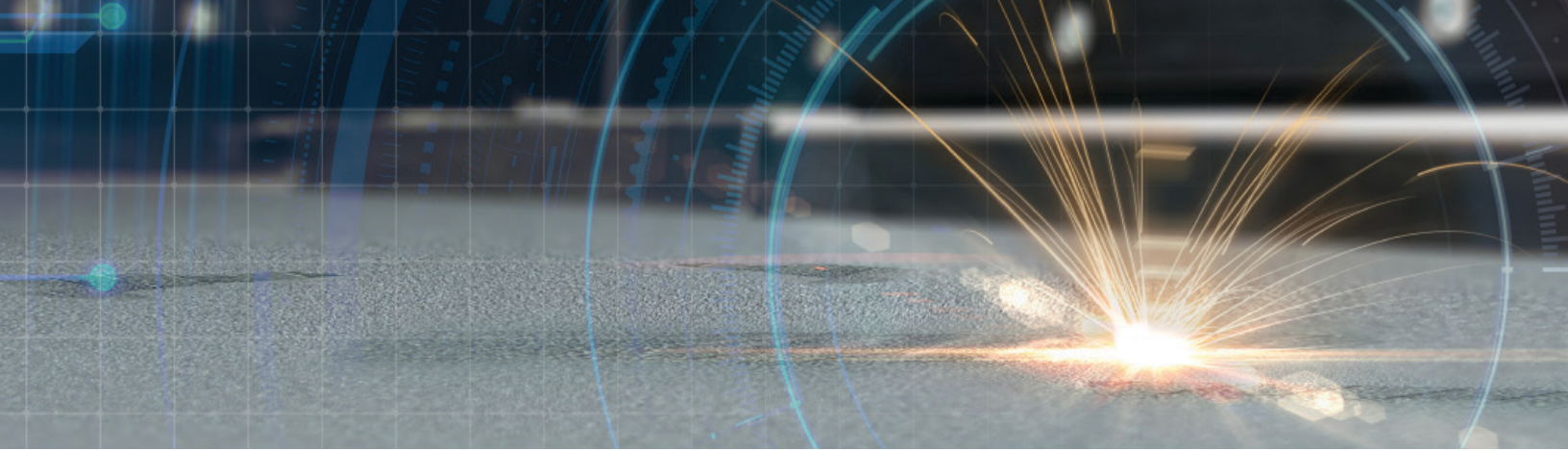
Mx actions completed

716

active users registered in PANDA

490,365

operations ingested



Advanced Manufacturing

The RSO's **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 capabilities across the Department of the Air Force to ensure continuous Warfighter advantage and readiness anytime, anywhere in the world.

NOTABLE AMPO TEAM ACCOMPLISHMENTS

ACCOMPLISHMENT:

Safe Use Determination (SUD) was granted for Stainless Steel, joining Aluminum Alloy as two metals approved for printing on EOS printers.

IMPACT:

This SUD continues the expansion of the Air Force's 3-D capability for the warfighter.

ACCOMPLISHMENT:

The AMPO, in collaboration with Dayton Aerospace and the University of Dayton Research Institute, hosted the Inaugural Advanced Manufacturing (AdvM) Requirements Workshop, February 29 – March 1, 2024, at the RSO's Advanced Technology and Training Center in Dayton, Ohio. This workshop brought together multiple organizations across the Department of the Air Force (DAF) to identify approaches maximizing the full spectrum of AdvM technologies for manufacture and repair capabilities, addressing enterprise-wide sustainment challenges.

IMPACT:

This workshop is Phase One of a two-phase strategy consolidating sustainment barriers and developing a new DAF AdvM strategy.



Rapid, Agile, Integrated Capabilities (RAIC)

The RAIC Team drives and leads the rapid adoption of sustainment-centric technologies to improve readiness and positively impact costs, be that in-garrison, or in both a contested and non-contested 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 RAIC Team discovers, develops, matures, and modernizes sustainment technologies within the following focus areas:



AUTOMATION & ROBOTICS

Eliminating human tasks that are repetitive, labor-intensive, or even hazardous to free up warfighters, increase safety, and streamline throughput



DATA & DIGITAL ENVIRONMENTS

Optimizing maintenance and logistics operations by digitizing analog processes and integrating systems for enhanced decision-making



AUGMENTED & VIRTUAL REALITY

Accelerating proficiency levels and enabling on-demand, multi-capable Airmen



RAPID & AUSTERE MAINTENANCE ENVIRONMENTS

Reducing the warfighting logistics footprint and enhancing Airmen mission effectiveness in expeditionary environments

NOTABLE RAIC TEAM ACCOMPLISHMENTS:

ACCOMPLISHMENT:

The RAIC Expeditionary Combat Technologies (ECT) Team delivered two Hands-Off Expeditionary Tent System's (HEXT), two Solar Powered Integrated Structure's (SPIS), and one Advanced Deployable Aircraft Maintenance Structures (ADAMS) to the 621st Contingency Response Group at Joint Base McGuire-Dix-Lakehurst (JBMDL), April 3-4, 2024.

IMPACT:

These capabilities accelerate tent deployment/teardown, generate power, provide climate control areas, and deliver rapidly assembled rigid structures made of Kevlar panels with the modularity to support various mission sets.

ACCOMPLISHMENT:

The ECT Team met with Saab and the 51st Maintenance Squadron at Osan Air Base (AB), April 27 – May 1, 2024, for a key engagement to support the development of a Deployable Corrosion Prevention and Control Facility.

IMPACT:

This facility will serve as a stopgap solution, based on modified Saab deployable shelters, in advance of Osan AB's military construction.

ACCOMPLISHMENT:

The ECT Team trained members of 521st and 621st Contingency Response Squadrons on three capabilities: HEXT, Solar Power Integrated Structure, and Vertical Pallet Stacker in support of the Office of the Secretary of Defense's (OSD) Rapid Defense Experimentation Reserve (RDER) experiment, May 29, 2004 at JBMDL.

IMPACT:

The training utilized these RSO capabilities during the Contingency Response Wing's exercises in June 2024. The OSD also accomplished their required technology evaluation for RDER Risk Reduction exercises.

ACCOMPLISHMENT:

The ECT Team attended the 621st Contingency Response Wing's Mulberry Griffin Exercise at Fort Walker, VA, June 12-14, 2024, in support of OSD's RDER experiment.

IMPACT:

OSD completed their technology evaluation on the HEXT and SPIS, required for capabilities prior to participation in OSD supported exercises.

ACCOMPLISHMENT:

The RAIC Automation and Robotics Team attended the Luna Terahertz Training sessions and demo at Hill Air Force Base, Utah, June 3-6, 2024 for 35th Air Maintenance Group engineering technicians, demonstrating operation of its Terahertz Scanner.

IMPACT:

Maintainers are now able to utilize the Terahertz Scanner on the F-22 during paint repair and refurbishment to accurately determine the thickness of the multilayer coatings, ensuring thickness tolerance meets F-22 performance specifications.

ACCOMPLISHMENT:

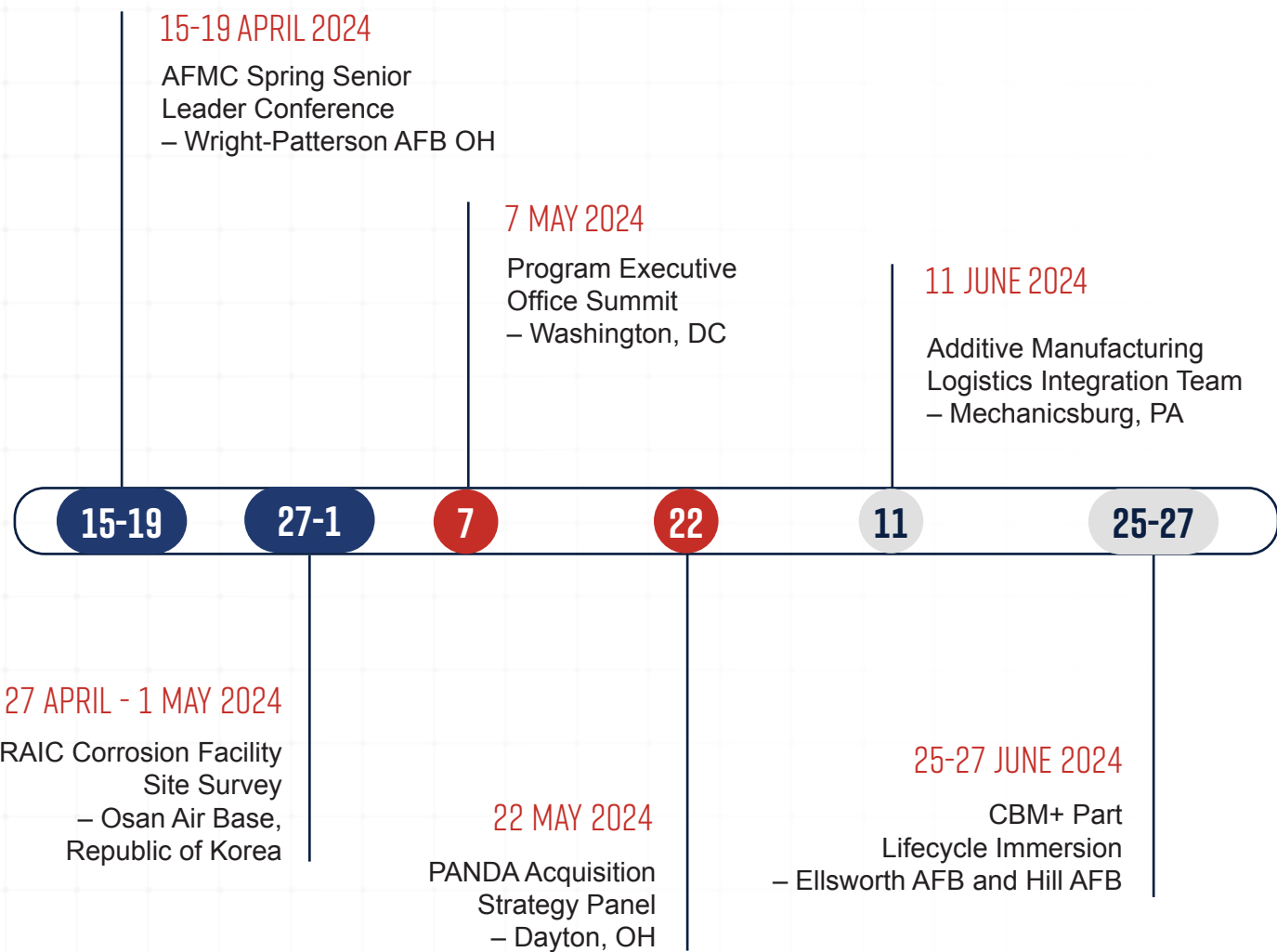
The RAIC Digital Ecosystem team hosted members from Headquarters Air Force and each Major Command to launch an Enterprise-Wide Technical Order Modernization program, May 7-9, 2024.

IMPACT:

The efforts of this team will enhance technical data access for aircraft maintainers at all levels, improving data accuracy and reducing maintenance touch time by providing a better tech data utilization experience.



RSO KEY ENGAGEMENTS





RSO SPOTLIGHT

AGORA TOOL RECEIVES AUTHORITY TO OPERATE



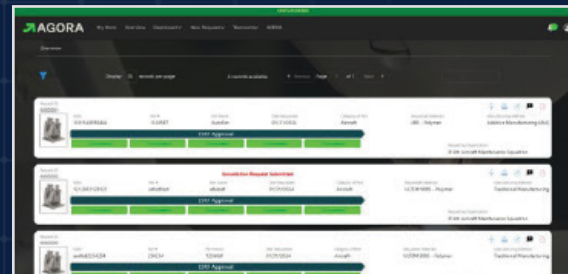
The RSO AMPO obtained official Authority to Operate (ATO) for its leading-edge AdvM solution, AGORA – or Always Guaranteeing Operationally Ready Aircraft – in May 2024.

AGORA is an Air Force Cloud One-based ecosystem of Air Force AdvM and Digital Materials Management engineering software capabilities. Its suite provides users access to tools and programs spanning the AdvM lifecycle, including part decision support, part re-engineering, design, and prototyping, and materials and testing data management.

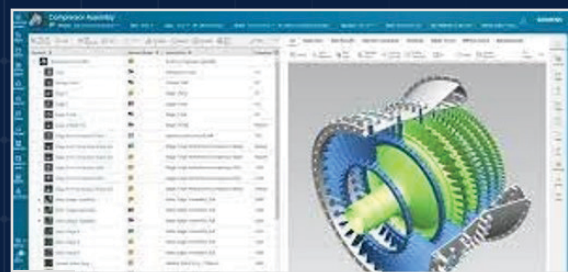
Cloud One requires applications achieve ATO before they can be released into live production. This safeguard addresses controls and standards established by cyber security.

AGORA supports broader United States Department of Defense and United States Air Force concentration on utilizing AdvM technologies, including both Additive Manufacturing and Repair for Advanced Manufacturing, supporting missions by transforming maintenance operations and supply chains, increasing logistics resiliency, and improving self-sustainment and readiness.

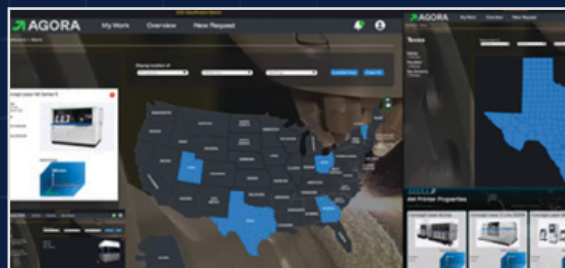
This ATO achievement would not have been possible without the partnership the AMPO has with EXPANSIA. The exceptional relationship with this small business absolutely led to the team's success.



WORKFLOW



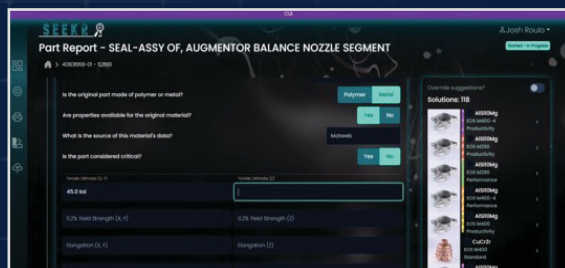
TEAMCENTER



ENTERPRISE VIEW



ANSYS GRANTA



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QUARTER HIGHLIGHTS

RSO BEGINS PROCESS OF BECOMING NEW COMBAT READINESS DIRECTORATE - APRIL 2024



The Air Force has been thrust into a new era of Great Power Competition (GPC), due to a rapidly evolving character of war and a formidable competitor.

Since early 2024, the Department of the Air Force has been in the midst of sweeping changes to reshape, refocus, and reoptimize into an enterprise prepared for high-end conflicts and long-term strategic competition.

As part of the GPC strategy, the RSO has been charged to become the Combat Readiness Directorate, in support of the new Air Dominance Systems Center. Initially, Combat Readiness will unite the RSO with four former Divisions of the Air Force Life Cycle Management Center Agile Combat Support Directorate, with the RSO becoming a Division itself in the process.

This new RSO Division will continue its mission of rapidly discovering and developing innovative technologies for the Air Force sustainment enterprise.

RSO HOSTS STEAM EVENT AT HANGAR 01 - MAY 2024



The RSO hosted nearly 70 elementary school students for a Science, Technology, Engineering, Arts, and Math (STEAM) event. Led by RSO partner, the University of Dayton Research Institute, students were challenged to design, assemble, and test small wind turbines by applying newly gained knowledge of STEAM principles.

The event focuses on generating student awareness and excitement for future STEAM careers. Perhaps some of them may even be Air Force scientists and engineers one day.

RSO RELEASES VIDEO HIGHLIGHTING LITE INITIATIVES - JUNE 2024



The Lighthouse Integration Technology Engine (LITE) is a Google Cloud-based technology platform developed by our RAIC Team. Its capabilities involve a digital network of innovations that transform flight line operations to ensure mission readiness and full support for our Airmen, further allowing us to maintain the Air Force's position as the leading Air Force in the world.

Take a look to [learn more about LITE!](#)



CUSTOMERS



RSO
VISIT OUR WEBSITE

To contact the RSO, please email: AFLCMC.RSO.workflow@us.af.mil



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