

# Air Platforms Community of Interest Science & Technology Sub Areas

The Air Platforms COI serves as a standing forum within the DoD S&T Reliance 21 Program for developing and coordinating S&T initiatives related to air platforms, including fixed and rotary wing vehicles, high-speed/hypersonic systems, and aircraft propulsion, power and thermal management systems.

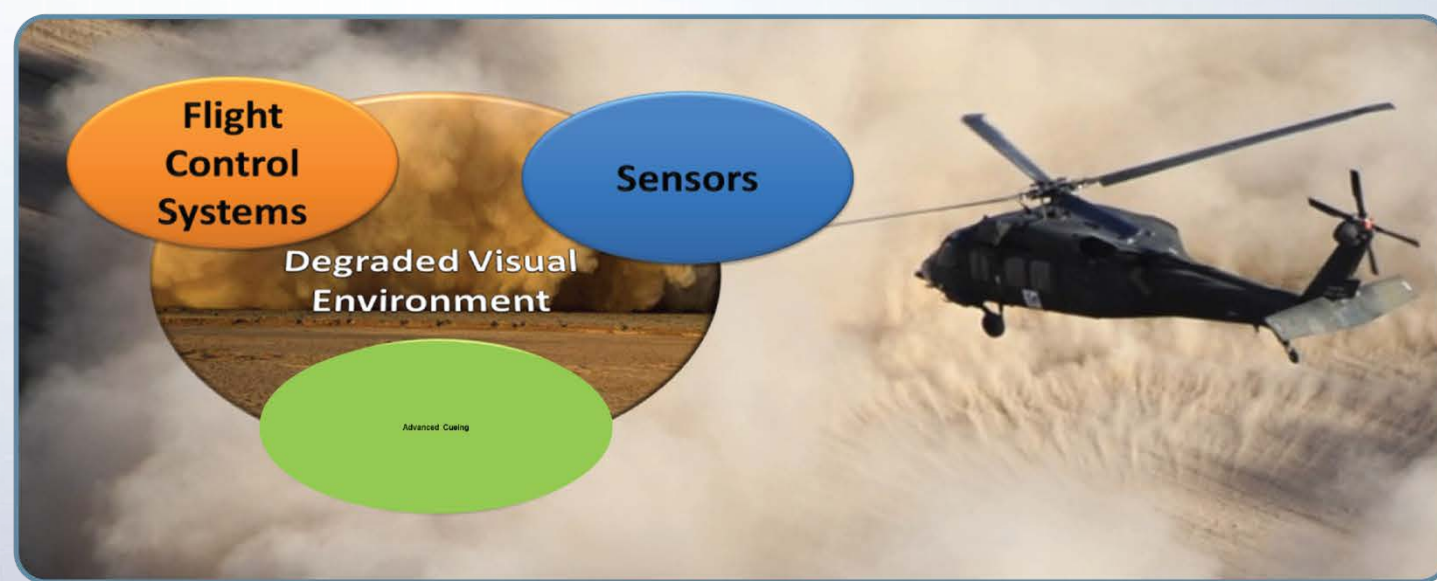
## Recent Demonstrations

### Compliant Trailing Edge



AFRL partnered with FlexSys and NASA to mature the compliant trailing edge technology. Successfully flown Adaptive Compliant Trailing Edge as part of NASA ERA in June 2015

### Degraded Visual Environment



Series of demonstrations have been completed as part of system to mitigate flight in degraded visual environment. Experiments on cueing systems, control laws, and obstacle avoidance have recently been completed.

### ADVENT Engine Test Completion



Completed 47 hours of test on an adaptive engine. Tests were done over a wide throttle range and acquired data to characterize adaptive features, validate fuel consumption, and performance

## Fixed Wing Vehicle

### Technology area challenge:

Develop next generation vehicle technologies that significantly increase range and capability for the next generation aircraft systems



### Future Focus

- Adaptive, lightweight, and multifunctional structures
- Advanced aerodynamic control for novel configurations
- Advanced, efficient engine installation

## Rotary Wing Vehicle

### Technology area challenge:

Develop vehicle concepts and technologies that significantly increase speed, range and lifting capability



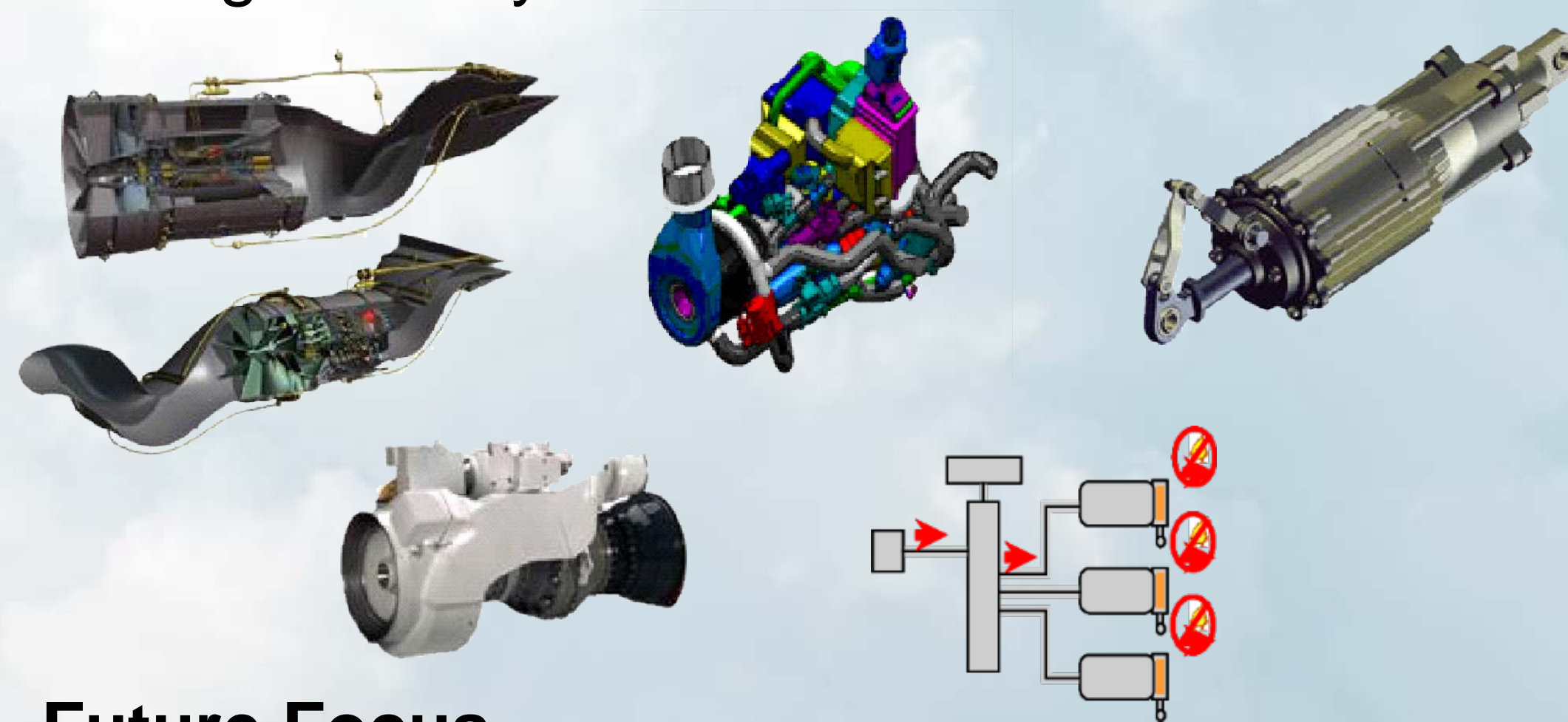
### Future Focus

- Zero Maintenance
- Interactional rotor aerodynamics
- Multi-disciplinary design and optimization
- Higher performing, lighter weight platform technologies

## Aircraft Propulsion, Power & Thermal

### Technology area challenge:

Develop efficient, intelligent, reliable, maintainable, affordable aircraft propulsion; and energy optimized power and thermal management systems



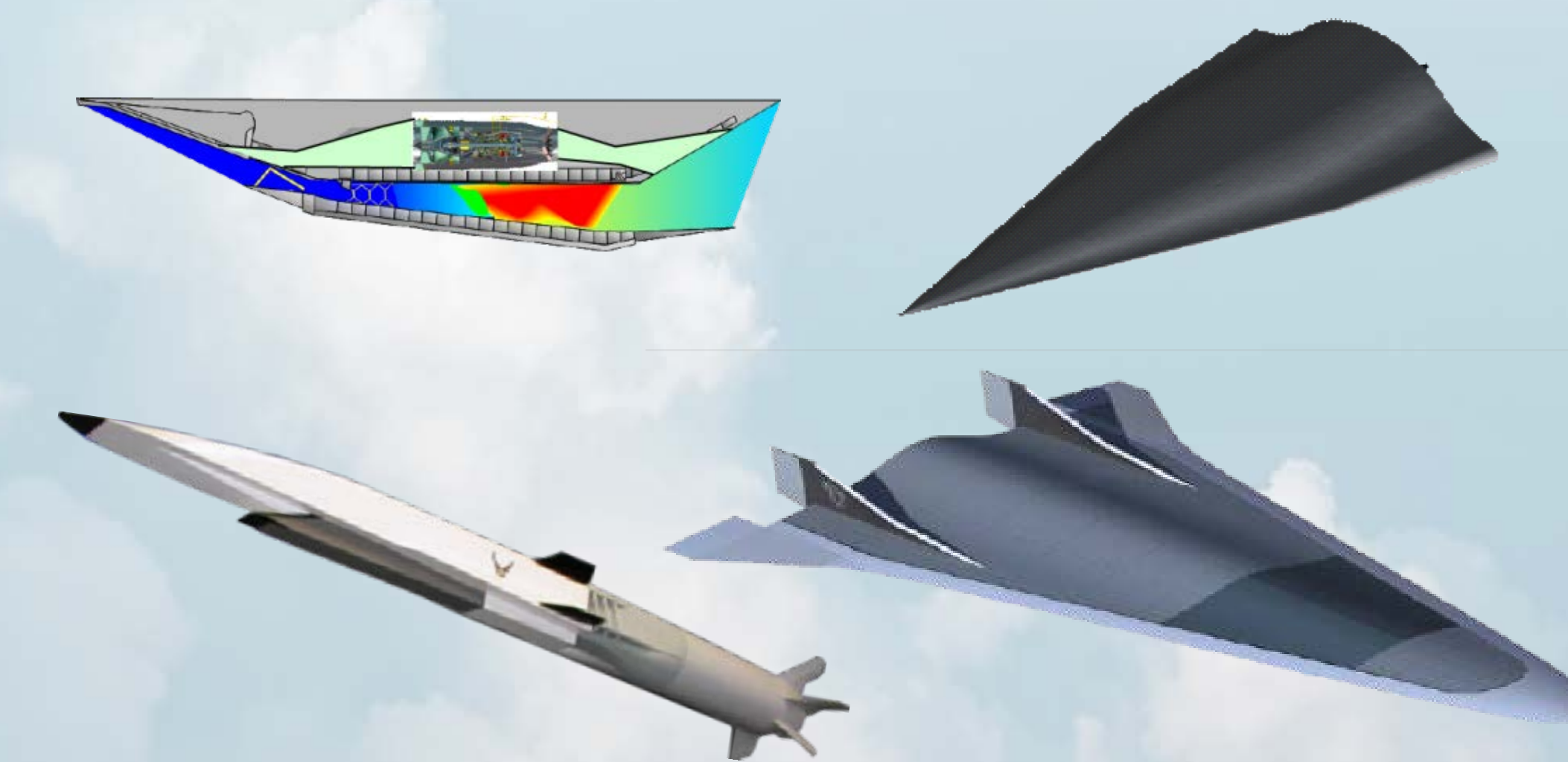
### Future Focus

- Alternative Concept Propulsion
- Integrated Aircraft Architectures and Controls
- Power and Thermal Technologies for improved power density and distribution

## High-Speed/Hypersonic

### Technology area challenge:

Management of aerodynamic heating, designs to adapt for changing aerodynamics due to shape change effects, and maintaining combustion in supersonic flow in scramjet combustors



### Future Focus

- Scramjet performance
- Aero-propulsion Integration
- Combined loads/structural lifting
- Shock/boundary layer interaction

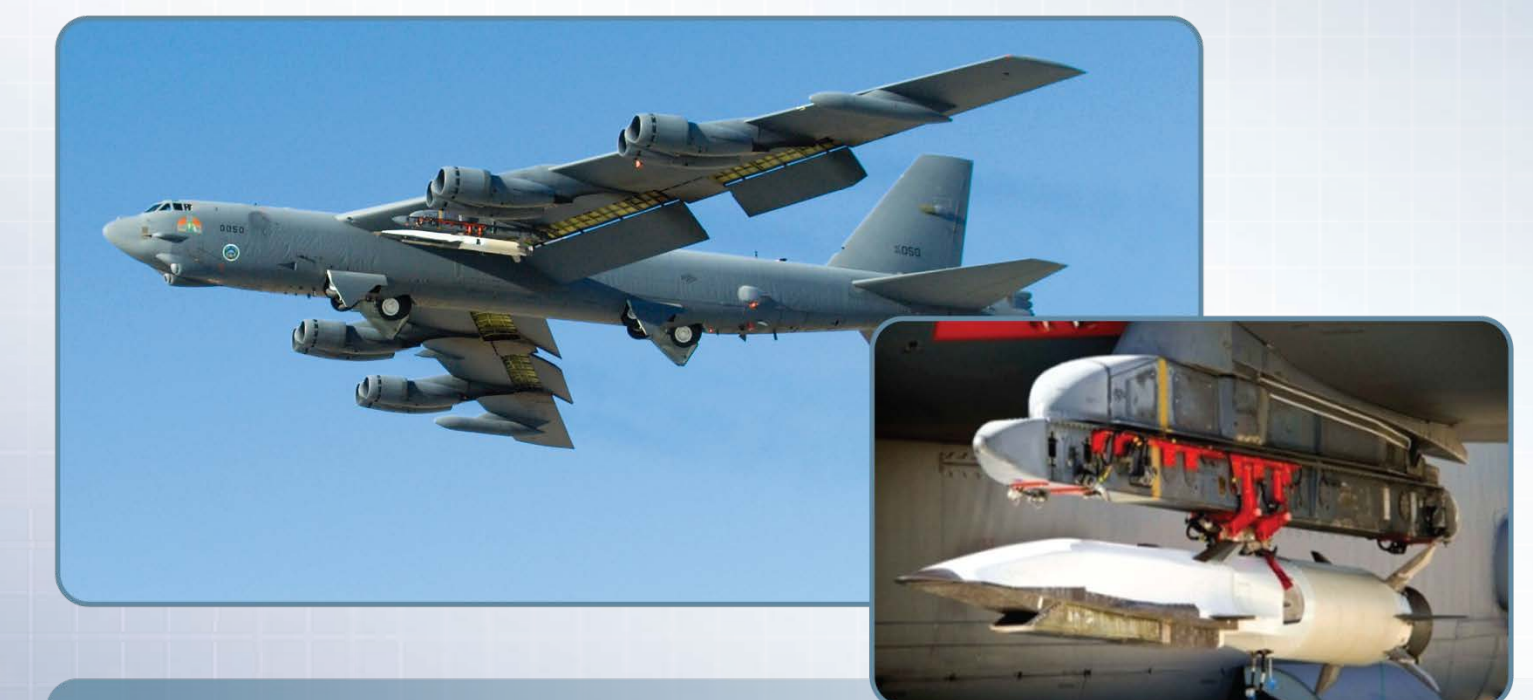
## Collier Trophy Recent Winner and Nominees

Winner - 2013  
X-47B



X-47B Industry Team was the recipient of the 2013 Robert J. Collier Trophy for developing and demonstrating the first unmanned, autonomous air system operating from an aircraft carrier.

Nominee - 2013  
X-51



X-51A WaveRider Team for demonstrating that sustained supersonic combustion ramjet (scramjet) powered flight is possible and significantly advancing progress towards hypersonic power projection, responsive and affordable space access, and global hypersonic mobility.

Nominee - 2014  
F-16 AGCAS



The F-16 Automatic Ground Collision Avoidance System (AGCAS) Team for its innovative and diligent development and testing of lifesaving technology fielded into operational F-16 aircraft to prevent loss from Controlled Flight into Terrain.

Air Platforms Community of Interest IRAD Technology Interchange Meeting Fall 2016

The Air Platforms Community of Interest is planning a US industry-wide IRAD TIM for Fall 2016.

Further details and information will be provided through FEDBIZOPS.

DISTRIBUTION A. Approved for public release: distribution unlimited (16-S-1588)

Air Platforms COI Members



Air Platforms COI Related Departments and Agencies

