AFRL

THE AIR FORCE RESEARCH LABORATORY

AUTONOMOUS ATTRITABLE AIRCRAFT EXPERIMENT (AAAx)

AFRL IS WORKING WITH INDUSTRY PARTNERS TO ADVANCE TACTICAL AUTONOMY

The Autonomous Attritable Aircraft Experiment is an Integrated Capabilities Directorate (RS) campaign that has helped shape the investment strategy and transition decisions for the Skyborg Vanguard and the Combat Collaborative Aircraft (CCA) autonomy program of record.

Skyborg is a Department of the Air Force Vanguard project that has informed the transition of open, modular autonomy to enable combat mass using low-cost uncrewed teammates. These vehicles will be equipped with autonomy systems and assist human-piloted aircraft in critical missions.

Operational experimentation on the Kratos XQ-58 Valkyrie, UTAP-22 Mako and General Atomics MQ-20 Avenger has enabled the warfighter to get an early look at various autonomy technologies in development to help shape continued progress and eventual transition of these capabilities.

Continuing efforts utilizethe X-62 Variable Inflight Simulator Test Aircraft, or VISTA, at the USAF Test Pilot School and its “safety sandbox” to allow integration and flight of autonomy capabilities and new air vehicle designs.

This will allow a tenfold increase in real-world test events that will rapidly accelerate the Machine Learning Operations cycle and mature tactically relevant autonomy.

AFRL is working with multiple industry partners to integrate advanced, tactical performance vehicle designs and cutting edge autonomy capabilities onto the X-62, and is partnering with DARPA to explore scaling the concept to accelerate CCA fielding timelines.

This approach, combined with focused testing on new vehicle systems in production, will parallelize the development and testing of cutting-edge artificial intelligence techniques with new uncrewed vehicle designs to deliver tactically relevant autonomy capability to the warfighter.

ADVANCING AERIAL AUTONOMY

The Air Force has used four different aircraft to accelerate development of tactical autonomy capabilities.