



CNA Expertise in Air Traffic Control Modernization

Our Experience

CNA is a not-for-profit analytical organization and operations research pioneer that has been delivering actionable aviation solutions to federal government organizations for more than 80 years. We support the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA), the National Institute of Standards and Technology (NIST), the Department of Homeland Security (DHS), and the Department of Defense (DOD).

CNA's scientists, engineers, analysts, and professional staff are dedicated to delivering objective, empirical research and analysis for sponsors across diverse arenas. Our aviation work supports the integration of emerging technologies into the National Airspace System (NAS), with a focus on cybersecurity, AI, machine learning (ML), autonomous systems, unmanned aircraft systems (UAS), and air traffic management (ATM).

Our Expertise



Our cutting-edge solutions enhance business and technology operations. We leverage best practices in systems engineering and design methodology to craft practical solution architectures tailored to client and partner needs. We don't just recommend solutions; we validate them to meet operational needs, guaranteeing effectiveness and reliability.



We bring a collaborative approach to solving complex national challenges. CNA collaborates with federal, state, and local government leaders, leading universities, and public safety organizations to deliver actionable solutions in transportation and aviation, with a strong focus on cybersecurity and crisis management. Through these partnerships, we translate policy goals into operational impact, grounded in rigorous analysis and real-world insight.



Our not-for-profit, mission-driven business model ensures unbiased, evidence-based solutions. Our model builds trust with federal partners, making CNA an expert for initiatives that require objectivity and a commitment to the public good.



We proactively innovate to anticipate and tackle emerging challenges. Our data scientists and analysts continuously explore new technologies and methodologies, applying forward-looking insights to deliver solutions that not only meet today's client needs but also prepare them for tomorrow's opportunities.

Featured Experience

AI and ML Concepts and Modeling

AI technology assurance for ATM operations. CNA is supporting the FAA in developing an AI/ML plan to fulfill a congressional mandate and developing and validating an AI/ML framework for products as part of the development of a framework for AI technology assurance for ATM operations.

AI/ML modeling for traffic flow management.

CNA has provided AI/ML modeling and data analytics support in traffic flow management operations and analyzed the functional aspects and requirements (e.g., non-deterministic AI models with autonomous control behaviors) of AI technologies in realistic aviation and operational environments.

Cybersecurity Analysis for AAM



Urban air mobility cybersecurity. CNA has partnered with NASA's Advanced Air Mobility (AAM) team to conduct research and analysis on the cybersecurity needs of the urban air mobility (UAM) ecosystem. CNA's analysis identified a wide range of important cybersecurity topics that UAM needs to address, including vulnerabilities for communications, navigation, and surveillance (CNS) in the UAM operational environment and identity and access management requirements.

UAS Prototypes and Demonstration Support

UAS traffic simulations. CNA builds custom models and simulations to provide quantitative insights into challenging questions for aviation. We developed the [UAS Cooperative Airspace Traffic Simulation \(UCATS™\)](#), an agent-based modeling tool that simulates UAS flight planning in various package-delivery scenarios.



UAS cyber protection. We collaborated with industry to conduct analysis focused on improving the safety of the NAS by identifying and mitigating vulnerabilities that can be addressed easily through UAS configuration changes. The [Securing UAS Fleets from Cyber Attacks](#) project addressed these issues with the Brute Force Default Identification Automated Prevention system.

Systems Modernization

Modernization of aeronautical information services. CNA experts work with the FAA to accelerate the modernization of Notices to Airmen (NOTAMs) and other information services. We played a key role in introducing digital NOTAMs to the FAA—transforming these critical air traffic control (ATC) messages from legacy products into a data-centric system.

Training and certification. Working with the Alliance for System Safety of UAS through Research Excellence ([ASSURE](#)), we designed and deployed a modernized cloud-based system for ASSURE UAS training and certification.

About CNA

CNA is a not-for-profit analytical organization dedicated to the safety and security of the nation. With nearly 700 scientists, analysts, and professional staff across the world, CNA's mission is to provide data-driven, innovative solutions to our nation's toughest problems. It operates the Center for Naval Analyses—the Department of the Navy's federally funded research and development center (FFRDC)—as well as the Institute for Public Research. The Center for Naval Analyses provides objective analytics to inform the decision-making by military leaders and ultimately improve the lethality and effectiveness of the joint force. The Institute for Public Research leverages data analytics and innovative methods to support federal, state, and local government officials as they work to advance national and homeland security.

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