

// Air Traffic Management Exploration

Kenneth Freeman

Air Traffic Management Exploration



Advancing a digital aviation ecosystem through research, development and testing

Vision

An aviation ecosystem that can adaptively integrate new concepts, operations, and technologies at the pace of innovation to improve mobility and benefit humanity

Mission

Research innovative technologies and solutions to trailblaze a path toward a sustainable aviation ecosystem that integrates airspace, aircraft, and infrastructure systems to support future operations

Integrated Information

Promote access to integrated digital information across airspace, aircraft, and third-party services

Goals

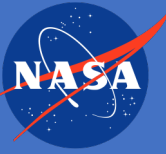
Operations and Automation

Assess operations and automation to support diverse aircraft and missions

Airspace Optimization

Increase optimization of the NAS by improving airspace utilization and efficient routing

Supporting Multiple Use Cases



Sustainable Conventional Operations



Remotely Supervised Operations



Routine sUAS Operations



xTM Operations



Evolving ATM Technology for the existing NAS and Developing Disruptive Capabilities for the Future NAS



Digital Services and Information Sharing

Novel Airspace Design and Frameworks

Communication Links & Information Protocols

Separation and Flow Management Algorithms

Air Traffic Management Exploration

NAS Exploratory Concepts & Technologies

Extensible Traffic Management

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Integrated Information
Operations and Automation
Airspace Optimization

Digital Information Platform

Sustainable Operations

UTM Beyond Visual Line of Sight

Routine BVLOS operations
of sUAS in shared airspace

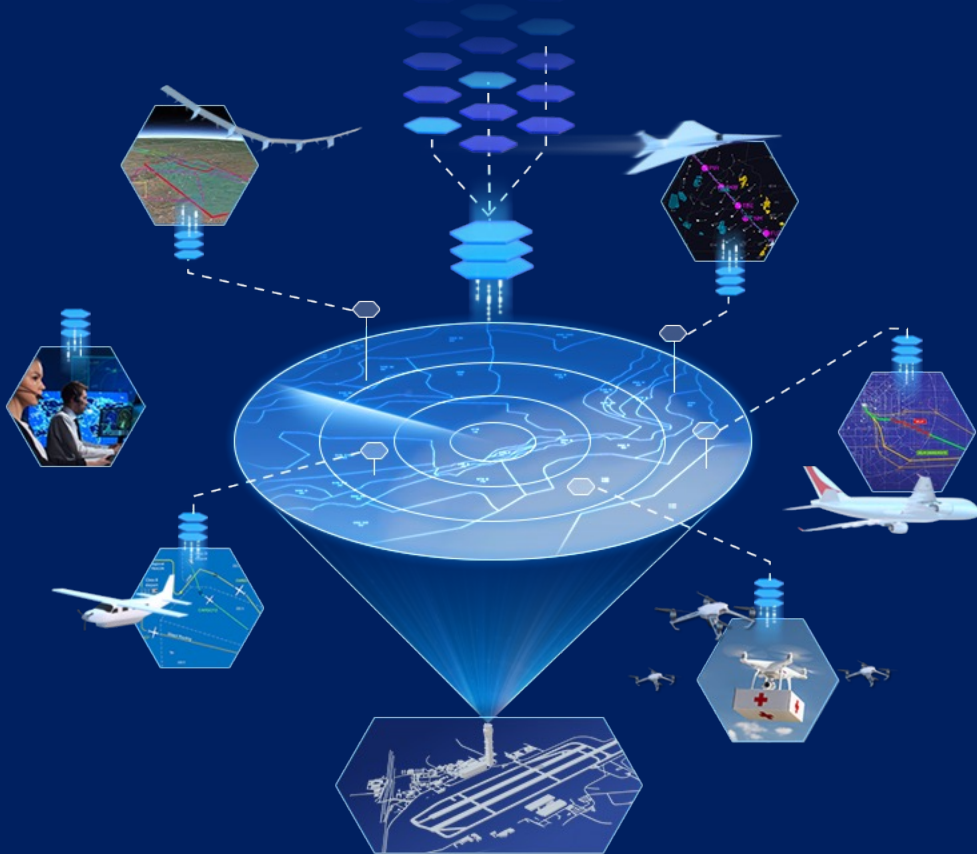
Pathfinding for Airspace for Autonomous Vehicles

Remotely Piloted Aircraft Systems

Digital Information Platform (DIP) for a Sustainable Flight National Partnership (SFNP) Mission

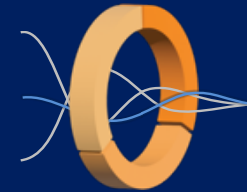


Development and demonstration of a digital service-oriented framework to enable increasingly sustainable operations for today and the future aviation market



Digital Services & Integration

Building blocks for reuse & simplifying data sets for wholistic situational awareness



Machine Learning Approach for a Reference Platform

Platform requirements & standards to accelerate industry & assessing ML approaches for service development

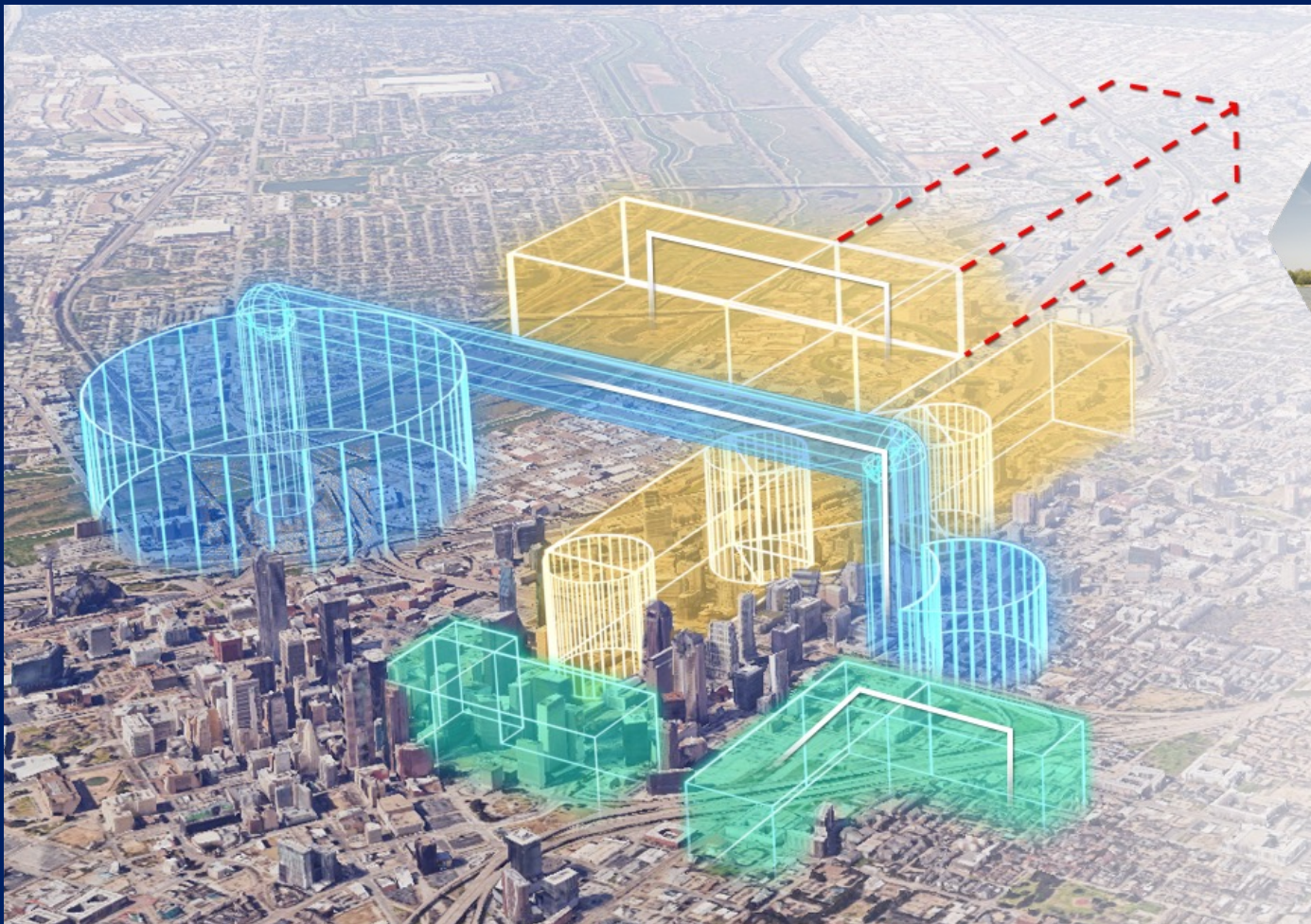


Sustainable Flight National Partnership (SFNP) Operations Demos

Demonstrating sustainability benefits that can be derived using DIP services in today's NAS

UAS Traffic Management Beyond Visual Line of Sight

Enable routine, safe, extensible BVLOS operations in low altitude Class G airspace through the formalization and operationalization of ground-based services



UAS Service Supplier

Work with stakeholders to stand up multiple USSs and other services to support BVLOS use cases in a live, ongoing operational environment

Public Operations

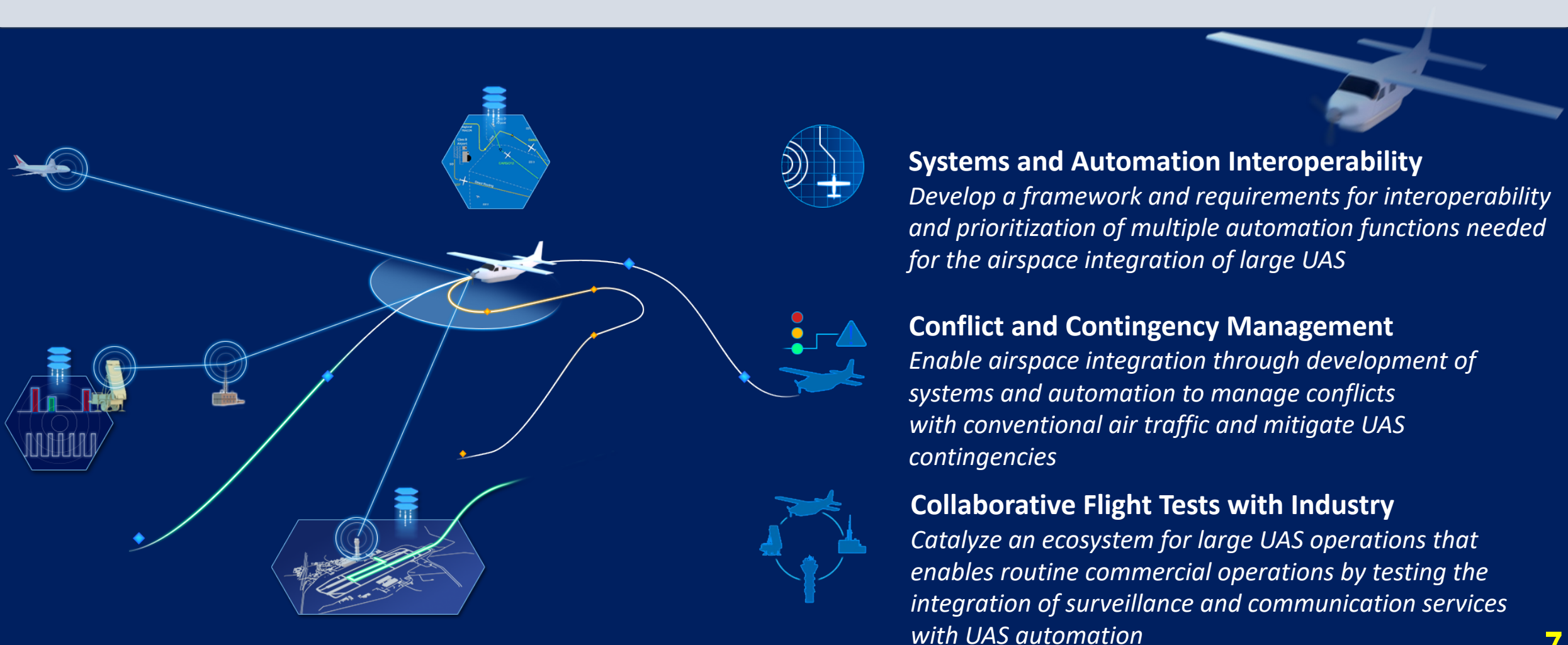
Collect and evaluate operational data to inform regulatory and standards recommendations

Test Harness

Collaborate with FAA and industry to establish a test harness to verify and validate industry provided UAS Service Suppliers (USSs), which will provide a path toward implementation

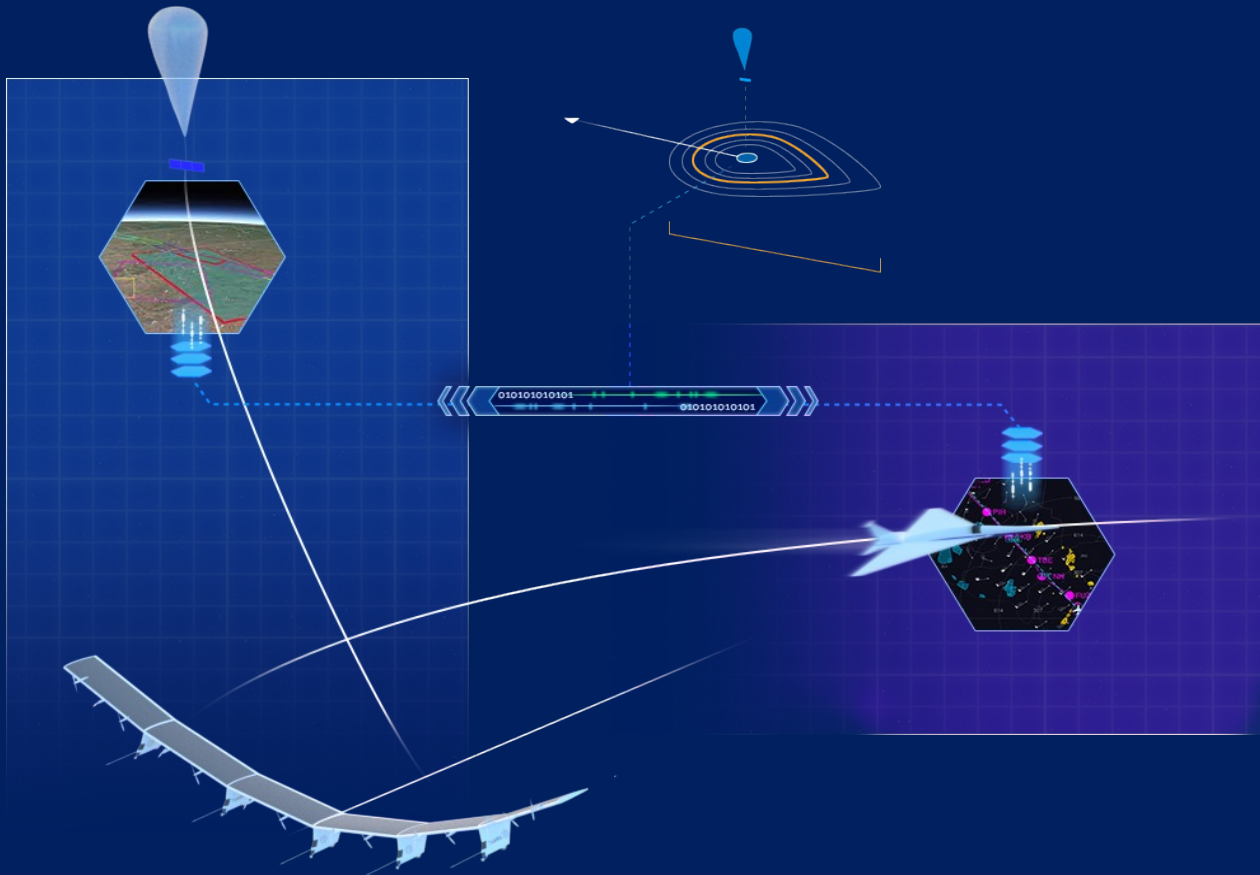
Pathfinding for Airspace with Autonomous Vehicles (PAAV)

Enable scalable airspace integration & automated aircraft systems to enable routine remotely supervised IFR operations



NAS Exploration Concepts and Technologies (NExCT)

Catalyze airspace integration of diverse and scalable cooperative xTM operations



Upper Class-E Traffic Management (ETM) Cooperative Operating Practices

Develop functional requirements to support ETM operations of vehicles with unique performance characteristics and mission needs



Cooperative Operating Practices

Develop and test cooperative operating practices and automated methods of strategic and tactical conflict and flow management for diverse aircraft and operations



Integrated Operations Picture

Identify the requirements for a secure digital common operational picture that supports diverse and increasingly autonomous operations



ATMx Hollister Airspace Ecosystem Vision

