DATAWorks 2018

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March 21, 2018
NASA Aeronautics

NASA Aeronautics Vision for Aviation in the 21st Century

Global Sustainable

Transformative

6 Strategic Thrusts

Safe, Efficient Growth in Global Operations
Innovation in Commercial Supersonic Aircraft
Ultra-Efficient Commercial Transports
Transition to Alternative Propulsion and Energy
In-Time System-Wide Safety Assurance
Assured Autonomy for Aviation Transformation

U.S. leadership for a new era of flight

ARMD continues to evolve and execute the Aeronautics Strategy
https://www.nasa.gov/aeroresearch/strategy
Broad Strategic Objectives Drives Research, Experiment and Analysis Requirements

- Concept discovery and feasibility
- Technology development and validation
- Models and Methods development and validation
- Standards development and validation
- Policy validation
- Physics-Based Simulation
- Experimental ground test
- Experimental flight test
Safe, Efficient Growth in Global Operations

- Applied Traffic Flow Management
- Terminal Sequencing and Spacing (TSAS) and Flight deck Interval Management (FIM) – Precision Arrivals
- Integrated Arrival/Departure/Surface Management – Precision Departures

ATD-1 FLIGHT TEST

NASA

Boeing

Honeywell

United
Innovation in Commercial Supersonic Aircraft

Deliver a flight validated community response database to ICAO

Boom Carpet

SonicBAT II Team and Aircraft
Ultra-Efficient Commercial Aircraft / Transition to Alternative Propulsion and Energy

Turbo-Electric Propulsion Architecture

- Boundary-Layer Ingesting Propulsor(s)
- Ultra-Efficient “Small Core” Turbofan

Transforming Propulsion – A Breakthrough Opportunity
In-time system-wide safety assurance (ISSA) requires the ability to monitor operations and assets across the system, assess the current and future state of the system, and provide mitigation strategies to eliminate or minimize risk.
Assured Autonomy for Aviation Transformation

UAS in the NAS – Primary Focus is IFR-Like and VFR-Like Operations with Current NAS System

ACAS Xu Validation

UAS Traffic Management (UTM) Primary Focus in Low Altitude Urban within a New Operational Model

Emerging, Long-Term Urban Air Mobility Focus builds off of UAS in the NAS and UTM to enable Air Taxi type operations in urban areas
Data Requirements and Ability to Generate Data Growing Rapidly

More extensive testing & more finely detailed measurements required to achieve higher fidelity models and methods

Increased supercomputing usage

ARMD Usage

Increased physical testing
Thank You