NASA Advanced Air Mobility (AAM) Mission

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March 23, 2020
Advanced Air Mobility (AAM)

- Includes “rural” and “urban” applications
  - cargo transport, pax-carrying, aerial work, etc.
  - eVTOL, sUAS, eCTOL, hybrid-electric, etc.
  - Urban Air Mobility (UAM) as a challenging use-case with high benefit

- Enabled by electrification and scaled through automation

- Does not include:
  - Supersonic or hypersonic transport
  - Existing hub-and-spoke air service with large transport aircraft

Safe, sustainable, affordable, and accessible aviation for transformational local and intraregional missions
Develop validated AAM System Architectures that define a safe, certifiable, and scalable system.
NASA Research to enable National Campaigns

Help catalyze UML 1, 2...
- NC-DT: Developmental Testing
- NC-1: Operational Safety

Reduce risk of industry UML- 3&4 timeline...
- Complex Operations: NC-2
- High Volume Vertiports: NC-3
- Scaled Demo: NC-4

Legend:
- Automation Research and Capability Development
- Integration of Automated Systems Flight Testing
- GC Series and Operational Demonstrations

UML “unlocks” based on a range of publicly available industry projections; not a consensus view
NASA AAM Mission Priorities

1. Source and Fleet Noise
   - Vehicle Propulsion Reliability
   - Safety in Environmental and Failure conditions
   - Distributed Electric Propulsion

2. Assured Automated Architectures
   - National Campaign
   - High Density Microplex

3. Airspace System Design & Implementation
4. Airspace & Fleet Operations Management
5. Community Integration

- Human Response to Noise
- Regional M&S Capabilities

- AAM Airspace and Supplemental Data Services
- In-time Aviation Safety Management System

- Automated Flight and Contingency Management
- m:N Pilots to Aircraft

- xTM Architectures
  - Operational Rules, Roles, & Procedures
  - Comm, Nav, Surveillance, Information

- Aircraft & Aircrew Barriers
- Airspace Barriers
- Community Integration Barriers

Pillar number