LM Global Vision Center, Arlington VA

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2nd NASA-FAA On-Demand Mobility and

Emerging Aviation Technologies Roadmapping Workshop

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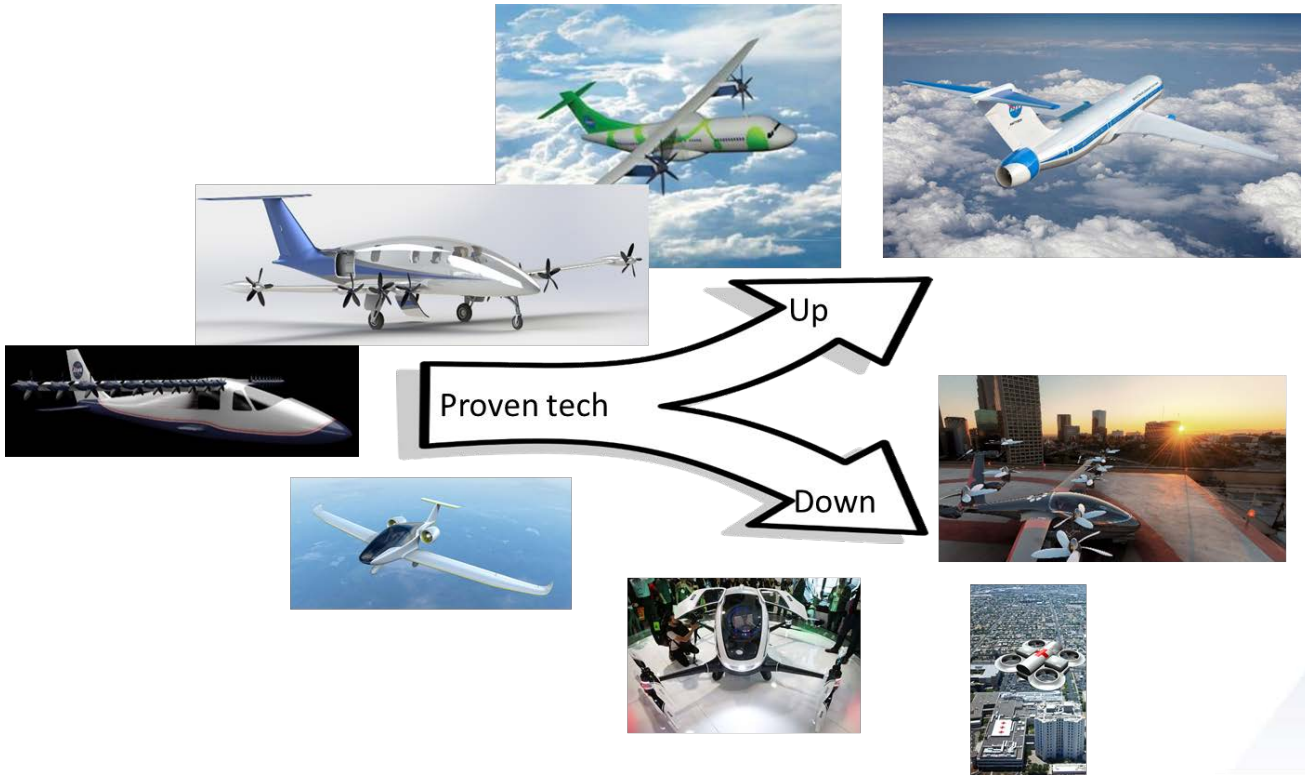
ODM Provides an Early Entry Point for Certification of Human Rated Aviation Technology

- Higher risk tolerance, operational, & safety benefits with smaller aircraft
  - FAA CFR 14 Parts 23 and 135 less restrictive than 25 and 121
  - ASTM F44 provides industry consensus standards that increases flexibility
- Technology can be developed at lower costs and faster life-cycles with early certification and early adoption to prove statistical safety
- Once proven, technologies scale up & down to other aviation markets



1st ODM/Emerging Technology Workshop
Kansas City, October 21-22, 2015

- First workshop established initial ODM goals, technology work groups, and reference missions; started the dialog of where ODM opportunities exist.

Ease of Certification	Affordability	Safety	Ease of Use	Door to Door Trip Speed	Average Trip Delay	Community Noise	Ride Quality	Efficiency	Lifecycle Emissions
Metric: Time/Cost Required	Metric: Total Operating Cost/Pax Mile	Metric: Fatal Accidents per Vehicle Mile	Metric: Required Operator Training Time & Cost	Metric: mph	Metric: Time	Metric: Perceived Relative Annoyance @ Community Stand-off Distance	Metric: Passenger Comfort Index	Metric: Energy/Pax Mile	Metric: Total Emissions /Pax Mile

- Technology Workgroups
  - Electric Propulsion and Configuration Integration
  - Airspace Integration
  - Simplified Vehicle Operations
  - Manufacturing, Integrated Structures and Community Impact

- Reference Missions
  - Urban Air-Taxi (Vertical Takeoff and Landing)
  - Thin-Haul (Conventional Takeoff and Landing)
  - Scale-Up and Scale-Down Missions Defined

1st ODM/Emerging Technology Workshop Kansas City, October 21-22, 2015

- First workshop had attendance of ~80 attendees, with a small amount of international participants.

- This second workshop has ~170 attendees, with 20 international participants.

- Research Organization Perspectives
  - Representation from all NASA Aeronautics Centers (Langley, Glenn, Ames, and Armstrong) to understand current and potential technology research areas.
  - Representation from (2) DARPA programs focused on advanced manufacturing
  - Representation from international research organizations, including (3) EU projects, Korean Aerospace Research Institute (KARI), and Japan Aerospace Exploration Agency (JAXA).

- Certification of Advanced Technologies Perspectives
  - Representation from FAA Small Airplane, Engine, and Rotorcraft Directorates as well as well as Fatigue and Damage Tolerance Chief Scientist.
  - Representation from EASA relating to Electric Propulsion Certification.

- Significant participation across industry and academia.