Transformative [Vertical] Flight: On-Demand Mobility

Technical Society Prospective

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March 8, 2016

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What is AHS International?

- **The global vertical flight technical society**
  - Started in 1943 as “The American Helicopter Society”
- **Expands knowledge** about vertical flight technology and promotes its application around the world
- Advances VTOL aircraft **safety and acceptability**
- Advocates for vertical flight R&D funding
- Helps **train the next generation** of vertical flight leaders

[www.vtol.org](http://www.vtol.org)
Transformative Vertical Flight Workshops

- **Joint Workshops on Enabling New Flight Concepts through Novel Propulsion and Energy Architectures**
  - Led by AHS, with support from AIAA, SAE and NASA
  - Focused on new VTOL concept opportunities enabled by electric propulsion, et al.
  - Developing a white paper that provides an independent professional society roadmap perspective
  - Facilitating networking across Govt and small companies, and promoting educational outreach of these new technology opportunities
  - A critical pre-cursor to engagement by trade associations like GAMA

- **All past and future materials are linked from [www.vtol.org/transformative](http://www.vtol.org/transformative)**
  - 2nd Workshop: Aug 3-4, 2015 at NASA Ames, California
  - 3rd Workshop: Sep 29-30, 2016 at Hartford, Connecticut

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Upcoming ODM Technical Events

- **72nd Annual AHS International Forum**: [www.vtol.org/forum](http://www.vtol.org/forum)
  - May 16-19, 2016 @ West Palm Beach, Florida
  - Transformative Vertical Flight Special Session (ODM)
  - Advanced Vertical Flight Technical Sessions

- **AIAA AVIATION 2016**: [www.aiaa-aviation.org](http://www.aiaa-aviation.org)
  - June 13-17, 2016 @ Washington, D.C.
  - 12 sessions on ODM, including 3 related to VTOL

- **3rd Transformative Vertical Flight Workshop**
  - Sep 29-30, 2016 @ Hartford, Connecticut, in conjunction with:
    - SAE International Aerospace Systems and Technology Conference (ASTC)
    - SAE-AIAA-AHS-RAeS International Powered Lift Conference
Professional Society Perspective

- **Professional societies provide a neutral forum for the ethical exchange of technical information**
  - Increasing knowledge through sharing and collaboration of ideas, peer review
  - Coordinating a professional society roadmap of critical technological, regulatory and other barriers that need to be overcome for widespread adoption
  - AHS leading on *vertical flight*

- **Many companies are investing significant resources towards viable ODM systems**

- **Need more government leadership:**
  - More opportunities for universities and companies to propose research for funding and work towards the common goals that NASA et al are establishing
  - How do we get students excited about ODM connect with research efforts?
  - Need NASA Research Announcements (NRAs) for ODM topics so more groups (industry and academia) can get engaged

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AHS Perspective

• **AHS supports more funding for ODM — esp. VTOL**
  - Staunch advocate for more NASA aeronautics funding in general and vertical flight specifically since Goldin years cuts in FY00, et seq.
  - Recent success in support of Congressional augmentation to Aeronautics

• **New Aviation Horizons has the right framework**
  - NAH “*transformative hybrid electric propulsion demonstrators*” should be aimed at ODM – esp. VTOL
  - Electric propulsion is uniquely suited for vertical flight due to opposing VTOL and cruise power requirements

• **NASA ARMD should start an ODM project for Fixed Wing VTOL**
  - TACP can incubate the technologies and allow it to grow into its own AAV project
Summary

• **Professional societies have been expanding the forums for discussion and collaboration on ODM**
  o Get involved! [www.vtol.org/transformative](http://www.vtol.org/transformative)

• **Joint AHS-AIAA-SAE-NASA Workshops on Transformative Vertical Flight ongoing since 2014**
  o Developing an independent, technical society roadmap
  o Distributed/hybrid electric propulsion is a *transformative capability*!

• **Need more government leadership and funding**
  o New Aviation Horizons Funding for ODM and Fixed Wing VTOL
  o NASA Research Announcements