



AHS International — *The Vertical Flight Technical Society*

# Transformative [Vertical] Flight: On-Demand Mobility

## *Technical Society Prospective*

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[www.vtol.org](http://www.vtol.org)

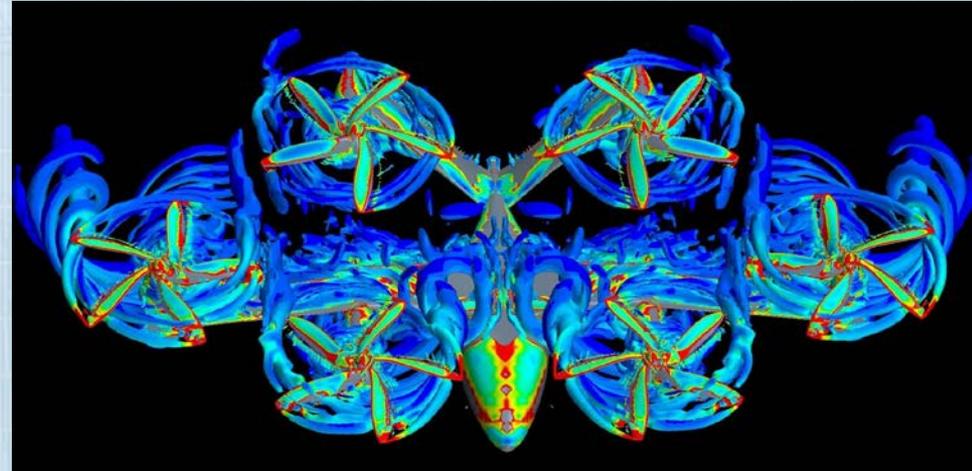




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# What is AHS International?

- **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



CFD simulation courtesy of Joby Aviation



Aurora LightningStrike concept for DARPA VTOL X-Plane





# 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)**
  - 1st Workshop: Aug 26-27, 2014 in Arlington, Virginia
  - 2nd Workshop: Aug 3-4, 2015 at NASA Ames, California
  - 3rd Workshop: Sep 29-30, 2016 at Hartford, Connecticut



NASA GL-10 Greased Lightning





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# Upcoming ODM Technical Events

- **72<sup>nd</sup> 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
- **3<sup>rd</sup> 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



e-volo Volocopter





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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**
  - Get involved! [www.vtol.org/transformative](http://www.vtol.org/transformative)
- **Joint AHS-AIAA-SAE-NASA Workshops on Transformative Vertical Flight ongoing since 2014**
  - Developing an independent, technical society roadmap
  - Distributed/hybrid electric propulsion is a *transformative capability!*
- **Need more government leadership and funding**
  - New Aviation Horizons Funding for ODM and Fixed Wing VTOL
  - NASA Research Announcements

