What if you could cut your daily commute time from 35 minutes to 12 minutes? How much of a bigger home would you buy if you could commute 100 miles to work and still get there in less than 35 minutes? What if this type of capability was cost-competitive to driving, taking the train or bus?

These questions have compelled a group of scientists, engineers and visionaries in industry, government and academia to meet once a year to tackle the technical, regulatory and perception challenges of democratized vertical flight. Technology advances in motors, batteries and automation have made the dream closer to a reality. However, the challenges are much more than just technical; therefore, a consensus amongst stakeholders is needed to increase success.

On August 3-4, 2015, a workshop was held at the NASA Ames Research Center, located at the Moffett Federal Airfield in California, to explore the aviation community’s interest in Transformative Vertical Flight (TVF) Concepts. The workshop was sponsored by AHS International, the American Institute of Aeronautics and Astronautics (AIAA), and the National Aeronautics and Space Administration (NASA); it was hosted by the NASA Aeronautics Research Institute (NARI). This second-annual workshop built on the success and enthusiasm generated by the first TVF Workshop held in the Washington, DC, area in August 2014.

Again this year, the workshop had a “sell-out” crowd of more than 130 enthusiastic registrants. Attendees had the chance to tour some of the exciting facilities at NASA Ames: the National Full-Scale Aerodynamics Complex (NFAC), the Vertical Motion Simulator (VMS), and the Hyperwall supercomputer-driven visualization system. Participants were also able to take a tour of the Hiller Aviation Museum and engage in some thought-provoking discussions at the local AHS San Francisco Bay Area Chapter dinner meeting, which featured Boeing’s Dan Newman, who provided his ideas about “Our Kids’ Vertical Flight.”

Some two dozen presentations and panel discussions were given by engineers, scientists and visionaries from NASA and other government agencies, electric propulsion and energy storage researchers and developers, small innovators and startups, and large aerospace companies. Plans are now being made for a third workshop to be held next summer or fall.

The previous workshop identified the existence of a multi-disciplined community interested in this topic and established a consensus among the participants that opportunities to establish further collaborations in this area were warranted. A direct outcome of the first workshop was the resolution to conduct a series of workshops — augmented by online virtual technical seminars — to strengthen the TVF community and to continue planning for advocacy and collaboration.

The second workshop organizers focused on four desired action-oriented outcomes. The first was to establish and document common stakeholder needs and areas of potential collaborations. This includes advocacy strategies to encourage the future success of unconventional Vertiport-capable flight concept solutions that are enabled by emerging technologies. The second was to assemble a community that can collaborate on new conceptual design and analysis tools to permit novel configuration paths with far greater multi-disciplinary coupling (i.e. aero-propulsive control) to be investigated. The third was to establish a community
More information can be found on the AHS website: www.vtol.org/transformative. Featured is a description of the 2015 workshop, as well as the briefings and video recordings from the webcast. (The slides from the 2014 workshop are also available.) A draft of the proceedings has been posted and a draft of the working roadmap will be published around December 1, 2015.

About the Authors:
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