Workshop on Human-Automation Interaction Considerations for Unmanned Aerial System Integration

Statement of Task

Under the auspices of the Board on Human-Systems Integration (BOHSI) and the Board on Aeronautics Space and Engineering an ad hoc steering committee will plan and conduct a 2-day workshop aimed at advancing the understanding of the human factors/human systems integration issues associated with the full integration of Unmanned Aerial Systems (UAS) into the National Airspace System (NAS). The focus will be on human interaction considerations relevant to the design and operations of Unmanned Aerial Systems (UAS) technology, particularly within the context of implementing automation capabilities within ground control stations (GCS). The workshop will highlight existing human factors and human-systems integration research while identifying opportunities to address gaps and opportunities in research, application, and implementation. Questions to be explored may include:

- What human systems integration considerations are paramount as this evolution of new UAS and automation technologies into the NAS takes place?
- How can automation technologies be leveraged to support UAS integration into the NAS?
- As new UAS technology is developed, how can human-automation interaction issues best be addressed so that new systems are developed without the automation-based human performance issues that exist in legacy systems?
- How can the human factors community help the FAA and industry leverage decades of automation research and findings in the design of GCS automation technologies?
  - What are the key knowledge gaps within these communities for understanding the interaction of the pilot/operator with GCS automation technologies?
- “What will the sensor and communication systems requirements be to support development of robust ground station operations?”

Other topics to be explored may include metrics, training, selection, psychosocial issues, augmented cognition, supervisory control, allocation of function to automation vs. humans, GCS standardization, multiple UAS control, operator situation awareness, crew coordination, certification, communications, increasing onboard intelligence and problem solving, machine learning, and adaptable automation.

A proceedings of the presentations and discussion from the workshop will be prepared by a designated rapporteur and published following the National Academies’ policies and procedures for such publications, including the standard review procedures.