

Aerospace Industries of America



By Marion Blakey

Many technological advances now taken for granted first appeared as evolutions in military hardware. Today, Unmanned Aircraft Systems are no exception. Few of us foresaw the rapid growth of UAS, however.

As military operations in Iraq draw down, the U.S. military will return thousands of unmanned aircraft to the United States and the Department of Defense (DOD) will need dramatically more airspace to accommodate a fifty-fold increase in UAS training requirements. By 2012, UAS flight training hours are expected to jump to 1.2 million from today's 30,000. The number of UAS has also jumped from about 50 tactical small vehicles nine years ago to more than 2,400 of all sizes.

Moreover, as the valuable public safety benefits of UAS civil and commercial applications become apparent, there is mounting pressure for the FAA to integrate such operations as soon as possible. This presents FAA with a host of "box-stretching" issues in meshing the needs of military and commercial UAS operations in the civil airspace. The challenges are significant.

UAS demand is not going to slow down, however, and integration is not discretionary: we must meet those challenges. All facets of UAS development, manufacture and operations are represented in AIA's membership of almost 300 manufacturing companies with more than 635,000 high-wage, highly skilled production employees. We are the largest aerospace trade association in the United States encompassing three sectors: civil aviation, national security and space systems. Exporting 40 percent of their total output, our industry routinely posts the nation's largest manufacturing trade surplus, \$56 billion last year. Aerospace companies also continue to invest heavily in R&D, spending more than \$50 billion over the last 15 years.

To better serve members' interest in the tremendous UAS potential, AIA formed a UAS Subcommittee of its members in 2005 to promote a vibrant, competitive, global market for U.S. Unmanned Aircraft Systems, products and services. All stakeholders agree that UAS should perform under, and adhere to, the same safety standards as other aircraft.

AIA's subcommittee typically meets bi-monthly, but meetings and teleconferences are scheduled as issues require. Members discuss with senior-level government and industry leaders a wide array of domestic and international UAS policy and political developments. They also advocate for UAS integration, and the subcommittee is engaged with Congress and the Office of Management and Budget to help ensure that UAS efforts receive needed resources.

Access to high level FAA decision makers is valued and available to the members of the AIA UAS Subcommittee. Especially productive are the periodic AIA-FAA UAS Roundtables where industry engages FAA's senior officials. These meetings not only inform us and FAA, they also help industry identify where it can best direct resources to assist FAA progress. Similar meetings with NASA, DOD and other federal officials have also been effective.

AIA is intent on facilitating FAA's progress as it addresses the

challenges of accessing and leveraging data, making more test ranges available and developing a data-driven standards certification process. Industry is making the case to policy makers and legislators that more resources are needed to accomplish this goal in a timely manner.

UAS also illustrate the need for the Next Generation Air Transportation System (NextGen). In the decades ahead, diverse new vehicles will be seeking operational access into civilian airspace. An effective process for certifying UAS operations will serve as a precedent for certification of other new vehicles, along with continual safety enhancements.

As a rapidly evolving technology, UAS clearly have significant R&D needs, particularly as to National Airspace System integration modeling, sense and avoid capabilities and secure communications links. AIA's coordination with NASA to further that agency's UAS work and resource acquisition is a major activity that has met with notable success. Further, through the FAA Research Engineering, and Development Advisory Committee, AIA members have directly asked FAA to provide resources to UAS and to utilize all appropriate standards-setting organizations.

To similar effect, the subcommittee interacts closely with DOD, especially the U.S. Air Force, as well as with AIA's National Security Division. The issues relating to both defense and civil access to airspace are critical for UAS integration. AIA's engagement with the Air Force intensified with a discussion between Secretary of the Air Force Michael Donley and FAA Administrator Randy Babbitt at the AIA Board of Governors Meeting in November 2009. Moderated by Aurora Flight Sciences CEO John Langford, the discussion revealed areas for further collaboration between the two agencies, as well as highlighted FAA's concerns about safeguarding airspace safety while integrating UAS.

On the regulatory front, our members have supported the FAA Small UAS Aviation Rulemaking Committee and are urging FAA to quickly conduct rulemaking activities to allow some access to the NAS. Similarly, AIA has been active with RTCA Special Committee 203 to help it progress in this complex undertaking. Approaching the issue from another front, the AIA subcommittee is working with AIA's Technical Operations Committee on a strategic standardization task to articulate a UAS "systems diagram" identifying the major components and systems (hardware, systems, command stations, etc.) and a "mission diagram" (seek, loiter, direct control, pre-programmed etc.). This would provide a gap analysis of standards requirements and standards work.

AIA's legislative committee collaborates closely with the UAS Subcommittee for more effective advocacy as it develops position papers and ancillary information for congressional committee meetings and hearings.

AIA industry experts interact highly effectively with international organizations and other deliberative bodies that affect the global UAS market and operations.

Internationally, AIA is supporting the ICAO UAS Study Group efforts to amend most of the ICAO Annexes through AIA's International Coordinating Council. Additionally, the subcommittee meets periodically with EuroControl and SESAR concerning action on UAS. Recently, the subcommittee met with FAA, the National Telecommunications and Information Administration and Federal Communications Commission representatives about how best to inform the U.S. ambassador to the upcoming World Radio Conference about the critical importance of protecting UAS spectrum.

Further, AIA UAS Subcommittee members participate on ASTM Committee F38 on UAS standards and EUROCAE WG 73 developing UAS standards.

Working with FAA leadership of safety, certification and operations, the subcommittee has identified critical key areas for government-industry coordination, and for productive interagency leveraging of work and resources. Specifically, AIA members are currently advocating for certain advances that are important for progress.

These include FAA's issuance of a UAS Integration Roadmap to identify issues and resources (including financial) necessary to approve UAS standards and procedures; formal inclusion of UAS safety data collection within existing collection, reporting and analyses programs; integration of UAS in all government NextGen efforts to define demonstration objectives and research beyond detect, sense and avoid capabilities; assurance of dependable, dedicated and sufficient FAA budgetary resources to meet the current and projected UAS demand, and FAA utilization of all resources to facilitate the integration process. This would include accessing various standards setting organizations and groups such as REDAC to augment FAA's

scarce resources and expedite progress.

AIA has always supported a defined roadmap for addressing standards and certification, technology maturity, and other factors affecting the pace of UAS integration. While complicated by the diversity in size and complexity in UAS platforms, AIA advocates an introduction of UAS into civil airspace while ongoing development of standards, regulations and certification continues. The lessons learned during this phased approach can provide invaluable information and be applied during ongoing programs.

UAS is an exciting and growing sector of the aerospace industry. There are many challenges ahead to mesh the needs of military and commercial UAS with the requirements of operating in the civil airspace and AIA is committed to developing solutions for all UAS users. It's important to step up smartly to these issues because the evolution of UAS is not going to slow down and their game-changing benefits are clear.

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