



Commercialization of Unmanned Aerial Systems: Opportunities and Issues

Quality, innovative, and practical solutions to assist decision makers in Federal Agencies, Industry, Congress, and State and Local governments in understanding and advancing unmanned aerial systems technologies.

BLUF: The Lexington Institute, in collaboration with Gannet International, is launching a new project on commercialization of unmanned systems, recently organized a U.S. Chamber event with Federal Aviation Administration (FAA) Administrator.

The Lexington Institute, in collaboration with Gannet International, is beginning a new project to identify the critical issues associated with bringing commercial unmanned aerial systems (UASs) to America's airspace. Over the course of the next year, Lexington and Gannet will conduct a series of workshops involving the full range of stakeholders to more closely examine both the opportunities and impediments to opening up this nation's airspace to UASs.

The Lexington Institute's mission is to inform, educate, and shape the public debate of national priorities in those areas that are of surpassing importance to the future success of democracy, such as national security, education reform, tax reform, immigration and federal policy concerning science and technology. Gannet International provides consulting services and technical expertise to Federal and State governments, domestic municipalities, and commercial and private sector organizations on the implementation, utilization, and future integration of UASs into the national airspace (NAS) and international flight management systems. Together, we hope to help resolve the issues and overcome the impediments that are holding back commercial exploitation of the enormous potential of UASs.

In the interest of expanding the discussion of UASs in U.S. airspace, Lexington and Gannet helped organize a recent event sponsored by the U.S. Chamber of Commerce titled *Commercialization of Unmanned Aerial Systems: Opportunities and Issues*. The Honorable Michael Huerta, FAA Administrator, delivered the keynote address. His speech was followed by a panel discussion of policy experts discussing two main topics: opportunities and issues.

Interest in the potential civil use of UAS has grown rapidly over the last several years as this emerging market has identified numerous opportunities for unmanned platforms from agriculture and law enforcement to sporting events and product deliveries. UAS will help cut costs, save lives, and improve everyday activities. Studies have shown that the effect these technologies will have on recreational and business uses are immense (in the billions of dollars) and in combination with the number of jobs created, UAS initiatives will make a significantly positive impact on the U.S. economy.

While a majority of Americans support the use of unmanned aircraft for homeland security, search and rescue, and fighting crime, and commercial applications, there are noteworthy constraints to the use of UAS. The FAA currently has approved Certificates of Authorization (COAs) to public entities for research and development and operational purposes (ie, law enforcement and University programs) but a rapidly growing demand in the civil sector is making their "accommodation" approach administratively unsustainable. Due to the lack of a regulatory structure, the FAA is currently reviewing rules, policy and procedures, guidance material, and training requirements for the safe and efficient implementation of UAS operations

in the NAS. However, the pace of integration will be determined by the ability of industry, the user community, and the FAA to overcome technical, regulatory, and operational challenges.

FAA Administrator Huerta stresses FAA's authority over UAS operations

FAA Administrator Michael Huerta reinforced his agency's role in regulating the integration of unmanned aircraft and hinted that some commercial uses of the systems could come sooner than expected.

He said the FAA is working to debunk a lot of myths related to unmanned aircraft, including the argument that they do not fall under the definition of aircraft.

“Well the truth is, whether it's being used for recreational, hobby, business or commercial purposes, unmanned aircraft fall clearly under the definition of aircraft in U.S. law.”

Another myth is that the FAA doesn't have the jurisdiction to regulate unmanned aircraft.

“Actually, all civil aircraft are subject to FAA regulation, and how high you fly does not carve out an exception,” he said. He said he understands how some believe that commercial operation below 400 feet over private property is somehow exempt, “but that's just not the case.”

Huerta acknowledged the many players that are chomping at the bit to use UAS in commercial and civil ways, like Amazon for package delivery or Google for tracking poachers. “We need to take a deliberate and measured approach when integrating UAS technology into the national airspace system,” Huerta said at the Chamber of Commerce event. “The pressure to move quickly is very high because the potential for this technology is very high.”

“When I took this job, I never thought a Christmas gift from Brookstone could prove so provocative,” he said, adding that unmanned aircraft are the “most dynamic growth sector in the aviation industry.” He said that the FAA will take interim steps to approve limited commercial use of unmanned aircraft in highly controlled environments, like on movie and television sets. In these scenarios, the pilots must be certified and conditions on the ground must be safe, he said.

Huerta noted that using unmanned systems for agriculture in the United States offers unique complications that are not true for countries like Japan, where the practice is commonplace. Rural areas where agricultural UAS uses would occur are also the areas with the most general aviation, where visual flight rules reign. Ensuring a proper sense-and-avoid solution will be key to integrating rural unmanned commercial opportunities, he said.

Huerta would not make any specific comments on the long-delayed regulations surrounding small unmanned aircraft, only saying that a ruling would come out sometime in 2014. Rulemaking is a deliberate and measured process, he said. “It sometimes takes longer than any of us would like, and that's certainly the case with me.”

Panelists discuss opportunities and issues

Agricultural operations and agri-businesses hoping to leverage the use of drones need to brand these so-called UAS before skeptics of the technology do it for them, former U.S. Grains Council CEO Thomas Dorr said during an event at the U.S. Chamber of Commerce in Washington.

“If this industry doesn’t at the very get-go address the public perceptions... it’s going to be fighting an uphill battle sooner than anticipated,” Dorr said.

Dorr pointed to the problems agricultural biotechnology has had getting genetically modified crops accepted by the general public and said UAS proponents should find out where that industry “went wrong” as it pushes for wider public use.

“You in the industry are going to have to spend resources and time figuring out how you’re going to brand the technology,” Dorr said, warning that without that preparation, they may have to fight tough political battles involving privacy rights.

Drones cannot be widely used in U.S. agriculture today because the FAA does not allow unmanned flight for commercial purposes. But Congress has ordered the agency to incorporate unmanned aerial systems into U.S. airspace by September 30, 2015. Several pilot programs are currently underway.

Small drones could be used in agriculture to monitor or spray crops, in retail photography, or in many industries to deliver products. Curt Chestnutt, the vice president of UAS Business Development at AeroVironment, said potential uses are “burgeoning and almost unlimited.”

Dorr said the certification and legal framework that could be a product of the FAA test sites needs to be completed sooner rather than later.

“A lot of weather data systems are being put together out there that could have a dramatic impact on how we use our natural resource base,” Dorr said. “I would hate to lose that technology from these companies simply because we don’t have the platform for regulation and certification.”

Dorr said the world’s middle class will add 2 billion people by 2020, creating \$2 trillion dollars a year in new food demand and driving the need for new technologies that can boost farm production. Opportunities for drone technology in agriculture alone should be a driving factor in freeing it up for commercial use, he said.

“A host of new technologies are demanding new policy approaches to satisfy these needs in an environmentally and economically sustainable manner,” Dorr said. “We should not be consumed by overregulating this technology.”

Although the FAA has no rules yet governing drone use, state and local governments and universities can apply for waivers to experiment with the devices. FAA has issued hundreds of waivers to public entities to use at crime scenes or fire, and to universities for research.

M. Bradford Foley, the president of Gannet International, an Alexandria, Virginia-based unmanned systems and advanced technologies company, noted that about a dozen states have enacted legislation limiting the use of drone technology. He emphasized that international competition, including from Israel and China, is growing regarding the development of UAS.

“When we put a lot of restriction on UAS, we back off of our economic competitiveness,” Foley said.