

## **Speech – "ICAO RPAS Symposium"**

2<sup>nd</sup> Global RPAS Symposium

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### **ICAO Headquarters**

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Good morning, thank you for having me here today. It's a pleasure to be joining you in Montreal. Since this is my first opportunity to address you all, let me tell you a little about myself and my organization. I am the Executive Director of the FAA's UAS Integration Office, and we're the latest addition to the FAA's Aviation Safety organization, formalized by the U.S. Congress in September 2016.

Although we're still a relatively new office, it's clear that the Agency as a whole has shifted into high gear ... We implemented our small UAS rule (part 107), and have seen the commercial UAS industry expand to include over 60,000 Remote Pilots; we've held three aviation rulemaking committees, the most recent being for drone identification and tracking; we've developed an FAA-wide UAS integration plan, and aligned our UAS research with our integration objectives; and we've developed and executed several successful public outreach campaigns to educate the public about how to fly safely and responsibly.

The FAA isn't alone in this adventure. I'm sure many of you have contributed to these successes alongside UAS specialists from across the FAA and U.S. All of us gathered here today are helping to write the story of unmanned aircraft integration. It's a story about collaboration, about innovation, and I think most importantly, about a shared commitment to safety. The story of unmanned aircraft is just beginning, and it's one that we'll continue writing together!

Drones are changing the world quickly as they are much less expensive than traditional aircraft, readily available, and automated to the extent that kids can easily operate them.

It wasn't that long ago that we were talking about how drones *might* be used for aerial photography or agriculture, and now these operations are happening every day. The future is limited only by our imaginations. Package delivery is on the horizon, and highly automated human transport isn't far beyond that. Over time, drone use in our everyday lives will have a huge impact on society.

Look at the way drones are playing a larger role in natural disasters. Hurricane season has taken a toll in the Caribbean and on the southern United States, but it's heartening to hear the good news stories about drones assisting in a number of different relief efforts, including search and rescue efforts, energy infrastructure restoration, and damage assessment of roads, bridges, water treatment plants, and flooded infrastructure.

Without a doubt, drone technology is already a real presence in our lives in unprecedented ways. We're having conversations today about a day in the not-that-distant future when a drone taxi might lift you above the rush-hour traffic in a dense metropolitan area and make sure you get to that meeting across town on time. Maybe in one of my future trips here to the ICAO Headquarters I'll just catch a drone from the airport to my hotel.

Clearly there's a lot to be done between here and there. But it's a "there" that has only come on to the horizon recently. This pace of development is something that we talk about a lot. It's something that inspires, and presents new challenges to government because it breaks our norms. In the traditional aircraft industry, new jetliners are introduced maybe once every 10 or 15 years. In the world of unmanned aircraft, new products are developed over weeks or months, not years.

This is why this Symposium is important, and why the FAA will continue to dedicate resources to the ICAO RPAS Panel and contribute to the significant work that the UAS Advisory Group is doing.

At the last Assembly, many States, including the U.S., encouraged ICAO to address the rapidly developing small UAS sector as a priority due to safety concerns. The United States recommended that ICAO adopt an innovative and more flexible approach to integrating small UAS.

We are pleased to see ICAO stepping up to this challenge, re-establishing the UAS Advisory Group, calling for UTM proposals, and hosting

DRONE ENABLE. Within our respective sovereign governments, we continue to work with stakeholders in this fast-evolving industry. At the FAA, we have embraced a new way of thinking. We know we can't move at the speed of government while the rest of the industry moves at the pace of Silicon Valley.

We're redefining our role as a regulator and moving quicker than ever to ensure safety without unduly stifling the economic potential. As you might imagine, some of our stakeholders are frustrated that we aren't moving faster. At the same time, many others would like us to tap the brakes.

The good news is that we continue to make a lot of progress. But, the unprecedented rate at which unmanned aircraft are evolving means we have to constantly grapple with new and complex questions that affect a broad spectrum of the many stakeholders that we have in this industry.

This is particularly apparent as we consider the roles of our own governments at the national, state, and local levels. How do we ensure that unmanned aircraft operations can occur with a minimum amount of disruption and interference, particularly when we are moving into densely populated areas? And what role do state and local governments want to play? For example, the Mayor of San Francisco recently explained that he already has a large airport that serves the city, but now in the world of drones, someone has gone and made the *entire city* an airport.

These are big questions, and I think it's extremely important that we get it right as an aviation community. We're facing this together, tackling similar issues, regardless of how our governments or aviation authorities are organized. Collaboration and transparency are going to be key and we will need to share our successes with one another in order to build a range of strong, harmonized global solutions.

The FAA is using our Drone Advisory Committee, or DAC, as a starting point. This federal advisory committee was created to develop recommendations to help the FAA prioritize our integration work. One of the DAC's current task groups is focusing on identifying roles and responsibilities of drone operators, manufacturers, and federal, state, and local officials related to drone use in populated areas.

But the work of the DAC is only one of several key areas we're focusing on. We are also continuing to work on a rule for operations over people. I know that's something of great interest to everyone here since it's one of the most-sought after operations from the drone community.

The FAA's Center of Excellence recently completed the first in a series of research projects looking at the potential safety ramifications of what might happen when a drone hits a person on the ground. Although we can't yet definitively answer every question, we are starting to understand the risks a little better.

The findings of this study are very insightful, and should help us as we continue to ensure the level of safety that the public expects and deserves as drones become more ubiquitous in our daily lives.

And in the near future, we expect the FAA Center of Excellence to present results from another study that looks at a question we've seen in the news a lot – what happens if an unmanned aircraft collides with a manned aircraft in the air.

As many of you are probably aware, public safety officials are giving drones more and more attention, both as a potential tool and a potential public safety risk. The FAA is collaborating with our government partners to examine solutions for the potential safety and security concerns.

In late April, the FAA and our partners completed the fifth and final field evaluation of possible drone detection systems at Dallas/Fort Worth International Airport.

This evaluation considered a combination of technologies, including radar, radio frequency and electro-optical systems.

We plan to use the information we've received from this test, and previous testing, to work with our government partners to develop minimum performance standards for any unmanned aircraft detection technology that might be deployed around airports in the United States.

We have also been working all summer with a group of industry stakeholders to get their recommendations on how to implement an

identification and tracking system for UAS. There's been a lot of interest in this diverse stakeholder group, and we hope the recommendations they produce will help pave the way for expanded operations, including flights over people and beyond visual line of sight.

There is no question in my mind that the significant milestones we have achieved so far are a direct result of the good work from stakeholders across government and industry. This collaboration is vital in the United States and, needless to say, equally important at the global level.

In order to understand how to leverage this experience at the international level, let me share the current state of affairs in the United States. Today, more than 911,000 operators have registered their aircraft with the FAA, 88,000 of these are specifically registered for commercial use.

As I mentioned earlier, we have issued more than 61,000 Remote Pilot Certificates in the one year the rule has been in effect. At the same time, we're working to update the process for granting Part 107 authorizations and waivers, making it easier and faster for operators to capitalize on new business opportunities.

We've also published more than 480 facility maps, which show at what altitudes the FAA is likely to approve UAS operations around some of our nation's busiest airports. Soon, we will be automating the Part 107 airspace authorization process. The FAA has been collaborating with industry on this effort for almost a year now and we plan on starting to field the automated

airspace authorization process at the beginning of 2018. For the FAA, this is a small step but the first concrete step of fielding an UTM system.

Drone pilots are the newest entrants to our aviation community and they must embrace the responsibility of operating in an environment that can be unforgiving of mistakes or reckless behavior. The FAA's strategy for addressing this risk relies heavily on spreading the safety message and educating UAS users about their responsibilities to fly safe. We continue to make updates to our B4UFLY mobile app, which was created to let people know where it's safe and legal to fly. So far, the app has been downloaded over 282,000 times, and has been recently updated to provide plain-language airspace location information.

Education is an ongoing commitment. All you have to do is go to YouTube, search for "night drone flight" or "drone footage" and you'll find dozens of videos that still reflect a sobering lack of understanding of basic safety regulations.

We've been fortunate, so far, that none of these incidents has resulted in an injury or a collision with a manned aircraft.

But safety shouldn't rely on luck. Safety needs to be intentional. We need to remain engaged in promoting safety, both domestically and globally. To this end, I am grateful that the ICAO UAS toolkit has gone live, raising public awareness globally of the norms and expectations for safe drone operations in different ICAO Member States.



Education is an important part of the safety equation and I firmly believe that the answers to many of this industry's remaining challenges lie in the one trait that has defined it since the beginning: ingenuity.

In the last 30 years or so, the real advancements in safety have come through technology: wind shear detection, collision-avoidance systems, and the terrain awareness and warning system or TAWS, just to name a few.

As a result, aviation is safer than it has ever been. New technologies continue to drive the risk out of the system on a daily basis. And if there's one thing aviation has taught us, it's that innovation has a way of compressing time, and drones are an excellent example of that.

In the meantime, our job is to capitalize on each incremental step, making sure that we build a framework of performance-based regulations that can easily accommodate change. Everyday a new UAS system and or operation is fielded somewhere in the world and every day we need to add to the framework of regulation in order to maintain safety of the system.

A century ago, people couldn't foresee that clunky wood-and-fabric biplanes would morph into sleek aluminum jets capable of knifing through the air at supersonic speeds. And today, we can't possibly predict everything drones will be doing five or ten years down the line. In addition to playing critical roles in disaster response and relief, isn't it only a matter of time before drones become routine household items?

As long as we continue to journey down this road together, with a focus on shared accountability for safety and in a spirit of collaboration and inclusion, we will succeed in meeting the challenges that we face along the way.

Again, thank you for having me here, and I look forward to a collaborative and productive conference.

Thank you.