



World ATM NOW

9 March 2017 | Madrid, Spain | IFEMA, Feria de Madrid
#WorldATM



5TH ANNIVERSARY



Ready or Not, Drones are Coming to a UTM Near You

The unmanned aerial vehicle (UAV) industry is like a baby at full term—it's going to be born whether its air traffic management family is ready or not, said Teri Bristol, Chief Operating Officer, Federal Aviation Administration Air Traffic Organization, during the final Conference Programme session Wednesday morning.

"We just need to make sure we don't use King Herod as our model of childcare management," quipped Michael Baldwin, Deputy Director General, Directorate-General for Mobility and Transport, European Commission.

The current speed of UAV technology is amazing, bringing in a "whole bunch of new, non-aviation kids" into the staid ATM industry, Baldwin said. And the industry is keen to find a regulatory system that is not just safe, secure, and flexible, but also integrates and welcomes the new

players.

The challenge, he said, is, "if you had a new, hard-charging, disruptive—or should we say seismic—technology, would you choose the ATM world to implement that?"

ATM is scrambling to maintain its stellar record of safety and security while also facilitating the development of a new market, Baldwin said. But there's immense pressure to get the regulatory approach right to help ensure consumer acceptance of drone technology. "We could kill this industry ourselves," he warned.

Baldwin ended his opening speech with a series of questions for session panelists: "What lessons will drones bring to the ATM? Will they lead to more competition? We're all talking a good game, but can we deliver a good game?"

Bristol said the FAA is taking a very methodical approach to UAV regulation. It has published rules for



Kevin Shum, Director General, Civil Aviation Authority of Singapore, talks about concerns during Session Four: Airspace and UTM: Driving the Future or Left Behind?

hobbyists and small UAV operators, and there are currently over 720,000 drones registered in the US. "But the FAA is not going to build a UTM (unmanned aircraft system traffic management) model because the industry is much better equipped to do that than we are," she said.

Baldwin said the European Commission is currently working on a regulatory system for small drones, with a use-base blueprint scheduled for the end of April. The Commission doesn't have additional provisions for registration because most of its member states do that very well, he said. But it is looking at developing European standards for international marking and identification of drones.

Kevin Shum, Director General, Civil Aviation Authority of Singapore, said his country is very interested in working with the UAV industry to develop identification solutions for different types of drone use in a controlled airspace.

"This is one area where I truly believe that industry cooperating with ANSPs can come up with a solution," he said. "ICAO is not really the right place where these discussions should occur, because none of these

"Much of the acceptance of drones in our industry depends on how we connect to the end user."

—Marc Kegelaers, CEO, Unifly nv

aircraft are likely to cross international boundaries. And do we really want ICAO regulating domestic operations?"

Shum also discussed privacy,

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Íñigo de la Serna Hernáiz, Minister, Ministry of Public Works and Transport, Spain, talks to the media after the opening of World ATM Congress 2017.

Exhibition Hall Hours

Hall 9 at IFEMA, Feria de Madrid
(North Entrance)

Thursday, 9 March
10.00 – 14.00

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AeroMACS Brought Them Here, and World ATM Congress Impressed



World ATM Congress 2017 welcomed members of the Chinese delegation. World ATM Now spoke with two members, from left, Tony Tang, Deputy General Manager, AOC Department, Aviation Data Communication Corp. (ADCC), and Ma Hui, Assistant to President, ADCC.

If it looks like World ATM Congress has been busier this year, it's because it has – the show has enjoyed a record attendance. A big part of this is because of the expanded number of countries attending, which is partly due to groups like the visiting Chinese delegation, who traveled to Madrid for AeroMACS 2017, presented by the WiMAX Forum.

Ma Hui, Assistant to President,

Aviation Data Communication Corp. (ADCC), said his group has worked with AeroMACS steadily to invest in airport networks and applications for them, including surface movement. ADCC is the only datalink service provider in China, and is a joint venture invested in by Air Traffic Management Bureau of CAAC and key airlines.

In addition to visiting AeroMACS,

Hui, along with Tony Tang, Deputy General Manager, AOC Department, ADCC, and their colleagues, found great value in the free education presentations they attended. “Those presentations give us new ideas and something to think deeply on – they’re very impactful,” said Hui.

Looking forward to the future of Chinese ATM, the delegation is in a good position, as is their funding since the past decade. “A new trend in the aviation industry in China is that we are welcoming investors outside of the government,” said Hui, not-

ing that allowing the private sector to invest will allow them to expand services. “We’re trying to amend our former structure – it will come to real fruition in about five years.”

Some companies in the Exhibition have had a decade-long cooperation with ADCC – Indra, Thales, Rockwell Collins, Honeywell, and Airtel among them. “We have had strong joint ventures and see further cooperation with service providers [in the future],” said Hui, showing further promise of future collaboration with the Chinese in aviation endeavors.



Attendees take in a presentation at Boeing Stand 816 on 8 March.

DFS and Indra Move Forward in the Implementation of Single European Sky

The German air navigation service provider (ANSP) DFS Deutsche Flugsicherung and global consulting and technology provider Indra have implemented the next-generation iTEC Centre Automation System (iCAS) in the Karlsruhe control centre for most of the upper airspace above Germany. System tests and the first live operations at night have been successfully completed. Full operational use of the system is planned between November 2017 and February 2018.

As part of a nationwide modernisation programme, iCAS will replace the VAFORIT system, currently in place for upper area control in Karlsruhe. This will be followed by the system's introduction at the German control centres in Bremen, Munich, and Langen for lower airspace. It will also be introduced at the Amsterdam centre of the Dutch ANSP LVNL, Germany's system group partner.

iCAS offers a higher level of automation and allows for 4D capabilities, trajectory prediction, flight path conformance monitoring, and complete interoperability between control centres in Europe.

Robert Schickling, COO of DFS, said, “The deployment of the iCAS system is a major step towards attaining the objectives set forth by the SESAR programme for the creation of a Single European Sky. With iCAS, we will be able to deliver



Left to right: Marlou Banning, CFO LVNL; Rafael Gallego, Indra's ATM Director General; Mindaugas Gustys, Acting Director General Oro Navigacija; Janusz Niedziela, PANSA President; Michiel van Dorst, CEO LVNL; Robert Schickling, COO DFS; Prof. Klaus-Dieter Scheurle, CEO DFS.

higher service standards for the users of Europe's skies, we will have improved operational performance with increased capacity gains and cost-efficiency, and less environmental impact of flights. iCAS – the biggest investment and innovation programme at DFS – will replace the heterogeneous ATS systems that evolved over time at our control centres with one common system.”

The new system, based on iTEC technology, allows pilots to choose the most direct route, translating into

savings of both fuel and time. Its calculation capacity makes advanced planning of air traffic possible, avoiding conflicts between routes and enabling the management of higher amounts of traffic, more smoothly and more punctually.

This system has been designed together with Indra to promote the introduction of free route airspace, enabling airlines to choose the most convenient journey. Testing performed by DFS and EUROCONTROL to calculate the potential benefits de-

rived from introducing these types of flights in Germany, Belgium, Luxembourg, and the Netherlands have estimated annual savings of 9,000 tonnes of fuel and a reduction of 30,000 tonnes of CO2 emissions in the region.

The implementation of iCAS is framed within the iTEC Alliance which brings together Europe's leading air navigation service providers. With Indra as their technology partner, the Alliance has developed the core components of the iTEC system; a common controller working position as well as a flight data processing system. In addition to the German ANSP DFS, the other iTEC partners are from Spain (ENAIRES), the United Kingdom (UK), the Netherlands (LVNL), and Norway (AVINOR), along with Indra as the technology provider. Lithuania (ORO Navigacija) and Poland (PANSA) will join in March 2017.

Karlsruhe is the second major European control centre to implement iTEC technology, following Prestwick control centre. It started the en-route flight management of all air traffic in the airspace above Scotland and ocean traffic in the North Atlantic area in June of last year.

The iTEC components are expected to be deployed across many of the continent's control centres in the upcoming years and will ultimately manage 31 percent of Europe's air traffic.



World ATM Congress Exhibitor Listing and Floor Plan

IFEMA Feria de Madrid, Madrid – 7-9 March, 2017

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Thursday 9 March – Free Education

THE FREQUENTIS AVIATION ARENA

Thursday, 9 March 2017

10.20 – 10.40 Drone Innovation: Detection and Integration Into Civil Aviation
Stéphane Durand and Elodie de Cazenove, DSNA Services; and DSNA Services partners Lucas Le Bell and Marc Chiesa.

11.00 – 13.00 GAMMA: A New Vision for ATM Security Management
Giuliano d'Auria and Claudio Porretti, Leonardo; Garik Markarian and Rainer Koelle, University of Lancaster; Francesco DI MAIO, ENAV; Tim Stelkens-Kobsch, DLR
Frédéric Duten, Airbus DS

View session abstracts at:
www.worldatmcongress.org/frequentis-aviation-arena

FABEC ATM THEATRE

Thursday, 9 March 2017

10.00 – 13.40 SESAR 2020 Exploratory Research: Human Factors Supporting Automation in ATM
Organised by AUTOPACE Project

AGENDA

10:00 – 10:20 Workshop Introduction, Objectives and Agenda Presentation
Alessandro Prister, SJU; Fernando Gómez, Technical University of Madrid (UPM)

10:20 – 10:40 AUTOPACE: Psychological Modelling to Support Automation Assessment
Eva Puntero, CRIDA

10:40 – 11:00 STRESS and MOTO: Neurophysiological Indexes to Support Automation Design
Stefano Bonelli, Deep Blue

11:00 – 11:20 MINIMA: Vigilance and Attention as Trigger for Adaptive Automation
Andreas Hasselberg, DLR

11:20 – 11:40 TACO: Human-Automation Collaboration and Dynamic Allocation of Surface Management Tasks
Martina Ragosta, Deep Blue

11:40 – 12:00 AGENT: Enhancing AU's to Support ATCO's Conflict Resolution Tasks
Miguel Angel Piera Eroles, Universidad Autónoma de Barcelona; Dr. Francisco Javier Saez, Cranfield University

12:00 – 12:20 RETINA: Resilient Synthetic Vision for Advanced Control Tower Air Navigation Service Provision
Sara Bagassi, University of Bologna

12:20 – 12:40 PACAS: A Gamified and Automated-Reasoning Solution for Participatory Change Management in European ATM Systems
Martina Ragosta, Deep Blue

12:40-13:40 Open Discussion and Wrap-Up
Fernando Gómez, Technical University of Madrid (UPM)

View session abstracts at:
www.worldatmcongress.org/fabec-atm-theatre

AIREON SPOTLIGHT STAGE

Thursday, 9 March 2017

11.30 – 11.50 ATM Managerial Development Training
Greg Hindson, ENAC

View session abstracts at:
www.worldatmcongress.org/aireon-spotlight-stage

EUROCONTROL

EUROCONTROL's Stand 849 is the setting of most of EUROCONTROL's events – including exhibits, demos, and daily briefings on various topics. EUROCONTROL's exhibits and demos will show projects delivering air traffic management performance at various levels across Europe and beyond.

More specifically, the focus will be on:

- The Network Manager and how it contributes to network performance through ATM data.
- Enhanced civil-military cooperation in air traffic management.
- Remotely piloted aircraft systems (RPAS) solutions.
- System Wide Information Management (SWIM) and how it can enable global data exchange.
- The Maastricht Upper Area Control Centre and its innovative tools and concepts.
- Surveillance infrastructure rationalisation to improve ATM efficiency across Europe and beyond.

The full programme of events follows.

Briefings

Thursday, 9 March 2017

10:30 - 11:00 Using LSSIP Information for ICAO ASBU Monitoring and ATM Master Plan Monitoring

Danny Debals, Head of Pan-European Planning, Monitoring and Reporting, EUROCONTROL; Sven Halle, ICAO Regional Office

11:15 - 11:45 The Total ATM: MUAC ATM Knowledge Centre (MAKC)

Flemming Nystrup, Senior Manager MAKC; and Robin Hickson, Senior Manager MAKC, Maastricht Upper Airspace Control Centre (MUAC)

View session details at:
www.eurocontrol.int/eurocontrol-world-atm-congress-2017

SESAR EXCHANGE THEATRE

The SESAR Stand and Exchange Theatre (889) features a wide variety of sessions, which will illustrate with concrete examples how SESAR works with their partners and with the air navigation service providers (ANSPs), airports, airspace users, industry, the scientific community and staff associations represented through the SESAR JU and SESAR DM partnerships. The featured activities will demonstrate the benefits that this coordinated approach are bringing to airspace users and passengers, and the overall European economy.

Thursday, 9 March 2017

Agenda At a Glance

10:30 – 11:15 Automation

11:30 – 12:30 Exploring Future Solutions

12:45 – 13:30 SESAR Calls

View session descriptions at:
www.worldatmcongress.org/sesar-exchange-theatre

Three ANSPs Share Details of Their Remote Tower Live Trials

Not only are remote towers now a reality, but several live trials have been completed in Europe. During a Wednesday afternoon EUROCONTROL workshop, representatives from three ANSPs gave details on their remote tower initiatives and answered audience questions.

Daniele Teotino, Head of SESAR JU Activity Coordination, ENAV SpA, said ENAV's two-year project at Milano Malpensa was completed in November 2016. Malpensa is the third-largest Italian airport in terms of movement, with a traffic volume of 160,000. The remote trials included 25 hours in passive shadow mode and 10 hours of live trials. There were 118 movements during the live trials.

Technology included panoramic and distributed camera airport views. Five "hot-spot" cameras ensured automatic detection of aircraft in each location. There was also an integrated display of surveillance data, electronic flight strips, advanced surface movement guidance and control systems (A-SMGCS), and customised overlays. In addition, there were infrared cameras, which Teotino said were not necessary at night but were good for low-visibility conditions.

"Eight controllers took part, and feedback in terms of feasibility and usability of the concept was positive. But some additional work and study is required," he said. Overall, Teotino said controllers were surprised by the high quality of the images, and how they could provide more information than seen by the human eye.

Teotino noted that there are 42 airports in Italy, half of which are regional, low-density, and economically challenged. Remote towers could be solutions, he said, but guidelines would need to be addressed by SESAR.

In Hungary, HungaroControl conducted remote tower live trials to determine what to do with the aging tower for the two-runway, 90,000-traffic volume Budapest Airport. "We had to decide whether to renovate the tower, build a new one, or try to implement a remote tower as a permanent solution," said Dezsó Dudas, Chief Research and Development Architect, HungaroControl.

The Budapest remote tower trials included 405 hours in passive shadow mode and 125 hours of live trials. There were 586 movements during the live trials. Technology included matrix presentation of the aerodrome by a distributed



From left, Marcus Cochrane, ATC Program Manager/ATCO, Ports of Jersey, Daniele Teotino, Head of SESAR JU activity coordination, ENAV SpA, and Dezsó Dudas, Chief Research and Development Architect, HungaroControl, talk about remote tower live trials.

camera system, integrated surface surveillance data, electronic lists, A-SMGCS, and customised overlays. There were also customised controller-working positions.

Dudas said the trials were so successful that HungaroControl expects to implement remote tower technology as the airport's live solution within two years.

"Our 13 air traffic controllers had

doubts it would work, but by the end of the trial they were convinced," he said. "The surprising thing is that nothing unexpected happened." HungaroControl hired a human-change management specialist to help with the transition.

On the island of Jersey in the English Channel, the Ports of Jersey

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UAE's GCAA Selects Snowflake Software's Laminar Data Platform for SWIM Gateway

Snowflake Software, a provider of cloud and on-premise software solutions for the aviation industry, is working with the UAE General Civil Aviation Authority (GCAA) to pursue a vision of sharing consolidated and authoritative flight information across the UAE Flight Information Region (FIR) and its neighbours.

Snowflake will deploy the Laminar Data Platform to manage flight data in compliance with the SWIM concept for the GCAA SWIM Gateway. Scheduled to be operational in 2018, the SWIM Gateway will receive, validate, and publish the most up-to-date flight planning and strategic tactical flow management data, which will provide a platform for information exchange amongst all stakeholders in the region.

The SWIM Gateway will provide the Sheikh Zayed Air Navigation Centre with consolidated information for all planned and active flights in the UAE. Detailed information, such as estimated landing times and controlled take-off times will be accessible to all stakeholders including airline operators and airports. Stakeholders will be able to receive high quality flight information in real-time through open interfaces with their decision making applications and to share information back, after the data is validated by the platform.

As such, the SWIM Gateway will transform the collaborative decision making processes in the region.

Built using an open modular architecture, the SWIM Gateway supports advanced configuration of additional business logic as an enabler for a next generation ATM system including Globally Interoperable Systems and Data – Flight and Flow Information for Collaborative Environment (FF-ICE, ICAO ASBU B2-25).

His Excellency Saif Al Suwaidi, the Director General of UAE GCAA stated that "The SWIM Gateway will be one of the many developments that will place the UAE aviation industry in the global arena of seamless air traffic management." His Excellency emphasised on the importance of information sharing in a secure and timely manner to ensure the allocation of sufficient amount of resources to maintain sustainability. His Excellency added that these initiatives are to fulfil the UAE GCAA vision of a leading, safe, secure, and sustainable civil aviation system with a clear responsibility to future generations by effective management of available resources today.

The Laminar Data Platform provides the data management functionality for SWIM Gateway by sourcing, fusing and managing real-time flight data from multiple data providers such as EUROCONTROL,



UAE's GCAA commemorates Snowflake's Laminar Data Platform.

NMB2B, the Federal Aviation Administration, and local automation and airline flight planning systems.

Ian Painter, CEO of Snowflake Software, said, "We are dedicated to achieving a single, unified view of a flight across airlines, airports, and ANSPs because we believe that real time access to this fused and harmonised data improves collaborative decision making in strategic and tactical ATM services. We are delighted that the Laminar Data Platform will serve the GCAA and its

stakeholders in the region as they take the lead in global system interoperability via SWIM."

Sheikh Zayed Air Navigation Centre is the most advanced air traffic control facility in the Middle East handling more than 2,500 air traffic movements a day. The centre has added five additional sectors to cater for the annual growth of seven percent. The growth is predicted to continue through 2030 and the centre is capable of handling two million air traffic movements per year.

Remote Towers

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ANSP is planning to start remote tower live trials in June, said Marcus Cochrane, ATC Program Manager/ATCO, Ports of Jersey.

Jersey airport has a traffic volume of 47,000. Cochrane said the live trials will include panoramic out-of-the-window views of the entire airport, pan-tilt-zoom cameras providing detailed hot-spot surveillance, and customised visual concept-of-operations for tower contingency.

"It's important to identify what you want to achieve," Cochrane said. "One size does not fit all, and you can have 'death by technology' for controllers. From a user's point of view, we need to answer questions like 'is it a distraction, what benefit will it provide, and is it appropriate for the task we want to achieve?'"



On the implementation of new technology:

"The concern is are we making it better and safer? Or are we just changing because it is the hot thing to do? Change is good if it makes it safer and better, but if it doesn't there is no reason to change."

- Paul Rinaldi, President, National Air Traffic Controllers Association (NATCA)

"World ATM has provided the opportunity to expand our partnerships and connections with other partners within the industry globally... the reception to the UAV technology has been great and we are continuing to connect with companies interested in integrating our technology."

-Tyler Collins of PrecisionHawk (Stand 141)





MITRE's Lillian Ryals Talks FFRDCs and International Ventures

World ATM Now sat down with The MITRE Corporation yesterday to discuss all things FFRDC (federally funded research and development centers). MITRE, which operates seven FFRDCs, is a long-time supporter of World ATM Congress and its organizers CANSO and ATCA. "We focus on those big, hard challenges around the world. We've been doing international work for 40 years in over 50 countries. It's a small but important and valuable part of our business. Everything we do internationally is with the consent of the FAA and is in the interest of the US. "...we've chosen to be constrained by these seven FFRDCs. It's not a

model for everybody, but it allows us to have this close relationship with government and industry," said Lillian Ryals, Director, Senior Vice President, and General Manager, Center for Advanced Aviation System Development, The MITRE Corporation. "MITRE was one of the initial CANSO associate members. We've supported World ATM Congress since the beginning. We see it as a quick look at the global perspective. We can get some time with senior executives from governments, ANSPs, regulators, and research organisations around the world," she continued. Learn more about MITRE, FFRDCs, and read the full article in the *ATCA Bulletin*.



Leonardo's ATM Cyber Solutions Presented

With dedicated infrastructures in Italy and the UK, Leonardo is technology partner with government institutions, commercial, and financial organisations, for activities related to the prevention, monitoring, and management of cybersecurity. At World ATM Congress, the company is showcasing ATM cyber-protected products and solutions, leveraging the key experience through the NATO Computer Incident Response - Full Operational Capability (NCIRC - FOC) programme. It's the biggest initiative ever developed in this sector outside the US. It's able to guarantee cybersecurity of information and information and communications technology

infrastructure across 52 NATO sites in 29 different countries. Davide Cioppi, Director, Traffic Systems line of business at Leonardo Security and Information Systems Division, said: "Leonardo can offer embedded ATM security solutions at delivery, together with a round-the-clock support service via Security Operation Centre (SOC) at the customer's premises or through remote services that we can provide using our internal SOCs." Today, the company, with the role of project leader, is also presenting a speech on Global ATM Security Management (GAMMA), a project that addresses new threats to ATM and aims to develop solutions to emerging vulnerabilities.

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Collaboration is Key in Today's Technological World

As the Snapchat generation enters the air traffic management (ATM) workplace in greater numbers, collaboration is becoming more important than ever, said Martin Rolfe, CEO, NATS, during a Wednesday morning Conference Programme session.

"The new generations are absolutely au fait with digital technology and collaboration," he said. "But I would argue that collaboration with all of the players in the ATM industry is much less mature than that."

Rolfe led panelists in a discussion of how the complex ATM world can adapt in order to use information technology nimbly and effectively, and also collaborate with tech-driven younger generations. "Our industry is only moderately willing to take on change, and so the people driving that change are going to think this industry is pretty boring," he said.

Florian Guillermet, Executive Director, SESAR Joint Undertaking, said the ATM industry tends to use technology only to mimic what it's previously done. "But I don't think that fits any more into the new picture of connectivity of aviation," he said. "The main challenge I see is



Todd Donovan, Vice President Strategy & Marketing, Thales Air Traffic Management, responds to questions during Session Three: Information Technology and the Culture of Collaboration.

how do we bring on board the regulatory side? I see some sort of resistance; even technology is seen as a risk from that standpoint. I could argue that this attitude could become unsafe in the world we live in."

For instance, Guillermet said, when regulators answer the question, 'Tell me how you see the future in 2030,' they say they see the same

thing we have today, but we have to spend 500 million euros on it."

This also applies to cybersecurity, Guillermet said. "We are being advised by the SESAR Scientific Committee that if we stay as we are today, we will be protected because nobody is able to code in Fortran. But if we move into the new world, we have to be state-of-the-art to en-

"Drones and UTM are an opportunity to make the business more interesting and reinvigorate the attractiveness of our industry. They're a way to reshape the industry for the next generation."

-Todd Donovan, Thales Air Traffic Management

sure security. We can't be stuck between the two worlds."

Todd Donovan, Vice President, Strategy and Marketing, Thales Air Traffic Management, said the collaboration issue is not a technology problem, but rather a mindset problem.

"We should admit the fact that we have been losing people to the new tech industries," he said. "But drones and UTM are an opportunity to make the business more interesting and reinvigorate the attractiveness of our industry. They're a way to reshape the industry for the next generation."

Eldar Hauge, Managing Director, Indra Navia AS, said ANSPs tend to

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Different Ingredients Needed to Create a Brave New ATM World

What's the best way to create a culture of performance and innovation in air traffic management? Four experts weighed in during a Tuesday morning Conference Programme session.

Moderator Steve McMahon, Deputy Vice President, Safety and Technical Training, Federal Aviation Administration, kicked off the session with a series of questions.

How do you embrace innovation in air traffic management without compromising safety?

Stephen Angus, Executive General Manager, Air Navigation Services, Airservices Australia, said technology is an enabler, but safety is all about having strong leadership and a focus on delivering the right outcomes.

Chris Metts, Vice President, Global Aviation and ATM, Harris Corporation, compared adapting to new technology with a recent visit he had with his young granddaughter. She was being introduced to new foods, and Metts was reminded of the saying that people need to try something at least seven times before they embrace it. "It's like we need to effectively communicate how good Brussels sprouts might be to an organisation," he said.

There's a common perception that safety-focused organisations resist change. Why do people think air traffic management is resistant to change?

Patrik Peters, President and CEO, International Federation of Air Traffic Controllers' Organizations (IF-ACTA): Controllers aren't resistant to change, but we have opinions about

what's needed to make our job easier. We want to be involved in that change management, and also have training that's necessary to operate a new technology. Very often we see controllers are being confronted with change, but are not part of that change.

Gilbert Macharia Kibe, Director General, Kenya Aviation Authority: The entire spectrum should be involved in research and development, so we have a sense of ownership of the technology being introduced.

All too often in air traffic management, change is driven by a catalyst, like a disaster. What can we do to be more proactive technologically before something happens?

Metts: There's a lot of innovation, but the ability to communicate that innovation is separate. We're wasting our research and development dollars by going in one direction, while not capturing where the organisations need to go from a regulatory and innovation standpoint.

Peters: Technology needs to be sexy, so to speak. If we have an HMI (human-machine interface) that is nice to work with, and we have the training so we know what to expect, we embrace it. We have aviation accidents mainly because training is insufficient. Technology is easy to implement, but that's only 10 percent of the game. Ninety percent is investment in the human.

How do we ensure that if a degradation of capabilities occurs in a technology, humans can jump in? How do we keep people ready to engage?

Aimee has four key functional areas: Computer Vision Processing (Remote/Digital Tower Video); Natural Language Processing (Controller-Pilot Radio Telephony); Flight Data/Surveillance Processing and Analysis; and Weather Processing. Aimee allows ATC and airport stakeholders to leverage the deep learning in each of these functional areas to build robust and safe AI-powered applications.

"Artificial intelligence is enabling a new tier of applications across all of aviation, and with Aimee we are making it easy for our customers to conceive, develop, and implement new operational solutions that enhance safety and improve efficiency," said Alex Sauriol, CTO, Searidge Technologies. "Along with our commitment to open standards and interoperability, we hope Aimee can help with a new generation of challenges and opportunities from drone safety and security to digital towers and global ADS-B."



Chris Metts, Vice President, Global Aviation and ATM, Harris Corporation, responds to a question during Session Two: Creating a Performance and Innovation Culture in ATM.

Angus: I think we've moved past the idea that more data is fantastic. More data can actually be clutter. Now, we're decluttering systems so humans can make a clearer decision and do a more effective job.

Peters: If you're relying on automation, you need to know where it doesn't automate your work anymore, and where you as a controller need to jump in and disconnect. Every year, controllers need to go through training to know what happens when automation fails.

How do you encourage a safety culture?

Kibe: We wanted to have a system where people do not get penalised for reporting. Six months ago, we came up with a system for voluntary occurrence reporting, and have

found it's far more effective than any other system we've used.

What job-satisfaction drivers are important to attracting and retaining the most qualified workforce?

Kibe: We've not been effective at sensitising the general population that they can become air traffic controllers. We're reaching out through schools, new platforms, and mentors that speak out about different careers in aviation. We need to show that aviation does provide a good working environment.

Angus: We must have an enterprise-sharing attitude, so we're employing new, different people who come to work feeling they're part of the future. Our business model is changing radically for a very, very different future.

Searidge Introduces Aimee – Artificial Intelligence Platform for ATM

Advanced AI Capabilities to Improve Aviation Safety and Operational Efficiency

Yesterday, Searidge Technologies, Stand 826, global provider of remote tower and airport surface optimisation solutions to ANSPs and airports unveiled Aimee, an advanced neural network framework for development of artificial intelligence (AI) based solutions for air traffic control and airport efficiency.

Searidge has been working with artificial intelligence for several years with its vision processing/remote tower technology. Leveraging this experience into the development of Aimee and extending the platform to include new functional areas has laid the foundation for an exciting new era in ATM technology. Aimee has been developed to greatly simplify the configuration and training of neural networks with large and complex data sets; to allow the continuous evaluation and testing of output; and most importantly, to predict and certify performance within a safety critical context.

Drones

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which he views as a significant concern with UAVs. However, he believes it's not an ANSP issue, but rather a community issue. "A camera on a drone is no different than a guy using a telephoto lens from his 25th floor residence," he said.

Sean Cassidy, Director, Safety & Regulatory Affairs, Amazon Prime Air, said UAV regulatory protocols could be borrowed from the telecommunications industry, but need to be leveraged for safety.

Amazon, which is conducting its first customer trial in the United Kingdom, doesn't see itself as an ANSP, Cassidy said. But it's quite cognizant that it will be "tarred with the same brush if there is a drone incident."

"We travel around the planet to talk on panels," he added, "But how are we going to get to the point where we truly have coordination on guidelines and stan-

dards, and how are we going to fill the gaps?" He believes that the answer is to triage—"look at the things that are most important and concentrate on that."

Marc Kegelaers, CEO, Unifyfly nv, said ATM is a highly sophisticated industry that communicates in ways that are often incomprehensible to UAV users.

"How do we take the massive amount of information that no one else understands and communicate it to the person who just wants to fly his drone?" he asked. "Much of the acceptance of drones in our industry depends on how we connect to the end user."

Craig Marcinkowski, Director, Strategy & Business Development, Gryphon Sensors, said over the last 12 to 18 months, the challenge has shifted back to the UAV industry to show the ATM world that drone systems are safe and secure.



Information

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need very detailed specifications, which prohibits unique solutions that can create efficiency, cost effectiveness, and collaboration.

He was seconded by Norbert Haslacher, Member of the Executive Board, Frequentis. "Information technology is a global, very competitive market. Clients want to have the best of breed, so they put a lot of pressure on the IT industry. That's what I miss with the ATM industry—the pressure to create a solution that de-

livers the best of breed and best value."

Haslacher also discussed "copetition," or the marriage of competition and collaboration. This can apply to both airlines and ANSPs, which have to cooperate but may also be in competition for the same markets.

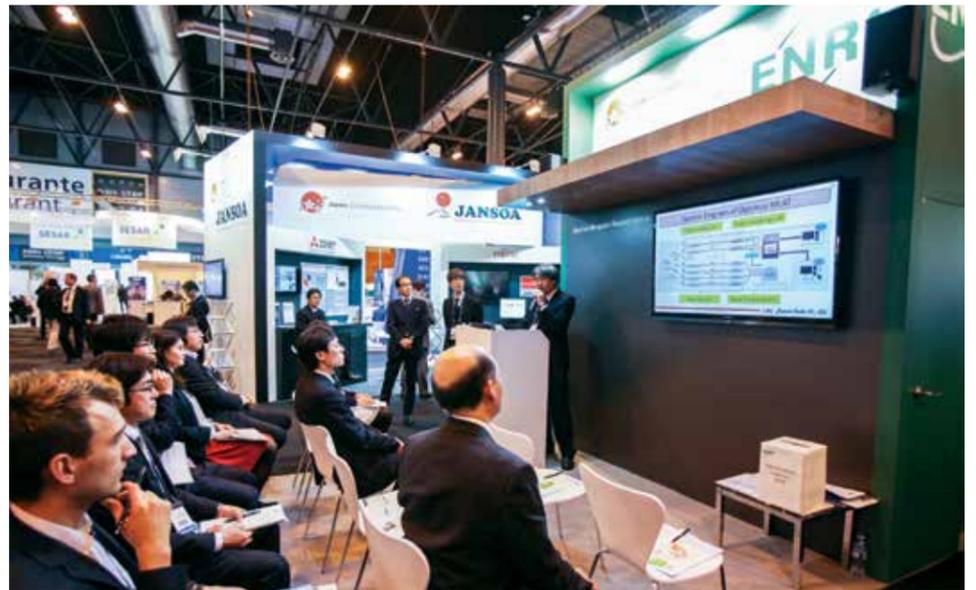
"You can compare ATM to telecom," Hauge said. "Every nation had a telecom provider, but then there was deregulation and they switched from collaborators to competitors. We're seeing the same thing in the ATM industry; we're just 20 years behind."



"It's a clear indication that drones are not a fad. There's real business there," said Ben Marcus, CEO of AirMap, on the increase in UAS presence at World ATM Congress. Also pictured from left: Daniel Rubio, Chief Technology Officer; Richard Deakin, Chairman; Ben Marcus, CEO; Kevin Hightower, Head of Flight Services; and Pasha Saleh, Vice President, Business Development & Strategic Partnerships.



Crowds gather before the Single European Sky (SES) Awards Ceremony.



"We are excited to introduce other Japan-based companies through World ATM [Congress] in an effort to support and create better partnerships amongst many Japanese companies in the industry," said ENRI's Kazuyuki Morioka (Stand 959).

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