



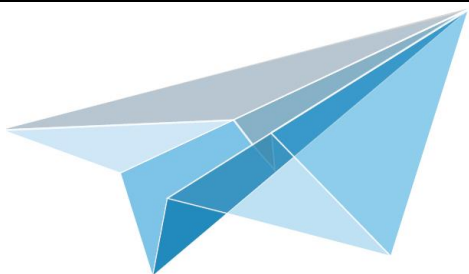
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# ICAO's First iSTARS User Group (iUG/01) Meeting

ICAO Headquarters – Montreal, Canada  
17-19 December 2018

## Meeting Programme







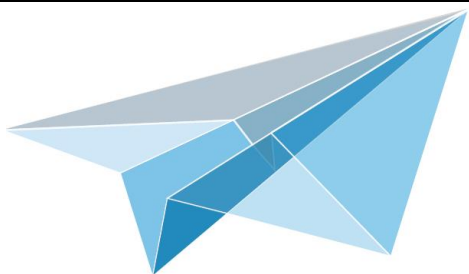
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**DAY 1 – MONDAY 17 DECEMBER 2018**

8:30 – 9:30	<b>Registration</b>
9:30 – 10:00	<p><b>Opening and Welcome Notes</b> <b>Catalin Radu – Deputy Director/Aviation Safety, Air Navigation Bureau, ICAO</b></p> <div style="display: flex; align-items: flex-start;">  <div style="flex-grow: 1;"> <p><i>Catalin Radu has been Deputy Director of ICAO’s Air Navigation Bureau since 2014. He has held a number of executive and managerial positions at the Romanian Ministry of Transport and at the European level with over 20 years’ experience in aviation safety and international aviation organizations. He also served as President of ECAC, Vice President of EUROCONTROL and ECAC’s Focal Point for Safety Matters. Catalin graduated in aeronautical engineering from the Polytechnic University in Bucharest and trained at SUPAERO in Toulouse, specializing in aerospace engineering (MSc). He also holds a degree in International Relations and European Studies with a specialization in Public Administration Management. He began his career in the airworthiness field with the Romanian Civil Aviation Authority, in 2006 becoming Head of the Accident Investigation Unit within the MoT and in May 2007, Director General of Romanian Civil Aviation. He has received several awards, among others the title of “Doctor Honoris Causa” in 2011 and “Médaille de l’Aéronautique” in 2013.</i></p> </div> </div>
10:00 – 10:30	<p><b>Complexities of Data Exchange in the World of Open Data</b> <b>Kim Miller – International Aviation Safety Foundation</b></p> <p>The availability of what may be considered to be open aviation data can bring along with it possible complexities at several different levels. Such complexities can be frequently unknown, misunderstood or purposely ignored in the design and implementation of a data system. Given the unique nature of aviation data, the session will use the general components of open data to discuss complexities within each element. Consideration of these conditions during preliminary planning and implementation could assist in the establishment of an efficient and effective aviation data resource.</p> <div style="display: flex; align-items: flex-start;">  <div style="flex-grow: 1;"> <p><i>Mr. Kim Miller has over 45 years of aviation industry experience as a licensed aircraft maintenance technician, and over 40 years as a licensed pilot. He has utilized information technology in support of aviation since 1982. From 1973 until 1989, Mr. Miller was a licensed professional in the aviation maintenance industry working on both small and large aircraft. Joining the Federal Aviation Administration (FAA) in 1989, Mr. Miller was employed for more than 28 years as an Airworthiness Aviation Safety Inspector for the FAA’s Flight Standards Service, with the last 22 years of service dealing specifically with international aviation safety. Currently, he is President and Chief Executive Officer of the International Aviation Safety Foundation, which provides expertise in regards to issues related to aviation safety in keeping with International Civil Aviation Organization standards and recommended practices. During his tenure at the FAA, Mr. Miller participated on the initial Flight Standards national automation workgroup assisting in the development of the original data tools and distribution of equipment for Flight Standards personnel, implemented several data projects including: an interactive work planning program for FAA inspectors, a program that allowed the sharing of specific aviation safety data in a common database over an internet connection between several participating aviation regulatory authorities worldwide, and a risk-based decision tool used to forecast the annual work priority of critical FAA international regulatory activity.</i></p> </div> </div>
10:30 – 11:00	<b>COFFEE BREAK</b>



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### Operational and Safety Information Sharing for Unmanned Aircraft Systems

**Lennaert Speijker – NLR, Netherlands**

A Risk Observatory (RO), developed in Future Sky Safety (FSS), provides the means to quantify indicators to measure actual progress with respect to operational safety issues. Tools, metrics, indicators and methods are developed to assess and manage risks. The risk observatory helps to acquire, fuse and structure safety data and translate it to actionable safety information. The proposed solution is presented, including results of a validation/use case addressing Unmanned Aircraft Systems (UAS). The presentation addresses suitability of data sets, incentives for sharing data, safety performance indicators, data visualisation, and methods and tools used. Needs, challenges, and concerns in the UAS domain are identified, and ways of resolving them proposed. A new approach to collection and analysis of UAS operational and safety data is needed. Attention is given to safety management and oversight. FSS is looking for ways to align with iSTARS and SIMS.

11:00 – 11:30



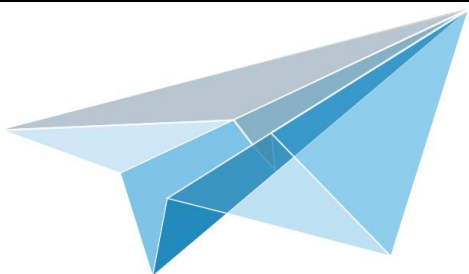
*Dr. ir. Lennaert Speijker is the Operations Manager for Future Sky Safety (FSS), the EU co-funded research programme in the field of aviation safety. FSS includes projects on solutions for runway excursions, total system risk assessment, resolving organizational accidents, human performance envelope and mitigating risk of fire, smoke and fumes. FSS coordinates all aviation safety research and innovation agendas in safety of EREA (Association of European Research Establishments in Aeronautics). For more than 3 years, he participated in ICAO's RPAS Panel (both as advisor to the Dutch CAA and as rapporteur of the RPASP/SMP Joint Task Force (JTF) on RPAS Safety Management). This JTF develops safety management-related provisions to facilitate safe integration of RPAS into non-segregated airspace and aerodromes). He supports the Dutch and Hong Kong governments with research for policy making on UAS safety and operations. Within a multi-year (2007-2012) cooperation agreement between FAA and the Dutch CAA, he managed a safety research project on RPAS, focusing on safety aspects related to Detect and Avoid and Command and Control. He was Coordinator of the EC Project ASCOS (Aviation Safety and Certification of new Operations and Systems) (2012 – 2015), realising a novel approach for certification/ approval of changes in aviation. New methods/tools for safety based design and continuous safety monitoring have been developed. He obtained his PhD at in 2007, with a dissertation on Risk based decision support for new air traffic operations with reduced aircraft separation. He has some flight experience on light aircraft types.*

### Lean Data Governance, Analytics and Visualization

**Sonu Goel – OST Global, USA**

Data has always had a strategic value. But the magnitude of data and ability provided by the latest innovative technologies to extract information has made it one of the biggest assets. By establishing data governance at the right level to manage all aspects of data, organizations can build trust and enhance data sharing. By adopting predictive analytics, machine learning and artificial intelligence, ICAO's iSTARS can provide significant insights into different aspects of aviation like efficiency and safety. This presentation discusses industry best practices for data governance and innovative approaches for analytics and visualization to facilitate fact-based decision making.

11:30 – 12:00



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*Sonu Goel, vice president of OST Global, is a management and technology leader with more than 20 years of experience across a diverse set of industries and technology domains. She brings operational and strategic expertise in running real-time mission-critical information systems for governments and commercial organizations. She is currently managing the solution delivery organization for Department of Transportation (DOT), supporting variety of SDLC, PMO, Cyber, Engineering, and System Integration programs and a datacenter. Sonu's focus is on serving customers with distinction through building high-impact teams and delivery excellence. For DOT, she has overseen numerous initiatives like the first successful implementation of a modular methodology integrating Agile and DevSecOps for the FAA, stabilizing critical systems, increasing availability for FAA's enterprise acquisition system from 88.3% to 99.5%, and designing "CMMI Lean" to reduce CMMI overhead cost. She also led multiple strategic initiatives internally to improve employee engagement and enhance cross-organizational collaboration between business units. Sonu's delivery has been recognized with several awards including Tata Steel's 'Quality Improvement Project' award and OST's 'Making the Difference' recognition. She holds PMP, ITIL V3, and SAFe Agilist certifications, and was invited to present at Capability Counts Conference 2018 held by CMMI Institute on "Modular Methodology – Beyond Agile & DevOps." Sonu has travelled extensively and has worked in Europe, Asia and the US. She has an Engineering degree from the National Institute of Technology in India and an MBA from the Robert H. Smith School of Management in the United States. She has served on the Board of Directors for RoboMQ (a product company that offers a SaaS, enterprise application and IoT integration middleware platform) since 2016. She is also a member of various professional organizations, including the Air Traffic Control Association (ATCA), Northern Virginia Technology Council (NVTC), Project Management Institute, Washington DC Chapter (PMIWDC) and the American Council for Technology (ACT) and Industry Advisory Council (IAC). She also actively supports social causes, including two orphanages and a school for mentally challenged kids.*

**Technical Challenges in Effective Safety Analysis**

**Hyuntae Jung – International Air Transport Association (IATA)**

Modern safety management is evolving towards the predictive era; to achieve this transition, data-driven decision making needs to be implemented. To enable decision makers to make data-driven safety decisions, the result of a safety analysis should examine, evaluate and visualize safety data and information in order to discover useful information, suggest conclusions and support data-driven decision making. To avoid making wrong decisions – which may result in wasted money, labour and resources – it is required to identify the challenges in the analysis process and tackle them with proper management. With such motivation, this presentation illustrates the technical challenges and ways to analyze safety data effectively and productively.

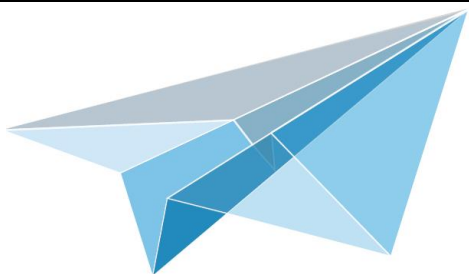
12:00 – 12:30



*Hyuntae Jung is an Assistant Manager in Global Aviation Data Management, International Air Transport Association (IATA). He was a former intern in Integrated Aviation Analysis Section in ICAO. He holds B.Sc. and M.Sc. in Air Transport from Korea Aerospace University with an Air Traffic Controller license. He has been actively participating in various Air Traffic Management research projects. His major interest is to implement Machine Learning and Artificial Intelligence technologies into aviation safety and navigation efficiency. With multidisciplinary insights, his career goal is to bridge the gap between academia, industry and regulatory bodies.*

12:30 – 14:00

LUNCH



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**Ensuring 100% Data Awareness**

**Paolo Sommariva – FL3XX, Austria**

The iSTARS initiative is great for aviation. Business aviation has a great need for data to better drive its operations, often limited in safety and efficiency. FL3XX has been building the technology to aggregate and distribute data to all stakeholders and could collaborate with iSTARS to increase breadth and scope. A significant hurdle to progress is distribution: spreading the word and engaging the service and software vendors are key to improving safety and efficiency.

14:00 – 14:30



*Paolo is the founder and CEO of FL3XX, an innovative solution for business charter and brokers that delivers complete, automated workflows for all team members and managers. With over 25 years of experience in technology as well as several in private aviation, Paolo has a vision to open the market to the wider world of travel by leveraging technology. He strives to live in a world filled with innovation, where great talents turn disruptive ideas into realities and people collaborate and focus to get things done. Prior to FL3XX, Paolo founded the first seaplane airline service in the southern Italian islands and later a regional airline in northern Italy. He has extensive operations, finance and technology experience, gained in large corporations such as General Electric, startups such as Virgilio.it, and Venture Capital firms such as Syntek. Paolo also actively advises companies in the fields of GreenTech, FinTech and AvTech.*

**PANEL DISCUSSION: Applying Data Governance Effectively and Productively**

**Panel Members: Sonu Goel; Diego Magrini; Paolo Sommariva; Lennaert Speijker**

**Moderator: Kim Miller**

14:30 – 15:15

15:15 – 15:45

**COFFEE BREAK**

**Digital Integration: The Key to Future-Proofing**

**Diego Magrini and Marco di Perna – Integrated OPS Solutions, UK**

Aviation tends to be very standardized: in formats, language, procedures and a lot more. These standards make life easier working globally while guaranteeing safety standards. However, in the field of digital operational services for aviation, the road is still marked by aging technologies that are struggling to evolve. This presentation explores possible paths for the future of data exchange for aviation in the digital era, starting from our experience in the business aviation industry.

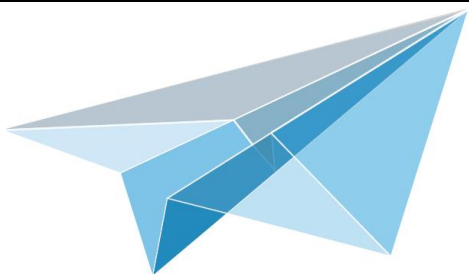
15:45 – 16:15



*Diego Magrini is the co-founder of Integrated OPS Solutions. Ltd.*

*He is a technology dreamer and passionate aviation expert.*

*If you see him quiet and assorted he may be thinking on how to solve the next generation's travel problems!*



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*Marco di Perna is the co-founder of Integrated OPS Solutions. Ltd.*

*He is an incurable romantic.*

*He firmly believes that nothing is unachievable. Technology, knowledge and creativity are the key elements to shape the future.*

### Safety Data Collection Challenges

**Bongi Mtlokwa – South African Civil Aviation Authority, South Africa**

This presentation highlights some of the safety data collection challenges that South Africa faces and brings up discussion points that would provide the possibility finding solutions

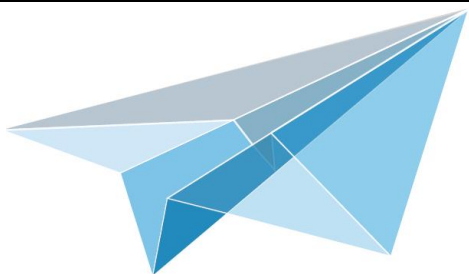
16:15 – 16:45



*Bongi Mtlokwa is currently employed by the South African Civil Aviation Authority (SACAA) as an aviation safety technical specialist. Her main responsibility is to develop, implement and maintain the State Safety Programme and to assist the aviation industry to implement Safety Management Systems. She is also the chairperson of the SSP implementation committee in South Africa. She previously served in the Aircraft Accidents and Incidents investigations department as a Senior Researcher for 5 years. During her career with the SACAA, she has contributed to aviation safety through safety data collection and analysis to identify areas of concerns and has prescribed safety interventions to reduce aviation related accidents and incidents. As a researcher, Bongi has completed several aviation safety studies and published aviation safety articles aimed at improving safety both in the general aviation sector and commercial sector. Bongi represents South Africa at ICAO on several projects/study groups to review various aviation safety policies and she has recently taken on the role of the rapporteur of the Safety Management Panel Working Group 1. She holds a degree in information science and a diploma in marketing from the University of South Africa.*

16:45 – 17:00

**Wrap-up and end of day one**



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DAY 2 – TUESDAY 18 DECEMBER 2018

**Emerging Issues and Future Trends**

**Stephen Creamer –Director, Air Navigation Bureau, ICAO**

9:00 – 9:30



*Steve Creamer has served as Director of the Air navigation Bureau at ICAO since April 2015. Steve previously held a number of executive and managerial positions at the U.S. Federal Aviation Administration (FAA) with over 33 years’ experience in the Air Traffic and International Aviation organizations. They include serving as FAA Regional Office Director for Europe, Africa and the Middle East; and serving as a member of the ICAO Air Navigation Commission. Steve began his career in air traffic operations, eventually managing all Alaskan and North Pacific airspace, pioneering new airspace use techniques that improved capacity and access for all operators. More recently his work has broadened to the international implementation of procedures and technology systems that improve aviation safety, with a careful eye toward retaining capacity and efficiency.*

**Connect, Monitor, and Share: From Safety Data to Safety Intelligence, using the ICAO Safety Information Monitoring System (SIMS)**

**Ruviana Zimmerman – Integrated Aviation Analysis (IAA) Section, ICAO**

9:30 – 10:00

Automatic Dependent Surveillance-Broadcast (ADS-B) determines the position of aircrafts and allows them to be tracked. In addition to tracking or surveillance, data recorded from ADS-B can be used for safety data analysis. The ICAO Safety Information Monitoring System (SIMS) uses ADS-B and data provided by ICAO Member States to generate indicators for safety performance monitoring. The presentation addresses how States can connect to SIMS, how the system processes data into information, real world examples of success stories using SIMS and insights of how ADS-B data is being used in SIMS to build safety intelligence and facilitate data-driven decision making.



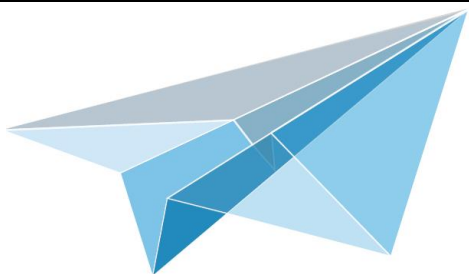
*Ms. Ruviana Zimmerman is an Associate Analysis Officer at the International Civil Aviation Organization (ICAO) in the Integrated Aviation Analysis (IAA) Section. She manages projects, mainly the Safety Information Monitoring System (SIMS). Her role includes building with developers to coordinating at the strategic level with international organizations. She is also in-charge of two iSTARS applications, the SSP Foundation and the SSP Gap Analysis. Her background is in Business Administration, yet holding various certificates in aviation, including a Diploma in Civil Aviation Management. She speaks four languages, enjoys reading, learning and writing and is passionate about aviation. You will also find her actively meeting new people from around the world to connect and enrich life, either through online channels or by traveling to places.*

**e-Licensing and e-Examinations, Regulatory Tools for National Aviation Authority (NAA) Oversight**

**Matthew Margesson – UK Civil Aviation Authority**

10:00 – 10:30

In support of ICAO iSTARS and iIMPLEMENT Programmes, the UK Civil Aviation Authority International Group (UK CAA IG) elaborates the benefits that can be realised by an ICAO State when adopted online tools for e-Licensing and e-Examinations. The UK CAA experience and the impact effective e-Tools can have in delivering robust, efficient and secure Regulatory processes, and how this is elaborated across the ICAO Protocol Questions and SARPS.



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*Matthew has been working for the UK CAA and CAAi since September 2009, becoming Head of International Development in May 2015 and Head of International Operations in February 2018. Prior to that, his aviation experience included cargo and charter airline operations, airport development, aircraft maintenance, and executive leadership (COO/CEO) in professional aviation training. Matthew has held responsibility for the development and implementation of the UK CAA IG and CAAi Development Plan according to the strategic vision and goals of the UK CAA and the purpose of the International Group to sustainably raise global aviation standards. This has included the establishment and management of key Partnerships with Governments, Agencies, National Aviation Authorities and Customers that work with UK CAA IG/CAAi. With a very strong development and operational delivery background, Matthew has extensive experience in complex programmes of capacity building, advisory, training and technological tools to Aviation Regulators, delivered worldwide. He has led multi-disciplinary teams in training, examination and licensing services, as well as the UK CAA programme transitioning to professional electronic examinations and the development of e-Licensing which is being deployed in the UK.*

10:30 – 11:00

COFFEE BREAK

**A New Jump into Safety Risk Analysis Ways and Tools**

**Paul-Emmanuel Thurat – Direction Générale de l’Aviation Civile (DGAC), France**

French CAA has recently launched a new approach to deal with safety data. Having to deal with almost 70,000 safety report per year, thanks to modern data analysis and visualisation tools, we are better able to understand and deal with the safety information deeply hidden into reports. Furthermore, the proliferation of ADS-B data providers convinced us to launch an exploratory work in order to determine how this promising data would help us on air transport risk evaluation.

11:00 – 11:30



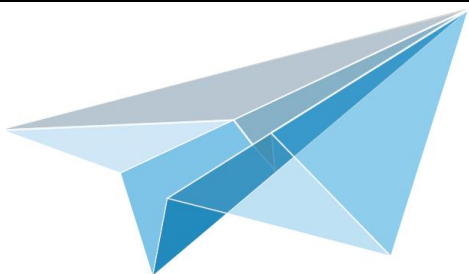
*Paul-Emmanuel Thurat is an engineer working for the French civil aviation authority. After 8 years as an ATM and airport traffic flow management optimisation expert, he is now working for the civil aviation safety directorate since 2017 as head of the commercial air transport division, part of the French safety management coordination office, in charge of managing the French state safety program.*

11:30 – 12:00

**Risk-Based Surveillance**

**Javier Puente – ICAO South American (SAM) Regional Office**

This presentation discusses the benefits of implementing risk-based surveillance versus more rigid traditional models. It will explain the process of developing the concept and its evolution until it became an iSTARS app. The presentation includes practical examples of the benefits of using the app and how it has helped States to make more efficient use of their resources.



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*Javier Puente works a Safety Implementation Officer at ICAO's South American Regional Office. He is responsible for the promotion and support of the implementation of ICAO SARPs and the ICAO Global Aviation Safety Plan (GASP). Before that he worked as an Operations Specialist for the Latin America's RSOO, Regional Director for Bolivia's DGAC, and safety advisor for several airlines and organizations. He holds a Project Management focused MBA, Law School Diploma and a post-graduate degree in superior education. He has practical experience as a pilot, governmental safety inspector and as an accident investigator.*

**Compliance-Based Oversight and Risk and Performance-Based Oversight in an Integrated Safety Oversight System**

**Georges Schmitz – EMPIC, Germany**

EMPIC is a standard software solution for aviation regulators. As an integrated system, the product collects all necessary data to handle aircraft registration, personnel licensing, organisation approvals and surveillance obligations. We can benefit from the large repository of "production" data and the compliance history stored in our database to derive risk profiles per service provider (ORP) as well as performance indicators on a national scale. All stakeholders involved in safety oversight – from the Director General to the inspector – should have access to the big picture of the national aviation system supported by this data. EMPIC believes this is best achieved by avoiding media discontinuity and giving access to built-in dashboards.

12:00 – 12:30



*Georges works as business engineer at EMPIC GmbH, the producer of a standard software solution for aviation regulators. In context of this product, he is the expert for Organisation Approvals and Surveillance, covering the areas of aircraft operations, airworthiness, training organisations – to name a few. As a consultant and analyst, Georges has supported numerous national aviation authorities in the implementation of EMPIC® over the past fifteen years. Through personal contact with inspectors and managers, he is aware of the difficulties in implementing new oversight concepts such as RPBO. Georges is interested in Risk and Performance Indicators that can be derived from data that is stored in EMPIC's local systems. He is working on optimizing the interaction between compliance oversight and risk based approaches, both from a planning and conducting perspective.*

12:30 – 14:00

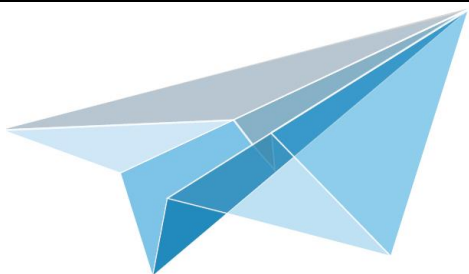
**LUNCH**

**Aviation System Risk Profiles**

**Stacey-Marie Syne – Integrated Aviation Analysis (IAA) Section, ICAO**

A risk profile provides an objective understanding of the risks that an organization or its operations face. It is also a tool that assists the organization to prioritize its mitigating and corrective measures. Through a diverse catalogue of apps, the integrated Safety Trend Analysis and Reporting System (iSTARS) provides a comprehensive set of risk profile components. With such information, aviation organizations can take a more holistic approach to assess, manage and mitigate risks.

14:00 – 14:30



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*Stacey-Marie Syne is the Data Analysis Associate at the Integrated Aviation Analysis Section, Air Navigation Bureau. Her career in the UN System started in UNDP where she was responsible for communication activities covering Aruba, Curaçao, Sint Maarten and Trinidad and Tobago, together with UNOPS where she supported the Global Environment Facility – Small Grants Programme. Before this she worked at the University of the West Indies, St. Augustine (UWI) where she graduated with a B.Sc. in Environment Management and an M.Phil. in Microbiology. Currently she is a doctoral student at UWI with a study abroad semester spent at McGill and her thesis focuses on eLearning and neo-tropical wildlife.*

14:30 – 15:15

**PANEL DISCUSSION: Improving Oversight Activities through Use of Data**  
**Panel Members: Matthew Margesson; Paul-Emmanuel Thurat; Georges Schmitz**  
**Moderator: Javier Puente**

15:15 – 15:45

**COFFEE BREAK**

15:45 – 16:15

**Enhancing Data Transparency and Operational Efficiency in China**  
**Huijuan Yang – VariFlight, China**

This presentation focuses on the Airport Collaborative Decision Making (A-CDM) system and the way it is used to enhance operational efficiency and airport safety in China.



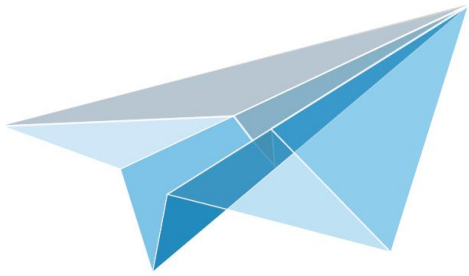
*Ms. Huijuan Yang has been serving as a consultant in VariFlight since 2013. Her work focuses on air transport management, passenger behavior analysis, as well as flight on time performance.*

16:15 – 16:45

**Smart Airports: Intelligent Aviation Infrastructure by Leveraging Artificial Intelligence and Continuous Machine Learning for Safety, Security and Operational Efficiency**

**Vijay Narula – OST Global, USA**

Smart Airport has emerged as a solution that is providing enhanced passenger travel experience, improving operational process efficiency, improving productivity and ensuring security and safety by leveraging big data analytics and artificial intelligence at every level of the airport ecosystem. Automated solutions, delivered via deep learning and artificial intelligence, can efficiently analyze the vast data collected and generate quick solutions to address many impending problems. This is creating a greater amount of emphasis on managing digital identity (passenger and cargo) in a secured way – creating a new eco-system of airport cyber security. Video analytics as a solution is tremendously improving security measures through crowd detection, queue management and the identification of restricted, unattended objects by focusing on identity token management.



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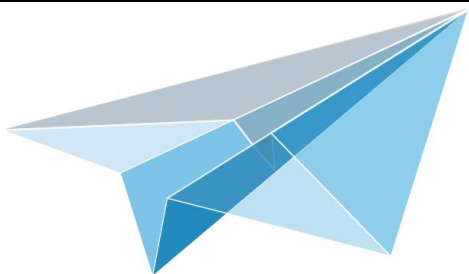
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*Vijay Narula is the founder, President and Chief Executive Officer of OST. Under Vijay's leadership, the company has achieved extraordinary success and growth, stimulated by OST's vision as a leader in transformational technologies and world-class solutions in diverse operating environments. Vijay has over three decades of experience. He has deep experience in the field of aviation, having worked on several programs for the FAA globally, some of which focused on spectrum engineering and cyber security. To this day, he continues to serve as the firm's technical visionary, with a particular focus on "SMART" technologies. These are technologies that will affect every sector, because they will enable disruptive innovations – from optimized infrastructure to advanced data connectivity. Some of his other accomplishments include speaking engagements at several major events, including the Public Private Partnership (P3s) as well as serving as a panelist for a discussion about the acquisition of information technology for the Department of Homeland Security. Vijay actively supports numerous civic, cultural, and business organizations, and is an advocate for quality in K-12 education.*

16:45 – 17:00

**Wrap-up and end of day two**



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### DAY 3 – WEDNESDAY 19 DECEMBER 2018

#### Application of Deep-Learning and Natural Language Processing in NOTAMs

**Marco Merens – Integrated Aviation Analysis (IAA) Section, ICAO**

There are 35,000 NOTAMs in the aviation system at any moment in time. This number is growing by 5% annually. Only a small part of those messages contain crucial operational safety information. This presentation shows an example of how artificial Intelligence can help identify those messages.

9:00 – 9:30



*Marco Merens is the chief of ICAO's Integrated Aviation Analysis section of the Air Navigation Bureau. He started his career as an aeronautical engineer at Airbus in Toulouse working on the design of avionic and flight control systems for the A340 and A380. He then returned to his home country of Luxembourg to join the CAA where he held various positions from head of the airworthiness department to the manager of the CAA's occurrence reporting and analysis system, before joining ICAO in 2009 as safety data analysis officer. Creator of the ICAO integrated Safety Trend Analysis System (iSTARS), he became chief of the section in 2015.*

#### Analysing Incidents using Data Enrichment and Machine Learning

**Gerard van Es – NLR, Netherlands**

The presentation discusses ways to enrich incident data as recorded in a mandatory occurrence state program. Often such reported incidents are missing certain data fields like weather data, used runway, origin, flight duration etc. This limits the potential risk information that can be extracted from such data. The benefits of data enrichment are shown through illustrative examples. Finally, the use of machine learning techniques using these enriched data sets is discussed.

9:30 – 10:00



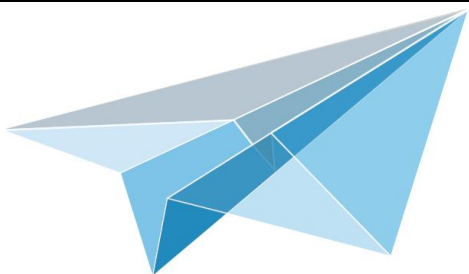
*A Dutch native, Gerard van Es holds a BSc and MSc in aerospace engineering. He has an extensive background in aviation first with KLM (flight operations), followed by Fokker Aircraft (aerodynamics) and later with the National Aerospace Centre (NLR) in Amsterdam, the Netherlands as senior consultant flight operations and flight safety. His current and past activities encompass a wide variety of aviation related topics on areas such as accident/incident investigation, safety assessments, flight data analysis, runway friction, aircraft performance analysis, and aircraft traffic control safety. Gerard is responsible for the development of the NLR-Air Transport Safety Database (incl. ECCAIRS). Gerard has worked for a wide variety of clients such as regulators, operators, aircraft manufactures, civil aviation authorities, air navigation service providers, air forces and airports worldwide. Gerard participates in numerous international working groups on aviation safety such as the ICAO Safety Indicator initiative, the FSF runway safety initiative, the Runway excursion prevention working group, the Airlines Risk Management Solutions (ARMS) Working Group, etc.*

#### Applying Natural Language Processing Tools to Occurrence Reports

**Loren Groff – National Transportation Safety Board (NTSB), USA**

Safety authorities and operators often receive dozens of occurrences reports each day that must be reviewed and evaluated for further investigation. Investigations of these occurrences generate large amounts of structured and unstructured data that must be reviewed and validated to evaluate safety concerns. Machine learning classification tools can aid the triage of incoming reports, identify possible developing trends and improve the quality control of large occurrence databases. This presentation demonstrates the application of a natural language processing model to auto-classify safety occurrence reports and identify recent similar occurrences involving the same aircraft type. The approach employs open source programming tools, so that source code and trained models can be readily shared or adapted.

10:00 – 10:30



ICAO

iUG/01 2018

First iSTARS User Group (iUG/01) Meeting  
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*Loren Groff is the US National Transportation Safety Board Chief Data Scientist in the NTSB Office of Research and Engineering. He is the agency's senior technical expert regarding data science methods and techniques applied to transportation safety data systems and analyses supporting the agency's accident investigations and safety research. He conducts safety research, assists accident investigations, and regularly represents the NTSB and the United States in industry and government initiatives and working groups involving safety data. Loren has been employed at the National Transportation Safety Board since 2002, and prior to joining the NTSB he held aviation positions as a flight instructor and regional airline pilot. Dr. Groff received his PhD in Human Factors Psychology from Wichita State University.*

10:30 – 11:00

COFFEE BREAK

11:00 – 11:30

**PANEL DISCUSSION: The Future of Artificial Intelligence and Machine Learning in Aviation**

**Panel Members: Loren Groff; Gerard van Es**  
**Moderator: Marco Merens**

11:30 – 12:30

**CLOSING: Summary and Future Steps**

**Marco Merens – Integrated Aviation Analysis (IAA) Section, ICAO**