



15-19 APRIL 2024
SINGAPORE

CONFERENCE MAGAZINE



www.ifatca2024.org

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WELCOME MESSAGES

WELCOME MESSAGE



Dear Member Associations, esteemed guests, valued partners and observers,

On behalf of the International Federation of Air Traffic Controllers' Associations (IFATCA), it is my great pleasure to welcome you all to the 2024, 63rd IFATCA Annual Conference in the beautiful city of Singapore.

This year's conference theme is one close to IFATCA's heart, "**Invest in People. The Future of ATM.**" We are all aware that the aviation industry is rapidly evolving, and that there is a continuing worldwide shortage of Air Traffic controllers. We in IFATCA know that human capital is crucial for shaping the future of Air Traffic Management (ATM) and supporting the growth of the industry. Your participation here demonstrates your commitment to the ATCO profession and our role in the future of ATM. Through the conference's various sessions, workshops, and networking opportunities, we hope to collectively chart the course for the evolution of our profession. Your active participation and engagement will undoubtedly play a pivotal role in shaping the policies, vision and culture that will take us forward.

Singapore is an ideal location for our conference with its rich cultural heritage, modern infrastructure, and unwavering commitment to aviation excellence. Please engage with us during the conference but in your down time take the opportunity to explore this beautiful city and experience its unique blend of traditions and innovation.

After over a decade on the Executive Board I am stepping away from the leadership roles to take more time with my pets. I am proud of where the Federation is, and I am excited to see where it is going. I feel extremely privileged to have had the opportunity to represent you all and I have made many friends over the years. I will still be around helping with small tasks, so this is not a farewell but a thank you.

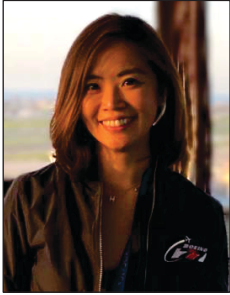
On behalf of the executive board, I would like to thank the Singaporean organising committee for their hard work in organising this conference. Thank you to the Civil Aviation Authority of Singapore for their support of our Singapore member association in this endeavour. A special recognition goes to all the sponsors which help build this great event.

Thank you all again for joining us, let us continue to work together to invest in people and secure a brighter future for air traffic management worldwide.

A handwritten signature in blue ink that reads "D Auld".

Duncan Auld
President & CEO of IFATCA

WELCOME MESSAGE



Embracing the 63rd IFATCA Annual Conference in Singapore!

Dear Member Associations, Esteemed Colleagues and Aviation Enthusiasts,

Get ready to dive into the aviation world like never before! ✈️ Welcome to the 63rd IFATCA Annual Conference in the vibrant city of Singapore! 🌏

We're beyond thrilled to host you with this third attempt, and let's just say, the saying "the best wine is at the bottom of the jug" totally holds up – this conference is promised to be epic!

Under the theme "Invest in Human: The Future of ATM," we're hitting the jackpot with our timing. The Asia Pacific Region is about to soar to new heights in air traffic after dealing with the pandemic, and this conference is our chance to rethink and amp up the role of humans in keeping our skies safe.

Why Singapore? Well, it's not just about the amazing food and cultural melting pot – it's also a powerhouse in ATM technology. Picture this: panels, workshops, and networking opportunities that go beyond the ordinary, exploring the future of air traffic management in style.

Let's make this conference more than just talks – let's turn it into a platform for sharing, gaining insights, and building collaborations that will shape the future of our incredible industry. Together, we're conquering challenges and seizing opportunities.

Welcome to Singapore, and to the Asia Pacific Region where the best is saved for the most incredible moments. Let's make this conference unforgettable and set a new standard for the aviation game! ✈️🌏

#IFATCA63 Best Regards,



Cheryl Chen
IFATCA Executive Vice President of Asia Pacific Region

WELCOME MESSAGE



Invest in People. Future of ATM.

Dear fellow Air Traffic Controllers, friends, colleagues and Aviation Professionals,

On behalf of the Organising Committee, it is my pleasure to welcome all of you to the 63rd International Federation of Air Traffic Controllers' Associations (IFATCA) Annual Conference, here in sunny Singapore. As we gather in-person yet again for this momentous occasion, I want to share more on the profound significance of our theme this year: "Invest in People. Future of ATM."

In the wake of the unprecedented challenges brought forth by the pandemic, the aviation industry has witnessed remarkable resilience and recovery, and it is important to recognise that all of us played a part in it. With air traffic steadily returning to pre-pandemic levels, there has never been a more crucial time to emphasise on the indispensable role of the "human" in Air Traffic Management (ATM).

As we navigate through the complexities of a dynamic and evolving airspace, it is imperative to recognise the dedication, expertise, and unwavering commitment of each and every Air Traffic Controller worldwide, diligently performing our task to ensure the smooth journey of an aircraft to its destination, for passengers to be home safely, to reunite with their family. The human element of ATM not only ensures the safe and efficient movement of aircraft, but also fosters trust and confidence among passengers, airlines, and stakeholders.

Following the recovery from the pandemic, as more individuals are inspired to explore the world once again, our responsibility as Air Traffic Controllers takes on renewed significance. Through investing and equipping Air Traffic Controllers with new and relevant skills, necessary resources, and continuous support, we pave the way for a brighter and more sustainable future for ATM.

Throughout this conference, let us engage in insightful discussions, share best practices, and collaborate on innovative solutions that elevate the human dimension of Air Traffic Control. Together, let us reaffirm our commitment to excellence, safety, and professionalism, as we chart the course for the future of ATM.

I would like to take this opportunity to give thanks and acknowledge the kind sponsorship of the Civil Aviation Authority of Singapore (CAAS), as well as all the sponsors. Without all of you, this conference would not have been possible. I also want to extend my heartfelt gratitude to all participants, speakers and friends for the invaluable contributions to this esteemed gathering. Last but not least, I want to acknowledge the hard work of the committee members, who have given their time, effort and energy to help ensure this conference is able to run as smoothly as it should be, to ensure a positive experience for all of you.

May this conference serve as a catalyst for positive change and advancement within our industry. Welcome again, and here's to a successful and productive 63rd IFATCA Annual Conference!

Warm Regards,



Lim De Wei
Chair

63rd IFATCA Annual Conference Organising Committee

63rd IFATCA ANNUAL CONFERENCE ORGANISING COMMITTEE



Lim De Wei
Chairman



Benjamin Ho
Vice Chairman



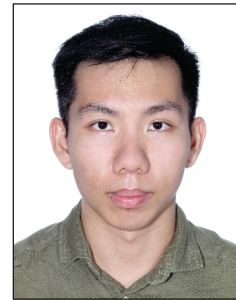
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AIR TRAFFIC CONTROLLERS' ASSOCIATION (SINGAPORE)

A Brief history.....milestones....achievements...future plans..

The idea for an association for Air Traffic controllers was first mooted in early 1988 by Mr. Lau Kim Boon, who was then the Head Air Traffic Control officer. A pro-tem committee was then formed with the following as office bearers:

- | | |
|------------------|---------------|
| • President | Mervyn Aeria |
| • Vice President | Kok Ee Boon |
| • Treasurer | Kenneth Lim |
| • Secretary | Dieu Eng Kwee |

The very first meeting was held on 2nd Dec 1988. For the next one and a half years, the pro-tem committee worked very hard to establish the association, concentrating on finalizing the Constitution and recruiting members. The Associations' past presidents were:

- | | |
|-------------------------|----------------|
| • Kok Ee Boon | |
| • Dieu Eng Kwee | |
| • Mohamed Ansari Rahman | 1995 - 2005 |
| • G. Kannan | 2005 - 2009 |
| • Mohamed Ansari Rahman | 2009 - 2012 |
| • Surjit Singh | 2012 - 2018 |
| • Anthony Ang | 2018 - 2020 |
| • Lim De Wei | 2020 - present |



On 16th April 1990, the Air Traffic Controllers Association (Singapore) ("ATCA-S") was officially registered with the Singapore Registry of Societies. Membership was only open to serving Singapore Air Traffic Control Officers employed by the Civil Aviation Authority of Singapore. By mid-October, there were 91 members.

In April 1998, ten years after forming the association, ATCA-S became the member of the International Federation of Air Traffic Controllers' Association ("IFATCA").

In October 2002, for the first time ever, ATCA-S hosted the 19th IFATCA Asia Pacific Regional Meeting ("APRM") at the M Hotel in Singapore. About 100 delegates from Asia Pacific countries such as Australia, Japan, Malaysia, Hong Kong China, New Zealand, Taiwan ROC, Sri Lanka, Indonesia, Macau and observers from India, Viet Nam, the International Air Transport Association (IATA), Airline Pilots Association – Singapore (ALPA-S) and International Federation of Airline Pilots' Association (IFALPA) attended the meeting.





With generous support from CAAS and sponsorship from generous contributors such as Singapore Airlines and Singapore Aviation Academy (SAA), the meeting was a great success. The whole meeting was organized by the members of ATCA-S with assistance from staff of CAAS, SAA and Minister of Communications and Information Technology, Mr Yeo Cheow Tong.

Presently, the Association organizes both social and professional activities. Social activities such as Dinner and Dance, Games with other associations and visits to ATC centers of our ASEAN counterparts have become an annual event. The ATC goodwill games with our Malaysian counterparts which started annually in 1990 is now conducted biennially. Friendship Cup, an annual soccer friendly, was also started with ALPA-S in 2010.

On the professional level, dialogue sessions with the Civil Aviation Authority Singapore Air Traffic Services Division are held on a regular basis. At these meetings, work-related issues are raised and discussed. The Association is also represented at meetings such as the Operational Services Review Group Meeting and the monthly Singapore Airport Operations Committee Meeting to provide feedback and exchange views with airport operator. Our members also attend the Annual Conferences and Asia/Pacific Regional Meetings of IFATCA.



In November 2011, the ATCA-S Association, for the second time, hosted the 28th APRM in Singapore at Holiday Inn hotel. This event was held in conjunction with IFATCA's 50th Anniversary and commemorating 100 years of Aviation in Singapore. The meeting was a huge success, bringing together Asia Pacific Member Associations together for many meaningful and fruitful discussion and technical exchanges.

This year, the Association is honoured to host the members 63rd IFATCA's Annual Conference in Singapore, for the first time. The success of this event is a testament to ATCA-S collective hard work, passion, and dedication to the aviation community. This would not have been possible without the support of our sponsors and the delegates present.



AGENDA

AGENDA

15 APRIL

Time	Activity	Venue
0800 - 0830	REGISTRATION	Grand Ballroom
0830 - 0930	Regional Meeting 1 (ASP)	Grand Ballroom 1
	Regional Meeting 2 (EUR)	Grand Ballroom 2
	Regional Meeting 3 (AFM)	Galleria 1
	Regional Meeting 4 (AMA)	Galleria 2
0930 - 1000	COFFEE BREAK (ADHOC)	
1000 - 1130	Regional Meeting 1 (ASP)	Grand Ballroom 1
	Regional Meeting 2 (EUR)	Grand Ballroom 2
	Regional Meeting 3 (AFM)	Galleria 1
	Regional Meeting 4 (AMA)	Galleria 2
1130 - 1230	LUNCH	
1230 - 1400	Opening Ceremony	Grand Ballroom
1400 - 1530	High-Level Panel	Grand Ballroom
1530 - 1600	TEA BREAK	
1600 - 1730	Mental Wellbeing Panel	Grand Ballroom
1730 - 1930	Delegates' Free Time before Welcome Cocktail	
1930 onwards	WELCOME COCKTAIL	Grand Ballroom

16 APRIL

Time	Activity	Venue
0830 - 1000	IFATCA2030 + Interactive Workshop	Grand Ballroom
1000 - 1030	COFFEE BREAK (ADHOC)	
1030 - 1130	IFATCA2030 + Interactive Workshop	Grand Ballroom
1130 - 1230	ICAO Presentation	Grand Ballroom
1230 - 1330	LUNCH	
1330 - 1500	Opening Plenary with State of the Federation, Roll Call, EB Presentations	Grand Ballroom
1500 - 1530	TEA BREAK (ADHOC)	
1530 - 1630	EB Presentations	Grand Ballroom
1630 - 1700	IFATCA Basic	Grand Ballroom


17 APRIL

Time	Activity	Venue
0830 - 1000	Committee A	Grand Ballroom 1
	Committee B + C Combined	Grand Ballroom 2
1000 - 1030	COFFEE BREAK (ADHOC)	
1030 - 1230	Committee A	Grand Ballroom 1
	Committee B + C Combined	Grand Ballroom 2
1230 - 1330	LUNCH	
1330 - 1500	Committee A	Grand Ballroom 1
	Committee B + C Combined	Grand Ballroom 2
1500 - 1530	TEA BREAK (ADHOC)	
1530 - 1700	Committee A	Grand Ballroom 1
	Committee B + C Combined	Grand Ballroom 2

18 APRIL

Time	Activity	Venue
0830 - 1000	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria
1000 - 1030	COFFEE BREAK (ADHOC)	
1030 - 1230	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria
1230 - 1330	LUNCH	
1330 - 1500	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria
1500 - 1530	TEA BREAK (ADHOC)	
1530 - 1700	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria



19 APRIL

Time	Activity	Venue
0830 - 1000	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria
1000 - 1030	COFFEE BREAK (ADHOC)	
1030 - 1230	Committee A	Grand Ballroom 1
	Committee B	Grand Ballroom 2
	Committee C	Galleria
1230 - 1400	LUNCH	
1400 - 1530	Final Plenary	Grand Ballroom
1530 - 1600	TEA BREAK (ADHOC)	
1600 - 1730	Final Plenary	Grand Ballroom
1730 - 1930	Delegates' Free Time before Farewell Dinner	
1930 onwards	FAREWELL DINNER	Grand Ballroom



WHY THE THEME “INVEST IN PEOPLE. THE FUTURE OF ATM.”?

Investing in the people within the aviation industry isn't just smart business—it's a moral obligation. By prioritizing the training, development, and welfare of aviation professionals, organisations not only maintain top safety standards but also drive innovation, boost employee satisfaction, and ensure the industry's ongoing success and longevity.

While technical advancements undoubtedly improve efficiency, human qualities like creativity, emotional intelligence, critical thinking, adaptability, and ethical responsibility are irreplaceable. Therefore, alongside technical progress, investing in the growth and well-being of human capital is crucial for organizational success and, most importantly, for enhancing flight safety in the long term.



IFATCA 2024 ANNUAL CONFERENCE 2024 HIGH LEVEL PANEL

One of the highlights of the upcoming Annual Conference is the High-Level Panel scheduled for the first day, the 15th of April.

The panel topic will echo the theme of the annual conference: Invest in People: the future of ATM. We in IFATCA know that human capital is crucial for shaping the future of Air Traffic Management (ATM) and supporting the growth of the industry. IFATCA invited speakers from various regions to steer the dialogue with our members on how they think the future of aviation will evolve. Looking at the human element of the ATM system as the paramount force in ensuring the safety of air traffic management operations, despite AI advancements and automation application and in the context of continuing worldwide shortage of Air Traffic controllers.

We are looking forward to interesting discussions, sharing of ideas and robust debate.

The Panel features:

- Han Kok Juan, Director General, CAA Singapore
- Crystal Kim, Technical Officer, ATM Section, ICAO
- Franklin McIntosh, Deputy Chief Operating Officer for Operations, Air Traffic Organization, FAA
- Stathis Malakis, Hellenic Civil Aviation Authority, representing IFATCA

The panel will be moderated by Jean-François Lepage, IFATCA Liaison Officer to ICAO ANC and Cheryl Chen, IFATCA EVP Asia Pacific Region.

INVEST IN PEOPLE THE FUTURE OF ATM

HIGH LEVEL PANEL

FEATURING

HAN KOK JUAN, DIRECTOR GENERAL, CAA SINGAPORE
CRYSTAL KIM, TECHNICAL OFFICER, ATM SECTION, ICAO
FRANKLIN MCINTOSH, DEPUTY COO FOR OPERATIONS,
AIR TRAFFIC ORGANIZATION, FAA
STATHIS MALAKIS, HELLENIC CIVIL AVIATION
AUTHORITY, REPRESENTING IFATCA



15 APRIL



MANAGING DATA LINK INFRASTRUCTURE AND OPERATIONS

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To learn more, visit [L3Harris.com/atm](https://www.l3harris.com/atm)



MENTAL WELLBEING PANEL

15th April @16:00



**Captain
Dave Fielding**



**Doctor
Kate Manderson**



**Captain
Laurie Shaw**



**Doctor
Jaco Van Der
Westhuizen**



**Moderated by:
Andrew LeBovidge**

MENTAL WELLBEING PANEL

Monday April 15th 2024

A focus of the upcoming Annual Conference is ATCO mental wellbeing, a panel on this topic is scheduled for the first day, the 15th of April. Moderated by Andrew LeBovidge (EVP NATCA USA) the speakers are

- Dr Jaco van der Westhuizen - IFATCA Mental Wellbeing Task Force Chair
- Dr Kate Manderson (Principal Medical Officer CASA, Australia)
- Capt. Dave Fielding - Chair IPAAC (International Peer Assist Aviation Coalition)
- Capt. Laurie Shaw - Fiji Airways

We in IFATCA know that human beings are the essence of the aviation industry. In the fast-paced and high-stakes world of air traffic control (ATC), mental wellbeing is not just a personal matter - it's a critical aspect of ensuring the safety and efficiency of our skies. While the focus of ATC is often on technical skills and procedural adherence, the mental wellbeing of controllers plays a significant role in their ability to perform their duties effectively. The demanding nature of the job, characterised by long hours, intense concentration, and split-second decision-making, can take a toll on the mental wellbeing of air traffic controllers. If not properly addressed, the pressure to maintain safety, handle heavy traffic volumes, and respond to unpredictable situations can lead to stress, anxiety, and burnout.

Recognising the importance of mental wellbeing in ATC, aviation authorities and organisations have increasingly prioritised initiatives to support controllers' mental wellbeing. From providing access to confidential counselling services to implementing fatigue management strategies, efforts are being made to create a supportive environment that prioritises controllers' mental health and wellness.

One key aspect of promoting mental wellbeing in ATC is fostering a culture of open communication and support. Controllers need to feel comfortable discussing their mental wellbeing concerns without fear of stigma or repercussions. Encouraging peer support networks and promoting awareness of available resources can help break down barriers and create a sense of community among controllers.

Additionally, implementing measures to manage workload and mitigate stress is essential for safeguarding controllers' mental wellbeing. This may include optimising shift schedules, providing regular breaks, and offering training in stress management techniques. By proactively addressing sources of stress and fatigue, organisations can help prevent burnout and promote resilience among controllers.



Furthermore, investing in ongoing training and professional development can contribute to controllers' mental wellbeing by enhancing their skills, confidence, and job satisfaction. Equipping controllers with the tools and resources they need to perform their duties effectively can help alleviate feelings of overwhelm and uncertainty.

In conclusion, prioritising mental wellbeing in air traffic control is not just a matter of personal wellbeing - it's a crucial component of ensuring the safety and efficiency of our skies. By fostering a supportive culture, implementing proactive measures to manage stress and fatigue, and investing in ongoing training and development, we can support the mental wellbeing and resilience of air traffic controllers, ultimately benefiting the entire aviation community.

With this in mind, IFATCA has created a Mental Wellbeing Task Force (M WTF). The Task Force (TF) has been working tirelessly on various initiatives to increase visibility and provide information on Mental Wellbeing. The Chair of the Task Force is Dr Jaco van der Westhuizen (South Africa) and members of the TF include Bron Sanderson (Australia), Andrew LeBovidge (USA) and Marc Baumgartner (Switzerland).



Andrew LeBovidge, a 30-year veteran air traffic controller, is the Executive Vice President for the National Air Traffic Controllers Association (NATCA), United States of America. Throughout his career, Mr. LeBovidge has worked to influence policy and to advocate on behalf of FAA employees facing aeromedical issues in the air traffic control environment, with a particular focus on mental health. First, serving as the chair of NATCA's Drug and Alcohol Committee, which worked jointly with the FAA and DOT to ensure the appropriate application of the substance testing processes for NATCA bargaining unit employees, he later served on the NATCA team responsible for negotiating FAA processes allowing air traffic controllers in the United States to obtain medical clearances with special consideration while being treated with certain selective serotonin reuptake inhibitors. Mr. LeBovidge also worked to create a compendium of resources for NATCA representatives to utilize while assisting members facing health issues, including mental health concerns, compiling a broad spectrum of information under one umbrella to facilitate access to those in need. Mr. LeBovidge represented the global air traffic control community by presenting on behalf of the International Federation of Air Traffic Control Associations (IFATCA) on a mental health panel during the September 2023 ICAO Air Navigation conference and continues his international work as an inaugural member of the IFATCA Mental Health Workgroup.



Dr Kate Manderson is the Principal Medical Officer of the Australian Civil Aviation Authority, with a background in family and military medicine. Her particular aerospace medicine interest is in the implementation of risk-based approaches to aeromedical certification in people with mental health difficulties and neurodiversity, and the role of salutogenesis in aviation safety systems.

Capt Laurie Shaw is an A350/A330 Captain with Fiji Airways, based in Nadi, Fiji. In a career spanning 40 years, he also worked for Cathay Pacific Airways, Malaysia Airlines and Ansett Airlines of Australia. Over the past 20 years Laurie has been actively involved with the global pilot profession in developing and evolving approaches to well-being.



He assisted in the development and implementation of the Peer Assistance Network (PANHK) for the Cathay Pacific Airways Pilot Group in 2019. He was also actively involved with the Cathay Pacific HIMS program from 2013 and in 2014, was the founding Chairman of the HIMS Australia Advisory Group. The Human Intervention Motivation Study (HIMS) is a return-to-work program for pilots afflicted with substance use disorder. Laurie is active with various organizations, including the International Federation of Airline Pilots Association (IFALPA), specifically around mental health and wellbeing best practice for the global pilot community. He is currently assisting Airservices Australia and Fiji Airways in developing a multi-layered peer support and wellbeing program for their employees.

Dr Jaco van der Westhuizen is an ex-Air Traffic Controller who works as a Human Factors Specialist in ATNS, South Africa. He holds a Bachelors in Human Movement Sciences (UP), an MBA (UNISA) and a PhD in Organisational Behaviour (UP). He represents the interests of IFATCA at the ICAO Mental Health work group and is the CEO of Mayday-SA, a non-profit organization providing mental health and wellbeing support and education to aviation professionals through peer support.





Dave Fielding studied Classics at Cambridge before making the perfectly logical step and becoming an airline pilot. He joined British Airways in 1993 on the Highlands and Islands Division, flying the BAE ATP. When Highlands Division closed he moved down to London on the B757 and achieved his command on the Airbus A320 in 2001. Since then he has been a captain on the B767, B777, A350 and the A380, which is his current type.

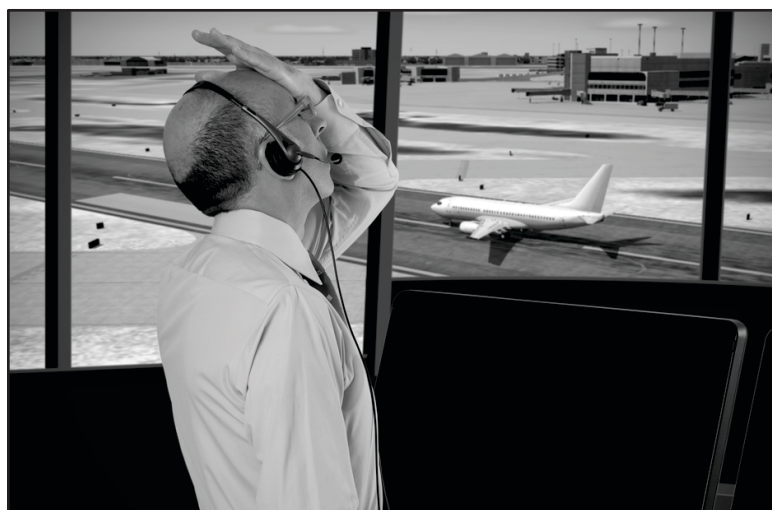
Dave has been a union rep with the British Airline Pilots Association since 1996, specialising in disciplinarys. This led to an interest in alcohol and welfare cases, which in turn led to him creating a BALPA peer intervention programme. Following the Germanwings crash of 2015, he worked with British Airways to adapt and improve the programme, and in January 2017 the Speedbird Pilots Assistance Network (PAN) became the first peer support programme in Europe to be launched post-Germanwings. Dave sits on the Executive Board of EPPSI, the European Pilot Peer Support Initiative, and has been instrumental in the rewrite of the recently published IFALPA Pilot Assistance Manual.

In November 2023 he became Chair of IPAAC, the International Peer Assist Aviation Coalition, a body that brings together the key stakeholders from the global aviation industry in order to advance the field of Peer Support for all safety-critical personnel in aviation.



Andrew LeBovidge, a 30-year veteran air traffic controller, is the Executive Vice President for the National Air Traffic Controllers Association (NATCA), United States of America. Throughout his career, Mr. LeBovidge has worked to influence policy and to advocate on behalf of FAA employees facing aeromedical issues in the air traffic

control environment, with a particular focus on mental health. First, serving as the chair of NATCA's Drug and Alcohol Committee, which worked jointly with the FAA and DOT to ensure the appropriate application of the substance testing processes for NATCA bargaining unit employees, he later served on the NATCA team responsible for negotiating FAA processes allowing air traffic controllers in the United States to obtain medical clearances with special consideration while being treated with certain selective serotonin reuptake inhibitors. Mr. LeBovidge also worked to create a compendium of resources for NATCA representatives to utilize while assisting members facing health issues, including mental health concerns, compiling a broad spectrum of information under one umbrella to facilitate access to those in need. Mr. LeBovidge represented the global air traffic control community by presenting on behalf of the International Federation of Air Traffic Control Associations (IFATCA) on a mental health panel during the September 2023 ICAO Air Navigation conference and continues his international work as an inaugural member of the IFATCA Mental Health Workgroup.





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IFATCA INFORMATION

IFATCA'S VISION AND MISSION STATEMENTS

IFATCA showcased its Vision and Mission statements during the 2023 Annual Conference and published them on Aug 21st 2023. You will find them on the IFATCA website.

But what is a vision/mission statement and why does IFATCA need them? The IFATCA 2030 + Task Force created the texts in collaboration with the Executive Board (EB). This work was developed from the research that the Task Force completed using the input from Member Associations.

Mission and vision statements communicate IFATCA's purpose, they shape how we develop strategy, and allow us to have measurable goals and objectives.

Our mission statement describes the "what" and "how" of IFATCA and is a roadmap of strategic planning to work toward our vision.



MISSION STATEMENT

To enhance air traffic safety, to promote the air traffic control profession, and to shape the future of air traffic management.

Our vision statement is the "why" or meaning of IFATCA.



VISION STATEMENT

IFATCA is the global voice of Air Traffic Controllers. It furthers air traffic safety, influences the sustainable evolution of aviation, and embraces all members of its community.

The apolitical federation provides guidance, representation, training, and other services to advance the status and professionalism of air traffic control. It collaborates with other international organizations to achieve mutual goals.

IFATCA'S CODE OF CONDUCT

PURPOSE

The International Federation of Air Traffic Controllers' Associations (IFATCA) wants to provide an environment free from discrimination and harassment for all its members. All participants to any IFATCA activities, events or meetings should feel safe, respected and valued by all the other participants. IFATCA adopts the following Code of Conduct and expects its staff, its members, its leadership and any other IFATCA participants to abide by it.

DEFINITIONS

- A. Discrimination:** It is discrimination to make any decision or judgment based on another person's race, ethnicity, religion, colour, sex, age, national origin, sexual orientation, disability, gender identity or expression, ancestry, pregnancy, or any other characteristic protected by applicable law.
- B. Harassment:** Harassment is unwelcome verbal, visual, or physical behaviour that is based on another person's race, ethnicity, religion, colour, sex, age, national origin, sexual orientation, disability, gender identity or expression, ancestry, pregnancy, or any other characteristic protected by law.

It may include actions such as the use of name dropping, gossip, negative stereotyping and jokes. It may also be threatening, intimidating or hostile acts that relate to sex, race, age, disability, or other protected categories. Harassment may include written or graphic material that puts down or shows hostility toward an individual or group based on protected characteristics. The material could be sent by traditional or electronic means, or distributed through other means on the premises of an activity, event or meeting.

- C. Sexual Harassment:** Sexual harassment is unwelcome sexual advances or requests for sexual favours. It can also involve other verbal, visual, or physical behaviour of a sexual nature. It can involve inappropriate behaviour by a person of either gender toward a person of the same or opposite gender.

EXPECTED BEHAVIOUR

IFATCA expects its staff, its members, its leadership and any other participants at IFATCA activities, events, or meetings to:

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- Recognize and value individual differences
- Not engage in aggressive, bullying, or intimidating behaviour
- Not engage in discriminatory or harassing behaviour

UNACCEPTABLE BEHAVIOUR

This Code of Conduct is not intended to restrict free and open debate, but rather is concerned with preventing unacceptable behaviour, as detailed below. Unacceptable behaviour includes, but is not limited to, the following:

- Discriminatory or harassing speech or actions, including cyber-bullying or cyber-harassment, in the IFATCA workplace or at any IFATCA meeting or event, including all related activities and communication methods
- Harmful or offensive verbal or written comments or visual images related to race, ethnicity, religion, colour, sex, age, national origin, sexual orientation, disability, gender identity or expression, ancestry, pregnancy, or any other characteristic protected by law
- Inappropriate use of nudity and/or sexual images in work or public spaces
- Bullying or stalking
- Harassing photography or recording

- Uninvited sexual attention or contact
- Physical assault (including uninvited touching or groping)
- Real or implied threat of physical harm
- Knowingly making a false report under this Code is considered a violation of this Code.

STANDARD OPERATING PROCEDURES FOR IFATCA CODE OF CONDUCT REPORTS

Prior to the start of any large IFATCA event or meeting (e.g. regional meeting, Annual Conference, etc.), attendees will be provided with a copy of The IFATCA Code of Conduct. IFATCA expects all attendees to read, understand and fully comply with the IFATCA Code of Conduct.

At every meeting there will be a dedicated IFATCA team of officials to whom you can report any potential breach of the IFATCA Code of Conduct. If you experience or witness unacceptable behavior, please inform the designated officials, or any Executive Board member.

Once a report is received, it will be investigated and treated confidentially to the extent this is possible while properly assessing the situation. IFATCA will take all appropriate steps to ensure that the unacceptable behavior stops, help the person who have been subjected to unacceptable behavior and take steps to ensure retaliation does not occur.

All properly notified reports will be investigated thoroughly by two members of the dedicated IFATCA team of officials and one member of the IFATCA Executive Board. Their findings will be forwarded to the IFATCA Executive Board without delay.

IFATCA takes these complaints seriously and any individual engaged in discriminatory and/or harassing conduct will be subject to disciplinary action imposed by a majority vote of the Executive Board. Disciplinary actions may be, a verbal or written warning, a verbal or written advice over future conduct, exclusion from the current event or meeting, termination of IFATCA employment or prohibition from attending future IFATCA events.

IFATCA officials will help the complainant in any way necessary. In instances involving allegations of assault or other criminal activity, IFATCA shall advise the complainant to file a report with the appropriate local law enforcement agency but will not pressure complainant to file such report.

Reports of potential breaches of the IFATCA Code of Conduct can be submitted to:
conduct@ifatca.org

IFATCA'S PROFESSIONAL AND LEGAL COMMITTEE (PLC)

The Professional and Legal Committee (PLC) of IFATCA is tasked with undertaking study and information gathering on topics that are issued to the committee at the previous Annual Conference.

PLC is formed at conference and consists of individuals of the Member Associations (MAS) involved within IFATCA. Any MA can nominate themselves and, if elected, can put forward a suitable candidate to work within a small team of 10-12 members throughout the year.

Each individual will usually be assigned a working paper topic and they will be responsible for gathering information and studying the job card to create a working paper for the Annual Conference. This working paper can culminate in either a policy statement which is then voted on and included within the IFATCA Technical and Professional Manual, provide information only to the Member Associations or task the Executive Board (EB) to undertake future work.

It is not a requirement to have expertise in the field you are studying. However, you may be expected to be called as individuals or with teams who do have this experience to bounce ideas off. We have Task Forces within IFATCA and we utilise contacts within ICAO to ensure we have the most up-to-date information.

This year we have 12 elected members of PLC and myself as chair. We also have 5 corresponding and active members in the group and we all work together to produce the best working papers we possibly can.



2 meetings are organised between conferences and these involve getting around a table over a few days and thrashing out the details of each individuals working paper in person. This year we met in locations as far away as Melbourne and Sofia. Two excellent cities that I recommend you visit if you ever get the chance.

We are in the final stages now of preparing our final drafts before they go to editing and final review.

Please don't forget one thing. We do all of this in our own time. We are all volunteers and the sheer effort and dedication each member gives is nothing short of incredible.

If you know of a topic that IFATCA committees should focus on next year please do let us know. You can do this via the online job card found here

<https://forms.gle/Jozxm1ibpUafgdd86>

Author:

Adam Exley, PLC Chair



COUNTRIES REPRESENTED IN PLC

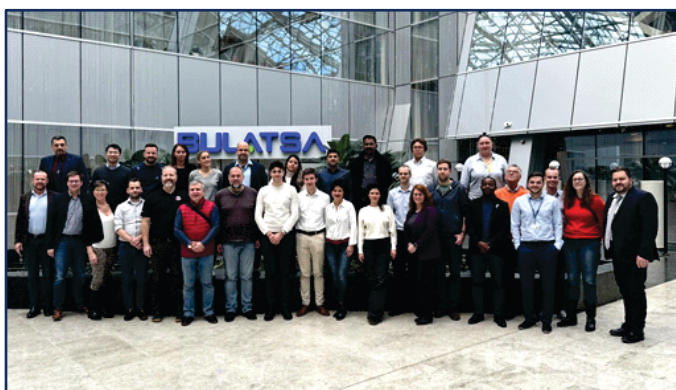
United Kingdom
 South Africa
 Italy
 Netherlands
 Romania
 Israel
 Slovenia
 Japan
 Greece

Kenya
 Bulgaria
 USA
 Jamaica
 Australia
 Poland
 Dominican
 Republic
 Belgium



TOPICS COVERED THIS YEAR

Training policy review
 VFR workload study* Joint
 Unsafe airspace
 System based licensing* Joint
 Definition of an ATCO
 Work and Rest scheme review
 Automation policy review* Joint
 Disabling safety tools
 Leased aircraft confusion
 RPAS DAA RWC latency* Joint



IFATCA'S TECHNICAL AND OPERATIONS COMMITTEE (TOC)

IFATCA's Technical and Operations Committee (TOC) serves as one of 4 Standing Committees (SC) of the Federation. The committee reviews and updates the policies in the Technical Professional Manual (TPM), researches topics of interest to the Federation, shares input with the ICAO Panel representatives, and more.

The group currently consists of 8 elected Member Associations (Mas) which include: Singapore, Canada, EGATS, Germany, Ghana, Hong Kong, Italy, and USA. There are also several corresponding members who have been very actively engaged throughout the year. The group works alongside the ICAO Liaison (JF Lepage), IFALPA Air Traffic Services (ATS) Liaison (Kimmo Koivula), IFALPA representative to TOC (Kolja Bollhorst), and several of the ICAO Panel Representatives.



TOC Chair sets the agenda for the committee each year at conference. This working programme is decided in conjunction with Executive Vice President Technical (EVPT) and takes into consideration the Federation's priorities as well as the available expertise on TOC. The committee members then create several drafts of their papers which will be collaboratively worked in an online environment. The feedback from these exchanges is critical, as it ensures a diverse array of viewpoints is considered. For the 2023-24 working programme some of the topics that will be presented at conference are Simultaneous Remote Tower Operations, RPAS Airspace Rules, RPAS Detect and Avoid/Remain

Well Clear, and updates to several policies. Specifically, some of the research will directly assist our ICAO Panel representatives. One example is the paper about 5 Letter Naming Codes to support John Tembo on the Instrument Flight Procedures Panel (IFPP).



During the course of this cycle the group met in October 2023 in Melbourne, Australia. Special thanks to Air Services Australia and Thales for facilitating the meeting and their generosity in sponsoring. The committee worked during this first meeting to identify additional research that needs to be done and set a course for the work.

There was also an opportunity for one day to meet with the Professional and Legal Committee (PLC) to ensure projects with overlap could get mutual feedback. During the Melbourne meeting the group also had the opportunity to see some of the upcoming technology coming to Air Services in the near term.

The second meeting was held in January 2024 in Sofia, Bulgaria where the group worked to fine tune aspects of the papers and any policies suggested in them. They identified any gaps that would need to be filled and worked to ensure policy was at its best before final drafts were submitted. There was an overlap day with PLC again to ensure both committees agreed on the work that touched both of the committees' scope. TOC was also able to tour the ACC and training facilities in Sofia. Special thanks to BULATCA and BULATSA for the generosity in hosting.

If you want to get involved in TOC there are different ways to do so. MAs may run for elected seats. These members would typically generate a paper or other resources for the Federation on an assigned topic. There are 2 meetings annually that they would be expected to attend in varying locations. The upcoming meetings planned for the next year include Madrid in September as well as a winter meeting in the Americas region. Additionally, MAs may choose to have corresponding members. There is no functional difference between these members, but IFATCA does not cover any expenses for these members to attend. If an MA chooses to send a corresponding member, they will have to carry the cost of the attendance.

Thanks to all of our volunteers and their home associations. It is their hard work that they do on their own time that keeps the Federation running and allows us to represent our profession to the best of our ability.

If you have any questions please don't hesitate to reach out to TOC Chair (Jaymi Steinberg) or EVPT (Benjamin van der Sanden).

Author:
Jaymi Steinberg, TOC Chair



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LET'S GET THE DISCUSSION STARTED

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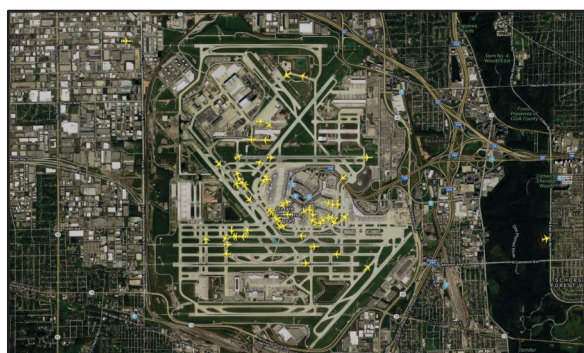
TRANSFORMING SOUTHEAST ASIAN SKIES: AI AND PROMPT ENGINEERING TAKE FLIGHT

The air over Southeast Asia is buzzing with excitement and activity. In 2023, The Air Navigation Service Providers (ANSP) of China, Indonesia, Japan, New Zealand, The Philippines, Singapore, Thailand and USA entered an agreement for a Trajectory Based Operations Pathfinder Project (Waldron, 2023). With rapid growth in the aviation and aerospace industry, managing airspace congestion and ensuring smooth operations becomes a complex challenge. But there's hope on the horizon, thanks to the innovative duo of Artificial Intelligence (AI) and Prompt Engineering.

Firstly, let's define Artificial Intelligence (AI) and then delve deeper into the potential of AI in galvanizing Air Traffic Management. According to Manning (2020), Artificial Intelligence (AI) is a term coined by emeritus Stanford University Professor John McCarthy in 1955 as "the science and engineering of making intelligent machines". In the present day, the focus of AI is on machines that can learn, at least somewhat like human beings do. Imagine an orchestra conductor, not as a human, but as an AI algorithm. This virtual conductor analyzes vast amounts of data from radar, weather, flight plans, and more, orchestrating a symphony of aircraft to chart the optimal flight path. AI considers a multitude of



factors for optimization such as distance, weather, and congestion, fuel consumption and flight times. Additionally, AI is able to predict congestion through the analysis of real-time data, anticipating bottlenecks and suggesting alternative routes to prevent delays (Kabaskhkin et al., 2023). The AI algorithm will also assist air traffic controllers by acting as a trusted advisor, as it provides real-time insights and recommendations, enabling faster and most importantly, safer decisions. AI's power doesn't stop there, as it synergizes with technologies like Automatic Dependent Surveillance-Broadcast (ADS-B) and data link communications which provides real-time aircraft tracking. Imagining ADS-B which provides constant aircraft position updates, feeding AI with even more data for precise demand predictions and optimized routes. Moreover, data-linked communication facilitates instant information exchange between aircraft and air traffic control, further enhancing safety and efficiency.



Secondly, let's explore a discipline dedicated to the careful crafting of the queries and instructions entered into AI systems, Prompt Engineering. With real-time data and automation tools working hand-in-hand, Prompt Engineering, will be able to manage air traffic efficiently. By automating flight planning, routing, and scheduling, Prompt Engineering allows quick responses to changes in traffic demand and optimizes airspace capacity. This then translates to more flights, which relates to airports being able to accommodate more flights without congestion, especially critical for rapidly developing destinations. Delays would also be significantly reduced, as optimized routes

and fewer diversions mean less waiting time for passengers. These would inevitably equate to an enhanced experience, better connectivity and smoother journeys for everyone.

The innovative duo of Artificial Intelligence (AI) and Prompt Engineering may also benefit ground operations too as there are instances where Intelligent Transportation Systems (ITS) leverage AI to manage ground traffic based on real-time analysis. Cameras and sensors feed AI, enabling it to analyze traffic flow and identify potential issues.

AI-powered systems adjust navigational taxiway and runway lights dynamically, re-route traffic, and provide real-time updates, boosting safety and efficiency.

While AI and Prompt Engineering paint a bright picture for Southeast Asia's aviation landscape, navigating the path to success requires acknowledging both the potential benefits and the challenges that lie ahead. On the positive side, these technologies promise significant gains in efficiency. Imagine busier skies teeming with aircraft, yet each navigating with optimal efficiency, thanks to AI-powered route optimization. This translates to more flights operating safely, leading to economic growth and increased connectivity within the region. Additionally, optimized flight paths and reduced unnecessary maneuvers result in lower fuel consumption, contributing to a cleaner and more sustainable aviation industry, a crucial goal for environmentally conscious Southeast Asia. Furthermore, both airlines and passengers stand to benefit from cost savings due to the reduced fuel usage and potentially shorter flight times.



However, achieving these benefits is not without its hurdles. The foundation for this technological transformation lies in upgrading data processing and communication systems across the region. This necessitates significant investment in infrastructure to handle the increased volume and speed of information exchange. Collaboration is also key. Airlines, airports, and air traffic control agencies need to work hand-in-hand to ensure seamless integration and effective decision-making based on AI-driven recommendations. Finally, addressing privacy concerns and implementing robust cybersecurity measures is essential to maintain trust and ethical usage of sensitive data within the system.

By acknowledging these challenges and working together to overcome them, Southeast Asia can leverage the power of AI and prompt engineering to build a smarter, more efficient, and sustainable air traffic management system. This system will not only ensure the smooth and safe journeys of millions of passengers but also contribute to the region's economic prosperity and environmental sustainability.

Authors:

Alicia Ong, Adjunct Faculty at Embry-Riddle Aeronautical University - Asia

Dr. Jack Patel, Associate Professor and Academic Officer, Embry-Riddle Aeronautical University - Asia

References:

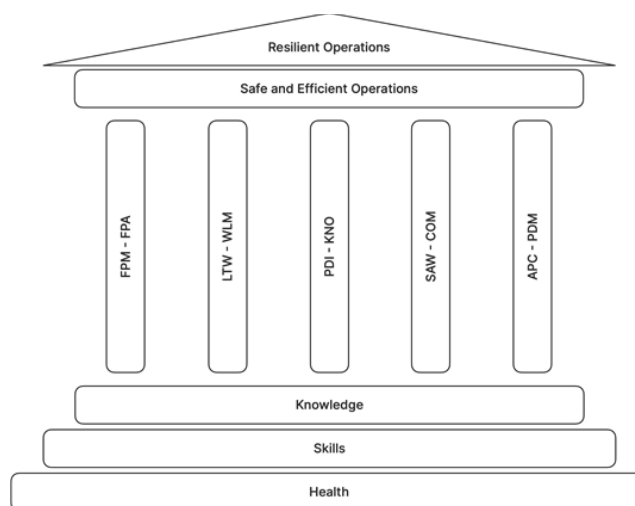
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THE HUMAN DIMENSION OF OPERATIONAL RESILIENCE

As the epitome of complex operations, aviation is particularly vulnerable to volatility and uncertainty. The impact of COVID-19 laid bare aviation's fragility in the face of unexpected events. Unfortunately, aviation is not only susceptible to large-scale disruptive events. In a dynamic operating environment that will only get more complex and volatile with time, disruption happens daily.

It is critical for Aviation organisations to take stock of and proactively address any gaps in their operational resilience, i.e. their capacity to deal with uncertainty and unexpected events. But what does operational resilience look like for an organisation?

A NOVEL FRAMEWORK FOR OPERATIONAL RESILIENCE



The Resilience Framework, originally created by Captain Hari Shankar for the Association of Asia Pacific Airlines, provides an easy way to understand and evaluate operational resilience within flight operations, and can be applied to any Aviation organisation.

The foundation of an organisation's operational resilience lies in the readiness of its many individual expert operators that drive daily operations, and is defined and determined by the quality of their physical and mental health, knowledge and skills.

In an industry that will always be reliant on its expert operators' ability to make the right decisions and actions at any given situation, the robustness of this foundation will have a direct and essential impact on the organisation's operational resilience.

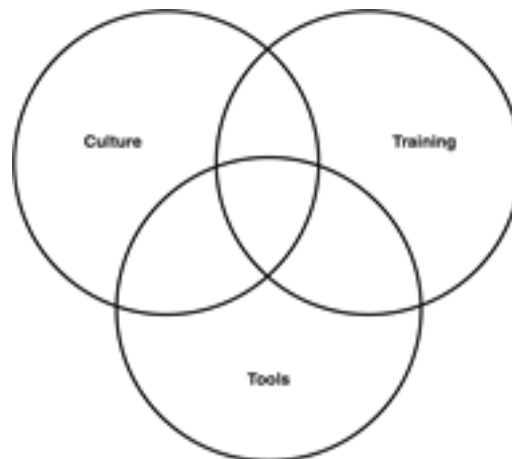
On top of the foundation sits the pillars of operational competency. These pillars represent the core competencies required to achieve safe, efficient and effective operations.

The strength of each pillar, individually, collectively, and collectively scaled across the organisation, determine the conditions in which the organisation is able to deliver safe, efficient and effective operations at any time.

The Framework can also be applied to air traffic management operations by adapting the competency pillars to the context of the Air Traffic Control Officer (ATCO).

OPERATIONALISING THE FRAMEWORK—CULTURE, TRAINING, TOOLS

Organisations operationalising the Framework need to have the right mix of culture, training and tools in place to ensure that its expert operators have the readiness and competencies in place for organisational operational resilience.



Instilling a strong culture of safety and continuous improvement and setting high and realistic training standards would encourage ATCOs to take ownership of their readiness and competencies.

However, ATCOs need more than culture and training. They need the right tools to help them enhance their competencies—such as Situation Awareness, Decision Making and Workload Management—while maintaining readiness in increasingly uncertain and challenging conditions.

This is why Accumulus, a Singapore-based startup, was founded to develop purpose-built, user-centred solutions that help ATCOs, pilots and other expert operators overcome silos, streamline workflows, and access quality and timely information to enhance their readiness and competencies.

CONCLUSION

As the industry recovers from the pandemic and attention returns towards growth and profits, Aviation organisations must also be prepared to cope with uncertainty and unexpected events, by ensuring that they have the right culture, training and tools in place to attain and maintain operational resilience.

Author:

Muhammad Adil, Co-founder and CEO, Accumulus

RESEARCH...

HOW CAN AIR TRAFFIC CONTROLLERS LEVERAGE ACADEMIC INSIGHTS?

According to Scopus, a database of peer-reviewed literature, there were over 160,000 research papers published by Southeast Asian countries during 2022. This included 1,476 related to Aerospace Engineering and 795 related to Transportation. It is likely that a lot of these insights do not make their way into your day-to-day operations, at least not easily. Many of these publications might be fundamental research and are thus enablers for further research. Of the remaining work, how do we make sure the outcomes are relevant to our needs so that we can leverage them in an applied manner?

The following suggestions are based upon my experience supporting the Aviation Studies Institute (ASI) over the last 2 years and spending time on both sides of the sponsor-receiver table in prior roles.

Operational ATC knowledge is a key challenge for many research entities. Research teams often have a depth of knowledge on particular techniques and practices, such as mathematical optimisation. These techniques represent the tools for building a solution – but the understanding of the context in which to use these tools, may not be as deep. Likewise, for industry personnel, we often have the operational context and knowledge of our constraints, but not the tools – or we might know the tools, but not how to best use them. Plus, we often contend with a myriad of other pressures that distract us from building the depth of knowledge in the tools and techniques.

So how do we make sure the research is useful? It is easy to summarise this as 'collaboration' but in what form and with whom should this occur?

PROTOTYPING

A useful approach we used extensively at ASI was to perform prototyping. Setting out to develop a tool (albeit a prototype) gives researchers the impetus to work beyond algorithms and research papers, and instead towards capabilities. At ASI we established a Translational Research team dedicated to maturing the initial research algorithms, building software interfaces and using these for user engagement. In a way, that team itself was a 'prototype' - over time we transitioned these activities to all of the teams. The development of software prototypes has benefited both researchers and end-users, by conceptualising the utility of the research and aiding refinement of the solution(s). As much of the work at ASI has focused on Air Traffic Management, we have involved our end users - Air Traffic Controllers, Air Traffic Flow Managers, Instructors and Trainees and many others. They have been instrumental in aiding the creation of value.

Prototyping has also helped to refine our understanding of the problem, both by its owners and the research teams. Iteratively trialling incremental changes to our prototypes, with feedback from end-users has helped fine-tune the direction of our research. It has also brought to the surface our end-users' unconscious preconceptions about what was and was not feasible. This has helped to increase creativity and spurred ideas about new applications for the capabilities we have developed.

GOING BEYOND PROTOTYPES

Whilst prototypes can be leveraged to refine the requirements for an operational system or concept of operation, research institutes may reach their limit at this point. Systems for use in real-world operations require broader considerations, for example, who will support the system on an ongoing-basis? How will the reliability of the system be assured? Will the system need to interact with other systems, data and networks, and will that be permitted? Answering these questions can require engagement with the existing system owners (typically your organisations' engineers) who understand the operational constraints and your organisation's strategy teams who may have broader considerations. It is at this point that the focus has shifted from R&D to product development.

Unless your organisation or the research institute has its own system development capabilities, progress towards an applied capability will need outside support. It can be difficult and distracting to think about these aspects during the early stages of research, especially if the research team is small. However, as the prototype becomes more mature and more real, this dimension needs to take greater prominence. In parallel to progressing the research work, I recommend both research teams and their sponsors undertake 'market sensing' to understand the appetite of existing system vendors, integrators, and your own development teams for collaboration. The approach might be to build a 'product' of your own, or instead license the underlying components (algorithms) for use by others. This advice assumes that a fundamental aspect was agreed at the outset: how intellectual property will be managed.

Whatever the outcomes of your initial development, sharing beyond the immediate project team can spur new ideas and opportunities. As ATCOs you have unique insights into the operational challenges faced today, and those that will arise in the future. You know the constraints of existing tools and your reservations to using new ones. Researchers are always keen to learn more about your world and welcome new connections. Do not be afraid of contacting your research institutes – whether directly or through your organisation, to find out more about their activities, and how they may be able to contribute to solving the challenges faced by our industry.

FIVE BITESIZE TIPS

1. Starting with a blank sheet of paper is the hardest part in developing any solution. Try working backwards with the question 'what's stopping us from doing this today'.
2. Researchers are naturally inclined to understand 'why' – why an issue is indeed an issue, and why it has not already been solved. Engagement with the owners of a problem (ATCOs, engineers, managers, strategy teams) will give the researchers the opportunity to probe an issue in depth before they form ideas on which tools to try using and mitigate a risk early-on of misdirection and duplication.
3. It can be tempting for operational teams to focus on near-term issues, but solving, validating and operationalising research can be a multi-year activity. It is important to involve strategy teams and direct research teams to longer-term challenges.
4. Don't be scared to set some targets as these do help ensure research teams remain focused on applied outcomes rather than academic ones.
5. It is also important to balance targets with flexibility – particularly in the early stages – to iterate different approaches as more becomes known.



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About the Author:

Jamie Bloomfield is the Director of Propelo Aviation Pte. Ltd., which provides analysis and advice to aviation organisations, with a focus on air traffic management and airspace integration. He was formerly the Lead of Translational Research at the Aviation Studies Institute - Singapore University of Technology and Design.

<https://linkedin.com/in/airtrafficmanagement>



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FLIGHT PATH TO THE FUTURE: BALANCING CONFLICT RESOLUTION CONFORMANCE AND OPTIMALITY WITH ATCO-AI TEAMING

Over the past 100 years of air traffic control, methods to ensure aircraft safety have evolved tremendously, with sophisticated CNS capabilities now at the ATCOs' disposal. At the same time, the air traffic has grown at a scale that would be unfathomable even a few decades ago. The 2023 IATA forecast indicates that the number of air passengers will continue to grow at a rate of 4.2% annually, with the total passengers reaching 7.8 billion by the year 2040 [1]. In a constant effort to ensure safe and efficient traffic flow, numerous automation methods/tools have been proposed by the scientific community to assist the ATCOs in the task of maintain aircraft safe separation. Acceptance of such tools by the ATCOs nevertheless, still remains a critical hurdle. This limited acceptance has been attributed to the difference in the way the ATCOs perceive and resolve aircraft conflicts, and the conflict resolution advisories proposed by the automation tools.

LEARNING FROM THE EXPERTS

ATCOs employ various strategies to resolve air traffic conflicts in order to preserve their cognitive capacities and efficiently manage the sector traffic [2]. Numerous methods that can incorporate ATCOs' strategies into the proposed conflict resolution advisories have emerged in the recent times. **Behavior cloning** or learning directly from an expert's demonstrations is one promising direction for understanding and learning ATCOs' strategies [3]. The core idea of behavior cloning entails collecting data from an expert while the expert performs an intended task, and training a machine learning model on the collected data. The performance of the trained model is then evaluated with reference to the expert's actions. For conflict resolution, this implies collecting conflict resolution data from the ATCOs' and using machine learning to identify the underlying patterns in the conflict resolution data. Such a model is then evaluated on whether it can mimic the ATCOs' strategies or in other words, is ATCO-conformal.

Recent research findings have demonstrated that it is possible to develop ATCO-conformal machine learning models using human-in-the-loop (HITL) experiments to collect the ATCOs' conflict resolution data, identify the ATCOs' strategies and develop robust ATCO-conformal machine learning models that are trained on the collected data [4]. The behavior cloning experiments for conflict resolution have revealed that the ATCOs have varying preferences for aircraft vectoring and maintaining safety buffers between conflicting pairs of aircraft while resolving conflicts, confirming the ATCOs' use of different conflict resolution strategies. This insight also highlights the need for personalization of ATCO-assistance through behavior cloning for seamless adoption and effective use of such tools in air traffic control.

ATCO-AI TEAMING: IS MUTUAL LEARNING FEASIBLE?

To ensure a sustained future air traffic growth, increasing operational efficiency through the support of human-centric automation assistance must be carefully evaluated. A human-centric approach is imperative due to the safety-critical nature of air traffic conflict resolution. As such, behavior cloning may fall short in terms of offering improved operational efficiency, since the exact actions of the ATCOs' are reproduced by the ATCO assistant! A hybrid ATCO-AI teaming paradigm, where an ATCO-conformal assistant is capable of nudging the ATCOs towards efficient yet conformal resolution advisories, is a potential approach (Figure 1).

In such a paradigm, the ATCO acts as the expert who teaches conformal behavior to the AI model. Subsequently, the trained AI model suggests improvement to the ATCO over the conformal solutions, enabling mutual learning. To what extent do the ATCOs' accept such suggestions, needs investigation. In this quest, researchers at the Air Traffic Management Research Institute (ATMRI), Singapore, have conducted HITL experiment with experienced ATCOs wherein the ATCOs were presented with air traffic conflict scenarios with conformal, balanced and optimal resolution advisories. Balanced advisories are improvements over the conformal solutions in terms of the maneuver efficiency and have characteristics of conformance and optimality. Optimal advisors are the most

efficient, with minimal deviations from the intended flight path. The interactive interface used in the experiments is shown in Figure 2. Results demonstrate that while ATCOs' prefer the conformal solutions, they are also highly receptive to the balanced solutions that improve operational efficiency, indicating that a hybrid ATCO-AI teaming paradigm is very likely!

CHALLENGES THAT AWAIT

- **Validation and Certification:** AI models are fundamentally different from conventional rule-based algorithms, and demand development of new data and model validation and certification processes.
- **ATCO Training:** Incorporating AI-based models in operations need a paradigm shift in the training of the ATCOs' where they are introduced with such systems early during training.
- **Trust:** The inherent complexity of AI models often results in black-box systems, where the decision-making processes are not readily interpretable by the ATCOs. The lack of transparency and explainability in how the AI models generate results can lead to skepticism and reluctance among the ATCOs to fully embrace AI recommendations.

KEY TAKEAWAYS

- Behavior cloning offers a novel approach to identification of the ATCOs' conflict resolution strategies and developing ATCO-conformal conflict resolution models.
- ATCOs' demonstrate different conflict resolution strategies and thus, personalization of assistance tools is imperative to increasing their acceptance for use by the ATCOs.
- A hybrid ATCO-AI paradigm can aid in ensuring a sustained future air traffic growth with increased operational efficiency while maintaining safe air traffic operations.

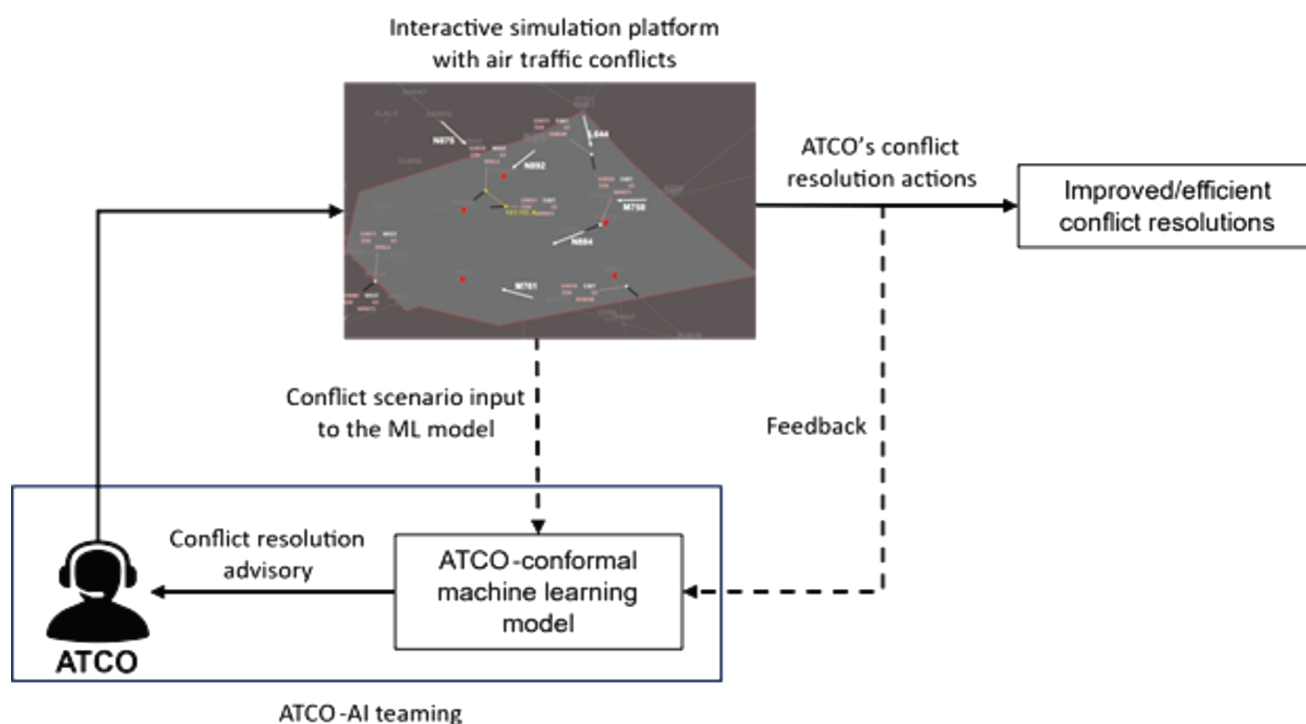


Figure 1 A conceptual diagram representing the hybrid ATCO-AI teaming paradigm, where the ATCO-conformal machine learning model is capable of nudging the ATCOs' towards conflict resolutions that are efficient in comparison to the conformal advisories, and improves its suggestions based on the actions taken by the ATCO.

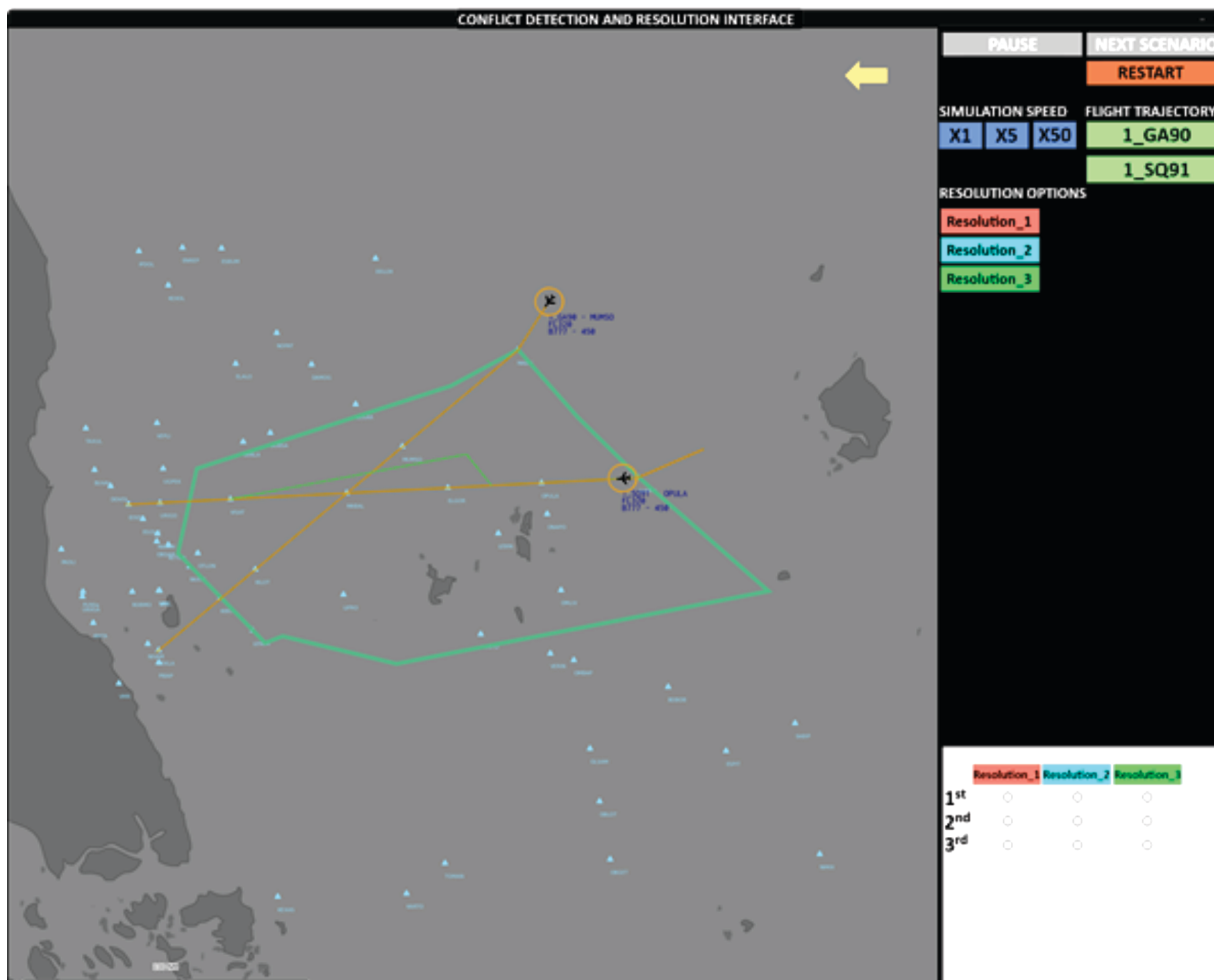


Figure 2 An interactive interface used in the experiments, showcasing the main visualization window, buttons for scenario control, speed adjustments, flight trajectory visualization, resolution option selection, and radio buttons for ranking the responses.

Author:

Yash Guleria and Sameer Alam, Air Traffic Management Research Institute

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MICROWEATHER RESEARCH SHINES A LIGHT ON ADVANCED AIR MOBILITY SAFETY PLANNING

People across the world may soon be hailing air taxis from hotel rooftops and receiving medical supplies via drones. To ensure these new modes of transport are rolled out safely, some safety planning and assurances are needed for these and other planned advanced air mobility (AAM) operations. A thorough understanding of the effects of extremely localized – or microscale – weather on AAM is essential, and research by MITRE is shedding some light on this key issue.

MITIGATING MICROWEATHER CHALLENGES

MITRE, the operator of the Federal Aviation Administration's (FAA) federal research and development center, is focusing its research on two key aspects of microweather: turbulence and wind shear, or the variation of wind velocity or direction over a relatively short distance. Both conditions are affected by the environment that AAM vehicles fly over, and it might be challenging to evaluate them close to urban areas as buildings and infrastructure there further disturb the atmosphere.

For example, rows of buildings can accelerate winds or make them more turbulent. Temperatures and wind flow patterns differ over concrete, grass and trees, creating local wind gradients and wind shear when moving across areas with different surfaces.

These are just some of the complex weather patterns that must be understood to enable full-scale operations of uncrewed aircraft systems (UAS), including the electric vertical takeoff and landing (EVTOL) vehicles that could become the air taxis of the future.

In the envisioned future, private entities will provide weather services to AAM operators. That will require the placement of weather sensors or systems in the operational environment. Currently, standards do not exist for how many sensors will be needed in any given environment nor the locations where they would provide the greatest benefit.

OPTIMIZING AAM SAFETY

To ensure and optimize safety, AAM operators will need to routinely identify and anticipate when localized and changing weather conditions may prove hazardous. For Singapore, this will include potential heightened, microscale weather risks along the coast and across straits given envisioned cross-island and near-country AAM travel connectivity as well as scaled use of drones in support of advanced ship-to-shore services at the Port of Singapore. For these challenges, opportunities exist to adopt MITRE microweather research that is assisting the FAA in addressing similar AAM challenges.

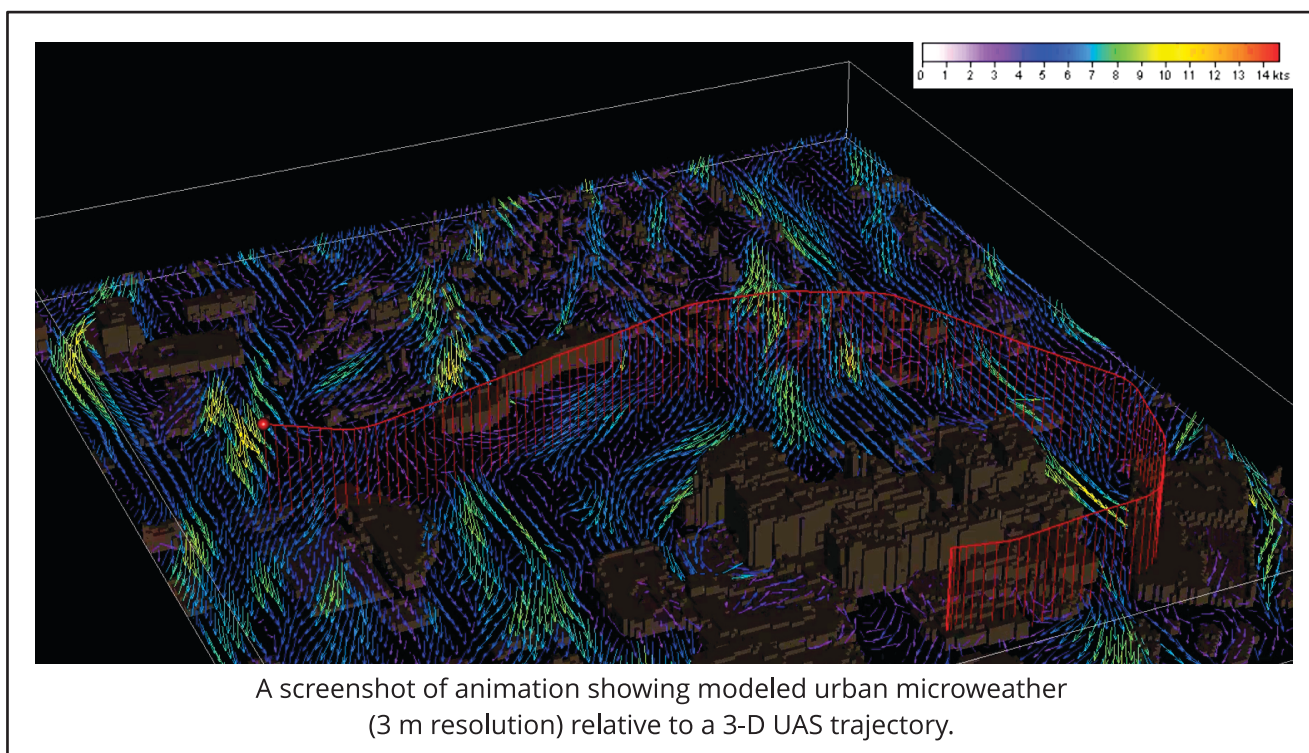
In the United States, MITRE worked with Aeris LLC to validate and apply its atmospheric physics model to simulate – at 3- to 4-meter resolution – how weather conditions within and between urban centers may prove hazardous to drone and AAM operations given varied terrain, coastal conditions, land use, buildings/infrastructure, and larger-scale seasonal wind conditions. In this research, which has been tested on several U.S. cities, simulated microscale weather and wind conditions were translated to a MITRE-created hazard product called Shake and Sharp™, which provides risk probabilities for turbulence (“Shake”) and/or wind shear (“Sharp”) as a drone or EVTOL vehicle navigates its mission.

Shake and Sharp's insights could help Singapore and neighboring countries determine where and when AAM operations may best avoid localized and hazardous weather conditions, optimizing both safety and future service

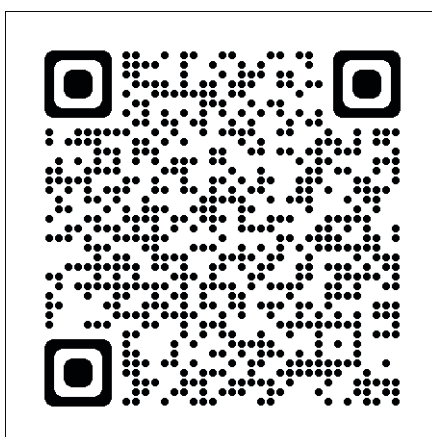
availability. These insights, in turn, may help optimize siting, investment, operationalization, and mission execution of vertiports and trajectory networks for future AAM services.

The world of AAM operations is approaching quickly. With a better understanding of microweather impacts, AAM innovations will be better able to provide a world of benefits—safely.

Author:
The MITRE Corporation



*A version of this article was originally published in The Leading Edge.
Please scan the QR code below to read the original publication.*



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EMIRATES AVIATION ASSOCIATION TO HOST IFATCA 2025 CONFERENCE IN ABU DHABI

The Emirates Aviation Association has announced plans to host the Annual International Federation of Air Traffic Controllers' Association (IFATCA) Conference in 2025 in Abu Dhabi, the capital of the United Arab Emirates. This prestigious event will showcase the commitment of the Emirates Aviation Association to support and promote safety, efficiency, and regularity in international air navigation at both the national and international levels.



The announcement was made at the IFATCA 2024 conference in Singapore, where more information about the upcoming event in Abu Dhabi will be provided. The Emirates Aviation Association believes that IFATCA 2025 will promote and uphold a high standard of knowledge and professional efficiency among Air Traffic Controllers, as well as other professionals in the Aviation Industry.



Hosting the conference in Abu Dhabi presents a unique opportunity for the region to collaborate, share knowledge, and provide career enrichment for attendees. It also offers a chance for mutual benefit affiliations with other international professional organizations. Abu Dhabi is known for its welcoming hospitality, inviting visitors to discover experiences at their own pace. Whether visiting for business, leisure, or both, Abu Dhabi offers unrivaled accessibility and convenience that makes doing business a pleasure. The city boasts excellent air connectivity, collaborations between airlines, ease of travel with integrated transport options, and seamlessly connected venues.

In addition to its modern infrastructure, Abu Dhabi is also rich in cultural heritage and world-class attractions. Visitors can explore the stunning examples of Islamic architecture at the Louvre Abu Dhabi, Qasr Al Watan, Qasr Al Hosn, and Sheikh Zayed Grand Mosque. Just 90 minutes from the capital, visitors can discover the oasis city of Al Ain, featuring UNESCO heritage sites and archaeological discoveries.

Across the Emirate of Abu Dhabi, visitors will find state-of-the-art venues, affordable accommodation, and round-the-clock public transport, making it easy to explore. The diverse community of more than 200 nationalities ensures comfort, familiarity, and security for expats and visitors alike.

The Emirates Aviation Association's decision to host the IFATCA 2025 conference in Abu Dhabi underscores the city's reputation as a global hub for aviation and a welcoming destination for visitors from around the world.

Kind Regards,



IFATCA 

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IFATCA Annual
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SINGAPORE INFORMATION

ABOUT SINGAPORE

The story of Singapore is rich with twists, turns and triumphs. Get to know how far Singapore has come through the city's colourful past.

A LONG, LONG TIME AGO...

The old Keppel Harbour in Singapore

A long time ago, Singapore was once known as Sea Town.

While the earliest known historical records of Singapore are shrouded in time, a third century Chinese account describes it as "Pu-luo-chung", referring to "Pulau Ujong" which means the "island at the end of a peninsula" in the Malay language. Later, the city was known as Temasek ("Sea Town"), when the first settlements were established from AD 1298-1299.

During the 14th century, this small but strategically-located island earned a new name. According to legend, Sang Nila Utama, a Prince from Palembang (the capital of Srivijaya), was out on a hunting trip when he caught sight of an animal he had never seen before. Taking it to be a good sign, he founded a city where the animal had been spotted, naming it "The Lion City" or Singapura, from the Sanskrit words "simha" (lion) and "pura" (city).



The city was then ruled by the five kings of ancient Singapura. Located at the tip of the Malay Peninsula, the natural meeting point of sea routes, the city flourished as a trading post for vessels such as Chinese junks, Arab dhows, Portuguese battleships, and Buginese schooners.

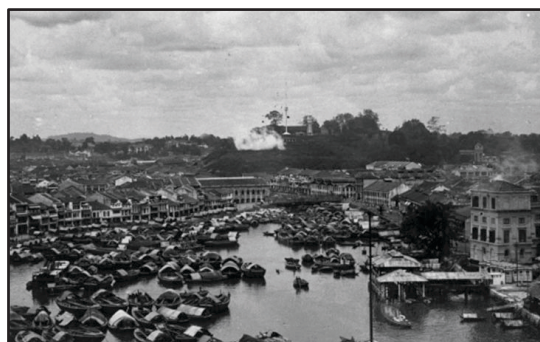
THE RAFFLES EFFECT

Boats at the old trading port along Singapore River. Modern Singapore was founded in the 19th century, thanks to politics, trade and a man known as Sir Thomas Stamford Raffles.

During this time, the British empire was eyeing a port of call in this region to base its merchant fleet, and to forestall any advance made by the Dutch. Singapore, already an up-and-coming trading post along the Malacca Straits, seemed ideal.

Raffles, then the Lieutenant-Governor of Bencoolen (now Bengkulu) in Sumatra, landed in Singapore on 29 January 1819. Recognising the immense potential of the swamp-covered island, he helped negotiate a treaty with the local rulers and established Singapore as a trading station. The city quickly grew as an entrepot trade hub, attracting immigrants from China, India, the Malay Archipelago and beyond.

In 1822, Raffles implemented the Raffles Town Plan, also known as the Jackson Plan, to address the issue of growing disorderliness in the colony. Ethnic residential areas were segregated into four areas. The European Town had residents made up of European traders, Eurasians and rich Asians, while the ethnic Chinese were located in present-day Chinatown and south-east of the Singapore River. Ethnic Indians resided at Chulia Kampong north of Chinatown, and Kampong Gelam consisted of Muslims, ethnic Malays and Arabs who had migrated to Singapore. Singapore continued to develop as a trading post, with the establishment of several key banks, commercial associations and Chambers of Commerce. In 1924, a causeway opened linking the northern part of Singapore to Johor Bahru.



TRAVELLER ESSENTIALS



SINGAPORE TOURIST PASS (STP)

It is a special EZ-Link stored-value card allowing unlimited travel in MRT and Bus for one, two, and three days. It can be bought at TransitLink Ticket Office at selected MRT stations.



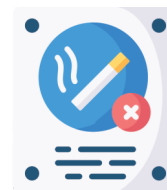
SAFE DRINKING WATER

You can drink water straight from the tap as the water in Singapore passes World Health Organization standards. You can also buy bottled water easily.



WI-FI & CONNECTIVITY

There is a free public Wifi service across Singapore. Download the Wireless@SGx App to auto connect.



NO SMOKING AREAS

Smoking is not allowed in air-conditioned places, and your tobacco products should not exceed 4gm. Smoke only at designated smoking areas.



POLICE
Dial: 999



AMBULANCE & FIRE BRIGADE
Dial: 995



FLIGHT INFORMATION
Dial: 1800 542 4422



TAX REFUND

If you purchase anything above USD 100 (including GST), you can claim a 9% GST refund. Look out for the Tax Free shopping logo or a sign displayed at the shop you are buying from. You can have 3 same-day receipts to meet the minimum purchase requirement of USD 100. The refund can be claimed via Electronic Tourist Refund (eTRS) self-help kiosk at the airport or via Global Blue or Tourego Mobile Applications (App).

LOCAL DISHES IN SINGAPORE



CHICKEN RICE:

While there are many different variations of chicken rice, the Hainanese version consists of poached chicken, rice cooked in chicken stock and a chilli dipping sauce.



ROTI PRATA:

This savoury, belly-filling dish is crispy on the outside and soft on the inside, but tasty throughout.



CHILLI CRAB:

One of the favourite ways of eating chilli crab is with bread mantou (steamed buns) are often used to sop up the dish's delicious sauce.



NASI LEMAK:

Anchored by creamy, coconut-infused rice, this zesty dish is a delight for the taste buds.



KAYA TOAST:

This breakfast favourite will give your sweet-tooth more than it bargained for.



FRIED CARROT CAKE:

Contrary to its name, there's nary a tinge of orange in the local fried carrot cake, a flavourful dish that comes in the monochrome colours of black or white.



LAKSA:

This spicy noodle soup dish is the perfect comfort food for rainy days, and is bound to both fill your belly and tickle your tastebuds.



ROJAK:

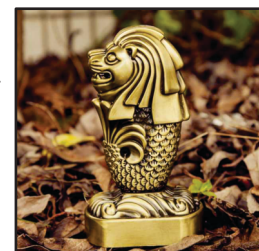
Dark and sticky, the salad may not look very appealing at first; but tuck into this culinary marvel and you'll be amazed by the delicious mix of sweet and savoury.

ICONIC SOUVENIRS OF SINGAPORE

Singapore is a teeming hotbed of locally designed and crafted products. Several emblems of our diverse, unique nation can be brought home by tourists, in the form of quirky and functional souvenirs. Nuanced labours of love crafted by Singapore's growing artisanal community, these thoughtfully fashioned items are not only functional- they're symbols of our many cultures and ethnicities.

MINIATURE MERLION SOUVENIRS

The iconic symbol of Singapore, the Merlion, is a bizarre man-made creature, with the upper half representing a lion and the other half the body of a mermaid. While the upper lion head represents Singapore's original name, i.e. Singapura, meaning 'lion city', the lower half depicts the island's origin as a fishing village. Many souvenirs like key chains, refrigerator magnets, can openers, ashtrays, and chocolates with miniature merlions are available to choose from at various tourist attraction areas, including Chinatown.



TIGER BALM-A LOCAL OINTMENT TO SOOTHE DISCOMFORT

Soothe your aches and pains with **Tiger Balm**, a traditional ointment that can be found in most convenience stores and supermarkets. Locals have been dabbing the elixir on their sore joints and muscles for almost a century, and some even claim it helps with headaches and colds. Even if you don't suffer from any of these ailments, Tiger Balm's iconic hexagonal bottle-the design of which hasn't changed much since it launched-makes for a great curio for your home.



KAYA - COCONUT JAM

If tasting Kaya once doesn't turn you into a hoarder then see a tongue doctor. There is something wrong with your taste buds! Kaya is a delicious coconut jam and is widely used in the lion city as in making Kaya toast - the most popular breakfast dish among Singaporeans and thus the natural choice for being the second in our list of top 10 Souvenirs to pick in Singapore. Kaya toast is made by filling a sandwich made of two toasted slices of bread with butter and Kaya. Kaya jam is made of a combination of eggs, coconut milk, sugar, and pandan leaves. This flavored jam can also be used as a topping for some desserts and cakes. You can buy kaya jars at most supermarkets in Singapore. Kaya jam bottles are inexpensive too.



SUPERMAMA/SCENE SHANG-HOMEWARE

If you'd like to purchase some locally made crockery and furniture, head to **Supermama** and **Scene Shang**, located side by side in Kampong Glam. Supermama, in particular, is famous for its gorgeously crafted porcelain plates, depicting architectural icons like the Merlion and cultural motifs.



TWG-TEA FOR THE DISCERNING CONNOISSEUR

Tea-lovers, you'll find your sanctuary at one of the tea salons of Singapore's home-grown luxury tea brand, TWG. Pick up a beautiful tea tin containing your blend of choice local versions of international strains include the Singapore Breakfast Tea and the Weekend in Singapore or a box of exotic loose tea leaves.



SINGAPORE PRESSED PENNIES

Once it's time to return to your home and take a lifetime of memories from Singapore, and you are confused about the gifts for your friends or want to take a souvenir for yourself and your family, Pressed pennies are an ideal option. These are elongated coins engraved with iconic designs that make excellent souvenir tokens. Automatic penny flattening machines are placed at various tourist attractions, allowing visitors to make their own pressed penny souvenirs.



OUR NATIONAL FLOWER, IMMORTALISED IN GOLD

If you're a fan of our national flower, the Papilionanthe Miss Joaquim orchid, you can take home a bloom that will not wilt: a gold-plated one. Visit local goldsmith and jeweller Risis, and browse a collection of orchid-inspired jewellery.



TRADITIONAL PERANAKAN POTTERY

Thow Kwang Pottery Jungle. This family business fires up the kiln several times a year (it's Singapore's oldest surviving dragon kiln) to create some stunning pieces. The handpainted details are stunning, the quality is top-notch, and we thoroughly recommend getting them. From umbrella stands, vases, lamps and bowls to plates, pots and tiffin holders, you will surely find a beautiful Singaporean gift.





IFATCA ANNUAL CONFERENCE 2024 OFFICIAL AFTER PARTY BAR

PROMOTIONS

- FREE welcome shot on the purchase of any beverage
- Bottle beers, house pour spirits (with mixer) and house red, white & sparkling wines @ \$10 nett.
- 20% discount on all other beverages, including bottles and shots and draught beers.

ENTERTAINMENT

- DJ spinning on Thursday 18th and Friday 19th April

Opening hours 5pm till 3am Mondays to Fridays, Saturdays until 4am

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CLOSURE AND THANK YOU MESSAGE



Dear friends, colleagues and guest,

As the curtains close on the 63rd IFATCA Annual Conference, I am filled with immense gratitude and a sense of fulfilment. On behalf of the 63rd IFATCA Organising Committee, I extend my sincerest appreciation to each one of you for your invaluable participation and contribution in making this conference a resounding success.

Throughout the conference, your dedication, passion, and expertise shone brightly, illuminating every discussion, presentation, and interaction. Your unwavering commitment to enhancing the future of air traffic control and aviation safety is not only commendable but also inspiring.

To my esteemed organising committee members, your tireless efforts in orchestrating this event with meticulous detail did not go unnoticed. Your commitment, initiative, leadership, and organisational skills were instrumental in bringing together our fellow IFATCA friends and professionals from across the globe to collaborate, share insights, and foster meaningful connections. I thank you for coming for the endless meetings, answering the call of duty, and attending to the never ending task list.

To all our IFATCA friends who travelled the seas to our sunny island, your active participation, insightful contributions, and eagerness to learn made this conference truly dynamic and enriching. The diverse perspectives and experiences you brought to the table created a vibrant tapestry of knowledge and ideas that will undoubtedly shape the future of air traffic control. I thank you all for the commitment to the future of our profession and industry.

As we reflect on the past few days filled with engaging discussions, enlightening presentations, and fruitful networking opportunities, let us carry forward the spirit of camaraderie and collaboration that epitomises IFATCA. Together, we have not only strengthened our bonds but also reaffirmed our collective commitment to advancing the field of air traffic control for the betterment of aviation safety and efficiency worldwide.

In closing, I would like to express my deepest gratitude to each and every one of you for your unwavering support, dedication, and enthusiasm throughout the conference. Your contributions have left an indelible mark on the success of the 63rd IFATCA Annual Conference, and for that, I am truly grateful.

Here's to continued collaboration, innovation, and success in the endeavours that lie ahead.

With warm regards,



Lim De Wei
Chair

63rd IFATCA Annual Conference Organising Committee

INVEST IN PEOPLE.
THE FUTURE OF ATM.

This publication is brought to you by:
The 63rd IFATCA Annual Conference Organising Committee