AviAsian 2021: Conference Proceedings

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Author Note

These conference proceedings pertaining to AviAsian 2021 were compiled by members of the academic department at Embry-Riddle Aeronautical University - Asia. The views and reflections represented herein are those of the relevant authors and may not necessarily be representative of the university itself.
Abstract

AviAsian 2021 was the second instalment of the recurring biennial conference first conceptualized in 2018. Hosted over two days in August 2021, this conference represented a collaboration between Embry-Riddle Aeronautical University – Asia and Civil Aviation Authority Singapore at the Singapore Aviation Academy. AviAsian 2021 brought together subject matter experts and aviation professionals from various parts of the aviation industry in the Asia region. The conference was attended by mid-level managers and decision-makers in the Asia aviation industry with the aim to help foster a strong community of academia, researchers, experts and emerging talents in the aviation, aeronautics, and aerospace industries both locally and regionally. Participants at the conference enjoyed a series of presentations and panel discussions by subject matter experts in the aviation industry. Topics covered included the resumption of travel, potential disruptions arising from Covid-19 regulations, emerging priorities for aviation, sustainability in a pandemic, and the efficiency, security and quality issues surrounding digitalization. These conference proceedings provide a summary of the AviAsian 2021 conference as provided by the conference chair and a recollects the key takeaways and reflections made by the moderators of each session.

Keywords: conference, aviation, Asia, COVID-19
Introduction

As necessitated by the COVID-19 pandemic, AviAsian 2021 was delayed from an originally planned date of August 2020 and was the first of the AviAsian series of conferences to take place in a hybrid format to allow participants to join in either online or in person. AviAsian Conference 2021 was a two-day conference held from 26th to 27th August 2021 at the Singapore Aviation Academy. This conference was labelled ‘The long runway ahead – opportunities, challenges, solutions in reigniting the aviation industry in Asia’. Given this title, the focus of this edition of the AviAsian conference was to deliberate on aviation topics in the backdrop of the current pandemic and moving forward into a post-pandemic era for the aviation industry. Speakers were drawn from middle to higher management roles at organizations in the private sector and public sector and selected to speak on pertinent matters of current importance based on their expertise, first-hand knowledge, and experience of the aviation industry.

Topics covered at AviAsian 2021

The overarching theme of the conference focused on existing issues and offered solutions to existential challenges in the aviation industry. More specifically, topics included: Airlines & Airports Emerging from COVID-19, 3D Aircraft Parts, Aviation Security & Disruptive Passengers, Looking Beyond COVID-19, Green Aviation, Big Data, Innovation & Blockchain Technology. In total, seven sessions of presentations and panel discussions were packed into two days with further details and reflections provided in the following sections of this document. (See Appendix A for the AviAsian 2021 conference agenda).
Session 1: Opening Remarks & Keynote Address

The conference was opened by Ms. Liu Meifeng Charmaine, Director, Singapore Aviation Academy. She provided a welcome message to participants, both online and in person at the Singapore Aviation Academy. Ms. Liu highlighted emerging priorities for the industry as air travel resumes. This included putting in place safety protocols as aircraft return to service, leveraging on technology and innovations for aviation recovery, and to work towards re-building a sustainable and resilient aviation ecosystem that is responsive to future pandemics.

The opening address was followed up by the Keynote presentation. The Keynote Speaker at this conference was Mr. Vinoop Goel. Regional Director, Asia-Pacific, IATA. Mr. Goel is the Asia-Pacific Regional Director of Airports & External Relations for the International Air Transport Association (IATA). He is based at their Asia-Pacific regional office in Singapore. Mr. Goel leads a team that is responsible for all IATA's activities in the Asia-Pacific region relating to Airports, Passenger Facilitation, Cargo and Security. He has three decades of aviation industry experience including a 15-year stint in Japan and has been with IATA since 2005. IATA is the trade association for the world’s airlines, representing some 290 airlines or 82% of total air traffic. IATA supports many areas of aviation activity and help formulate industry policy on critical aviation issues.
In his presentation, Mr. Goel covered topics of importance such as the historical growth of the global aviation industry, the importance of air travel in job creation and sustenance, the impact of the pandemic on passenger numbers and decline of aviation activity in relation to global passenger movements. Two years of ‘lost growth’ would be apparent as 2019 levels of air traffic is only predicted to return in 2023. Moving forward, Mr. Goel explained how aviation may safely reopen through coordinated and unified safety measures across regions and by way of the IATA Travel Pass to allow for a robust, safe, and reliable biometric tracking of vaccinated passengers. The main point was that the pandemic is now endemic. Governments are working in close collaboration around the world and are looking to safely reopen their borders to restart their flailing economies in a manner which breeds confidence and offers reassurances to travelers.
Session 2: Airlines & Airports Emerging from COVID-19

International travel ground to a halt at the onset of the COVID-19 pandemic in 2020 with meetings, summits, conferences, and other events moving online. As vaccinations slowly gain momentum, international travel is slowly resuming with destination countries imposing new requirements for visitors such as proof of vaccinations, use of track-and-trace apps, and quarantining upon arrival. Unfortunately, this has also encouraged threat actors who will likely exploit the confusion surrounding the ever-changing travel arrangement requirements to target travelers and the travel industry—especially airlines and hotels. Adding to the foray of challenges are public mistrust of Track-and-trace app due to privacy concerns as well as suspicion generated by malicious and unsecure mobile applications masquerading as healthcare related apps. Furthermore, the Delta Variant is still very much a threat and has been largely responsible for most of the third or fourth waves in many countries.

With personal safety and public health as guiding principles coupled with cautious travel reopening goals, many questions still remain unanswered. What will travel in an endemic situation look like? Besides the Delta variant and low vaccination rates, what are some of the
NEW tech-related threats we really should be looking at? Can the industry keep up or play catch up with the ever-changing threats? In resuming travel, do we need more tech or more safety measures in mitigating these current and emerging COVID related threats?

**Key Takeaways**

Travel Rebound is being thrown off-course by Delta Variant and that recovery expectations and current estimates may need to be recalibrated as leisure bookings remain low and companies delay back to office plans to the last quarter. All over the world, new infection surges caused by the now dominant Delta variant are prompting waves of announcements about canceled mass events, delayed mandates to return to office and renewed lockdowns in parts of the world including Australia, New Zealand, and parts of South-East Asia.

One of the key takeaways was that business and leisure travel remain an open question, and while the travel recovery isn’t progressing as fast as desired, it does appear that governments are adopting a more pragmatic and cautious approach towards the reopening of borders and travel resumption.

Understandably, there are multiple concerns with the reopening of borders and travel resumption that include global vaccination rates, lack of coordination amongst countries and governments which have led to logistical/operational inconvenience, confusion, risk of fraud, privacy concerns and other personal safety and security-related issues. The key to safer and faster travel resumption therefore lies in the adoption of a validated travel app solution, such as IATA Travel Pass, which will be modular, interoperable, contactless, and endorsed by governments to facilitate the passenger experience and safeguard public healthcare.
Next Actions

**Trust:** Besides innovative technologies (such as blockchain) and safety measures, there must be trust established between jurisdictions as well as trust between citizens and governments. Additionally, stakeholders also need to consider rebuilding trust and confidence from the public in taking to the skies once again.

**Interoperability:** For digital health passport systems (such as the IATA Travel Pass) to communicate with other systems and overcome differences between regions, it is critical to ensure interoperability as central to the platform.

**Multi-pronged approach:** While global distribution of vaccines is still gaining momentum amidst worrying spikes caused by the Delta variant and other variants of concern, there is still a need to maintain safety measures such as masking on-board, requirement of test results and safe distancing on-board.

**Communication:** In communicating the trade-offs to the public and stakeholders, there is also a need for authorities and governments to remain accountable. They need to clearly explain any changes in policies and legislation to adjust and adapt to the ever-changing larger landscape.

**Credits and Accolades**

Credits must be given to all our expert presenters and panelists in Session 2:

1. Ms. Kim Chua (Moderator), Instructor, College of Arts & Sciences, ERAU
3. Mr. Darius Wee (presenter and panelist), Senior Manager, Airport Operations Management, Changi Airport Group, ‘Restarting airports safely’.
4. Mr. Vinoop Goel (presenter), Regional Director, Members & External Relations, Intl. Air Transport Association (IATA), ‘IATA Travel Pass for border reopening’.

5. Dr. Rajee Olaganathan (presenter and panelist), Adjunct Faculty, College of Aeronautics, ERAU, ‘Big data utilisation for reopening airlines’.

6. Mr. Michael Parsons (panelist), Global Industry Executive Travel & Transport, IBM

7. Mr. Fred Stein (panelist), Representative, Transportation Security Administration
Session 3: 3D Printing of Aircraft Parts

This session on 3D Printing of Aircraft Parts began with an interactive and hands on demonstration of additive manufacturing by Prof. Chua Chee Kai, Head of Pillar for Engineering Product Development from the Singapore University of Technology and Design. Prof. Chua treated the in-person participants to a first-hand look at artefacts created through 3D printing. He explained the history and evolution of additive manufacturing, demonstrated the capabilities of this technology in the creation of aircraft parts which could benefit the industry through reduced stress fractures, greater fuel efficiency and aerodynamic performance of aircraft.

The second presentation by Dr. Koh Pak Keng, Director, ECK Pte Ltd looked into the Application of Cold Spray Technology in Aviation Industry. Dr. Koh explained the benefits of cold spray technology and its potential to add value to the area of aviation maintenance especially in the repair of worn or eroded aircraft parts.
Industry Spotlight: Creating Virtual Reality Training Applications for the Aviation Sector

Mr. Khoo Beng Keat, Executive Director, Aviation Virtual addressed the audience to explain aviation applications and possibilities using Augmented Reality (AR) and Virtual Reality (VR) technology to aid the training of aviation personnel through cutting edge simulation and gamification platforms developed for the aviation industry and beyond.
Session 4: Aviation Security & Disruptive Passengers

The session started off by examining the legal framework, Montreal Protocol of 2014, which provides rules and regulations on the security matters. We saw how Montreal Protocol improved on its predecessor, Tokyo Convention. One of the key improvements was that the country where the aircraft is landing has a right to press charge against unruly passengers on board. Montreal Protocol of 2014 is closely related to the other presentations of this session, where vivid examples of disruptive passengers were illustrated. Unfortunately, all the cases presented had disturbing endings, where the unruly passengers walked away free of charge, while the crew members were shaken emotionally, and sometimes physically. Such events would have negative impact on the passengers as well. The panelists discussed how Montreal Protocol may improve such situations.

Joining the experts from the legal field and airlines were the regulators and civil aviation operators. The participants of the session were again able to see real-life examples of the disruptive behavior encountered in the air as well as on the ground. The panelists emphasized that public awareness and stakeholder collaboration are the keys to tackle the unruly behavior. In
some cases, unruly behaviors were the results of the lack of awareness towards the rules and policies newly introduced. This is an important point as the Covid-19 has brought about significant changes in travel and will continue to do so in the foreseeable future.

As the volume of air traffic is large in the U.S., there are also many challenges related to the unruly behavior. With our panelists, we were able to gain insights into the challenges and opportunities faced by the U.S., both in the air and on the ground. We have seen that the number of disruptions has sharply risen in the U.S. after the Covid-19, due to the new regulations. Prior to the outbreak of Covid-19, the event that led to large-scale changes to the way we travel was the tragedy of 9-11. In the discussion, we were able to have a brief discussion on the specifics of such changes and how they may be relevant for the post-Covid travels.

The one point echoed throughout this session was that communication is key. Communication with different stakeholders, such as the public, airlines, airports, and the regulators. The changes in the way we travel are inevitable in the era of Covid-19, but clearly communicating such changes can reduce disruptive behavior.

**Credits and Accolades**

Credits must be given to all our presenters and panelists in Session 4:

1. Dr. Somi Shin (Moderator), Assistant Professor, ERAU

2. Dr. Jae Woon (June) Lee (presenter and panelist), Assistant Professor, Faculty of Law, Chinese University of Hong Kong, *The Montreal Protocol of 2014 Dealing with Disruptive Passengers*

3. Mr. Fred Stein, Representative (presenter and panelist), Transportation Security Administration, *Disruptive Individuals at the Checkpoint*

5. Mr. Brian Kinane (presenter and panelist), Manager Security Training, Emirates, ‘Disruptive Behaviour’

6. Mr. Eric Sarandrea (panelist), Asia-Pacific Regional Director, International Operations, Transportation Security Administration
Session 5: Looking Beyond COVID-19

Emerging Priorities for Aviation After COVID-19 was the title of the panel discussion for the 5th session of the 2021 AviAsian Conference, moderated by Mr. Ignatius Luke Chan. The title was indeed apt as Singapore began the talks to reopen the border for both business and leisure travels. Having come close to a standstill for leisure travel, airlines saw a dip in revenue for flights, as slowly each country began shutting their door in the hopes of being able to contain the Covid-19 coronavirus. As a result, the number of passengers that went through the doors of every airport around the world decreased significantly, and in doing so, affected almost every other stakeholder in the industry.

With the decrease passenger count, the industry would see the tenants of the airports suffer losses in terms of revenue, security not needing to be around as often, air traffic controllers only needing to tend to significantly less than normal number of flights per day, and pilots who will only be seen flying only once a month.

With that becoming the norm in the current Covid-19 era, what must then be done as we prepare to reopen? During the panel discussion, the main question on the table was “What needs
to be done as a priority to be ready for the future?”. There was certainly no hesitation amongst the experts during the discussion and the answer surround the theme of currency.

Paddling back, the moderator and panelist went through the effects of Covid-19 on the industry and acknowledge the standstill and reduced capacity that came because of it. Fewer travelers result in the decreased need for security personnel, pilots, and air traffic controllers. With the ever-changing rules, regulations and precautionary measure also get involved.

**Aviation Security**

Understandably, there is a need for retraining amongst other needs that are apparent. In the view of aviation security, Covid-19 has certainly enabled them to enhance current measures that are already in place, such as relinquishing the need of having pat-downs and instead have a total hands-off scanning system for passengers. The Transportation Security Administration’s [TSA] plan in a post Covid-19 world would see them implement new initiatives and systems using a 3-step guide, namely, respond, recover, and thrive. In respond, given that the industry begins the move out from a Covid-19 world, the first 6 months are crucial as the focus will be health and safety. Following that, the study of the findings and the preparation of a new normal would occur, before streamlining and rethinking designs to thrive in a post Covid-19 world. The goal would be to create an agile response to emerging threats including viruses, in the future.

**Pilots**

Probably the most prominent jobs that were hit were those that worked in an aircraft, namely, pilots and cabin crew alike. The Covid-19 has certainly seen reduced flights and as such reduced experience on the part of pilots. Flying from almost 20 days a month to a mere one or even zero is certainly one of the key effects that has affected pilots around the world. What’s more is that there are also other factors that can affect a pilot’s performance aside from the hours
or responsibilities that they hold while on flight. Mental health is a factor that does affect pilots, though it is often not spoken of and rarely declared, but it remains one of the factors that affects pilots in their day-to-day job. Whether it was caused from the transition from an increasing trend or a decreasing trend, it does not change the fact that mental health still does affect pilots. The transition to different jobs because of being laid off or to earn money to make ends meet will definitely affect individuals in one way or another. In a post Covid-19 world, there needs to be two things that are seen to as a priority: recurrent training of pilots and mental wellbeing. The panel fully acknowledges that pilots are well trained and are ready to take on emergencies that their aircraft may face, but that does not change the fact that mental well-being affects humans in general, and as such, cannot be foregone to say that it is not needed.

**Regulators**

Three main factors were discussed from the regulation standpoint that were significant and would serve as a priority for aviation after Covid-19, and these factors were as follows. Firstly, governments of countries should prioritize aviation for access to vaccines. We see the need for this as we have already seen the effects that the shutting of borders has on countries and their businesses, and as such, makes it of vital importance that aviation be one of the industries with priority to receive access to vaccines. Secondly, with the vaccinations, there needs to be unrestricted travel for those vaccinated, while there may be some concerns – which was well and fully founded, it can be said that in the greater scheme this would be the way forward as opposed to a decision that is made at the current moment. Lastly, playing on the digitalization and the era of digital enhancements, vaccination certificates should be universal, where standards are issued by the World Health Organization [WHO] and the International Civil Aviation Organization [ICAO] and recognized across the globe.
Air Traffic Controllers

With Covid-19 causing downtime to the aviation industry, there was never a better time for airlines and air traffic controllers to come together and work on new capabilities and to improve procedures that may or are not currently already in place. Air traffic has always been at a high, and with Covid-19 around, there was a significant decrease, which allowed those in the field to begin the testing and implementation of new technology and features to be used when the industry bounces back in a post Covid-19 world. Much of the opportunities came as a result of Covid-19, such as the ability to create contingency procedures and to have remote collaboration from industry players and partners around the world. As a priority, it is necessary to test these new initiatives and implementation to ensure that it can run on full capacity, and following that, revisit the drawing board to ensure that varying angles and hiccups are covered along the way. The way forward would be Performance Based Navigation [PBN] and this would be where there is a connection from runway-to-runway enroute airspace. While there are many procedures that have already been published, only few are utilized making many other procedures underutilized. With the reopening in a post Covid-19 era, it would be interesting to see the new procedures and practices that would be adopted in time to come.

Key Takeaways

The main and probably the key takeaway from the panel discussion was for the need of currency. With many players and stakeholders alike being affected, there is only so much that airlines, airports, industry player, and stakeholder can do to ensure that employees remain able to perform at their best. Using simulators as an example, while it provides training and currency to individuals, it is certainly not the same as conducted a live operation such as operating an aircraft, directing a flight, or scanning a baggage. The currency of these individuals must be a
priority in the reopening of airports and the industry and must be seen with the utmost scrutiny to ensure performance remains the same at pre-covid levels.

Credits and Accolades

Credits must certainly be given to the expert speakers in their respective fields for sharing their knowledge and insights with us as we prepare to transit into a new normal, and the panelists where questions were taken from the floor and topics debated to allow a clear understanding of the importance of everyone for the successful reopen in a post Covid-19 world:

1. Mr. Ignatius L. Chan (Moderator), Instructor, College of Business, ERAU
2. Mr. Kelvin Lee (presenter and panelist), Assistant Director, Member & External Relations (Asia Pacific), IATA, Future of Aviation – Beyond COVID or With COVID?
3. Mr. Fred Stein (presenter and panelist), Representative, Transportation Security Administration, TSA’s COVID 19 Checkpoint Screening Adjustments
4. Mr. Michael Watkins (presenter and panelist), Senior Air Traffic Representative Asia-Pacific, FAA, Looking Beyond COVID-19
5. Capt. Jeffrey Ang (presenter and panelist), Counselor, Pilots Advisory Group, Pilot’s Mental Health – The Need for Better Attention in Aviation Industry
Session 6: Green Aviation

Prior to the pandemic, green aviation efforts were a priority for airlines, countries, associations, and organizations and this was most evident in the launch of major industry-wide initiatives such as CORSIA which was the International Civil Aviation Organization’s initiative to negate the growth in global carbon emissions from 2020 onwards.

However, since 2020, the global aviation industry has been decimated by the COVID-19 pandemic, bringing it to a near-halt as passenger travel volume plummeted and fleets grounded. With sustainability as a main guiding principle coupled with ambitious net-zero emissions goals established by ICAO, the future of global Aviation remains largely uncertain.

Can we even speak of environmental sustainability when global economic recovery is still elusive and passenger traffic remains low? Are the current legal frameworks more hindrance than help in the greater context of global efforts? Will the global Aviation industry ever bounce back from the debilitating impact of COVID-19? What will green innovation in present-COVID and post-COVID look like? Is the pandemic, ironically, an opportunity to reset and revitalize the Aviation industry?
Our panel discussion of the day explored sustainability efforts in a pandemic and the impact of COVID on Green Aviation Initiatives specifically in the aspects of new innovations and technologies adopted including Sustainable Aviation Fuels (SAF) and required infrastructural developments as the global aviation industry is facing in its quest for a sustainable future.

**Key Takeaways**

In this new endemic reality, we need to better understand how the global aviation industry is tackling the new, unprecedented challenges posed by COVID-19, and what the industry is doing in terms of its commitment to net-zero emissions air travel. In the greater scheme of things, combating climate change is more critical than ever before, as the Earth accelerates towards the tipping point of irreversible damage, which has been responsible for more frequent and destructive incidents of extreme weather phenomena.

**Technologies.** Clean energies are key to enabling sustainability effort and in the decarbonization of aviation. Sustainable Aviation Fuels (SAF) are currently being explored and utilized by the aviation community to reduce its impact on the climate. SAF has been identified by IATA as a key element to achieving the aviation industry's ambitious emissions reduction goals. It is a fuel produced from renewable raw materials, such as used cooking oil, or animal fat from food industry waste, meeting all quality and performance requirements of conventional fossil fuels. These alternative fuels represent a major opportunity to reduce aviation carbon emissions and are often considered a sustainable option in the mid to long term, due to their low lifecycle emissions and other environmental impacts. In recent times, its potential use and applications have attracted much interest from the research community. However, major challenges related to the initial capital outlays, production costs, scalability, acceptance and buy-
in from stakeholders would need to be addressed before mass adoption becomes a commercial reality.

**Challenges.** Indisputably, Global Aviation remains the most affected industry during the pandemic. As international borders remain closed and fleets/crew still grounded, the Aviation industry faces one of its worst existential crises ever in its history. While the pandemic has necessitated most airlines and related stakeholders to prioritize short-term survival by adopting cost-cutting measures and exploring other revenue generation models, pure economics should not force the industry and community to withdraw its commitment to long-term sustainable development. There is, after all, an ethical and practical impetus to strike a fine balance between economic, social and environmental sustainability aspirations and understand the necessary trade-offs inherent within. It is my opinion that it need not always be a zero-sum game.

**Opportunities and Next steps**

It seems that governmental support for the mandatory adoption of SAF to meet industry climate goals is necessary for the next stage of its commercialization and adoption process. However, mitigating complex problems like eliminating carbon emissions and climate change require a much-needed shift from a top-down approach to a systems-wide approach whereby every stakeholder in the global supply chain including - governments, airports, regulators, airlines, logistics service companies, associations, passengers - should all be mobilized and actively engaged in making the aviation industry a more sustainable one.

**Credits and Accolades**

Credits must be given to all our experts presenters and panelists in Session 6:

1. Ms. Kim Chua (Moderator), Instructor, College of Arts & Sciences, ERAU
2. Mr. Tan Kah Han (presenter and panelist), Senior Director (Unmanned Systems Group), CAAS, ‘ICAO Aviation Sustainability efforts’.

3. Dr. Jae Woon (June) Lee (presenter and panelist), Assistant Professor, Faculty of Law, Chinese University of Hong Kong, ‘Airline industry Sustainability for climate change’.

4. Dr. Rajee Olaganathan (presenter and panelist), Adjunct Faculty, College of Aeronautics, ERAU, ‘Clean skies for NextGen using SAF - technologies, opportunities and challenges’.
Session 7: Big Data, Innovation & Blockchain Technology

The title of this session, big data, innovation and blockchain technology, has been the buzzword in recent times. Many organizations have found themselves with a large set of data with myriad of information and are exploring ways to utilize them. Blockchain technology has attracted the attention of the public, even those who are not tech-savvy, thanks to bitcoin and the other cryptocurrencies. Although the outbreak of Covid-19 disrupted many industries, including the aviation industry, most would agree that it encouraged innovation and accelerated digitization. The topic of this session was a perfect theme to end the conference, as we have seen in the previous sessions that digitization will play a central role when the travel resumes to the wider population. As with the other sessions, experts from diverse background provided insights into how technology and digitization are shaping the aviation industry for the future. The panel discussion focused on the efficiency, security and quality issues surrounding digitization. Efficiency is probably the most obvious benefit of digitization. On the other hand, security is a major concern in the era of big data. Quality is a multidimensional issue. Does digitization improve the quality of services? Would it improve the quality of people’s lives?
Throughout the sessions, the participants were able to see many real-life examples and applications of technology in the aviation sector. We saw how technicians are better equipped with AI, perhaps another buzzword of modern times. AI in this case was Augmented Intelligence, rather than artificial intelligence, which sums up the role of technology perfectly, as the discussion focused on how technology is a tool for technicians, but it does not replace quality technicians. Many interesting examples demonstrated how technology can make technicians hear and see better. It felt at times technology gives a superpower to technicians.

There was also a discussion on what new technologies are out there that might shape the innovation of the future. Blockchain technology is arguably one of those game changers. Blockchain provides a secure and efficient way of tracking maintenance, repair and overhaul in shipping, as one of the presentations demonstrated. An interesting insight we gained was that some of the technologies that helped improve efficiency was a rather “common” technology, such as an iPhone.

The participants were also able to see great examples of how airports around the world are using big data and digitization. One of the interesting things to discuss was how the agility of start-up companies can improve the innovation of airports. The security issue will arise inevitably especially when airports manage and use big data, but the discussions pointed out that it is something that we have to live with and find a way to manage (perhaps a lot like Covid-19!). We also discussed how airports can utilize digitization to improve their revenue. As many airports struggle financially due to Covid-19, this will be a good area for airports to explore during this down time.

The contactless technology seems to be the way of future for airports and good demonstrations have been given during the presentation. Exciting things such as face recognition
and proximity touching have been explained. This seems to be the area that the innovation really took off, as the airports had to find new ways to make things work as efficiently as before, if not more, while minimizing the spread of virus. The contactless technology may be one of the few unintended benefits we gain from Covid-19 as it will provide some protections for the users from other types of viruses and germs.

Credits and Accolades

Credits must be given to all our presenters and panelists in Session 7:

1. Dr. Somi Shin (Moderator), Assistant Professor, ERAU

2. Mr. Michael Parsons (presenter and panelist), Global Industry Executive Travel & Transport, IBM, ‘Technician of the Future’

3. Mr. Shiva Venkatraman (presenter and panelist), Chairman & CEO, Varidus, ‘Innovation in Airports’

4. Dr. Albert Tan (presenter), Director, Shanghai Jiao Tong Uni., APAC Grad. Inst. & Assoc. Researcher at MIT CTL, ‘Use of Blockchain for MRO tracking’

5. Mr. Chua Ching Hock (presenter and panelist), Associate General Manager, Departure Experience, Changi Airport Group, ‘Contactless Technology at Changi Airport’
Closing Remarks

AviAsian 2021 was a culmination of almost a year of close collaboration between the conference organizers at Embry-Riddle Aeronautical University – Asia and Civil Aviation Authority of Singapore. The conference, held as a hybrid event for the first time, was a renowned success according to comprehensive post-event feedback. The total number of delegates comprised of 18 in person participants at the Singapore Aviation Academy and 113 online participants signing in from a wide range of territories, as far and varied as Equatorial Guinea, UAE, UK and Seychelles. The theme of this conference was ‘The long runway ahead – opportunities, challenges, solutions in reigniting the aviation industry in Asia’ and over the two days, across the 7 sessions as delivered by the dedicated line up of 21 engaging speakers and probing moderators backed with subject matter expertise, this expectation was one that was resoundingly delivered.
Special Mentions, Comments and Feedback

“AviAsian Conference 2021 was an ambitious project, a hybrid online & in-person event given the current pandemic and safe-distancing measures. For many, this was the first in-person event since lockdown began in April 2020. The audio-visual team of SAA addressed all the challenges of an online event, combined with all the challenges of an in-person event, by purchasing new equipment and performing multiple testing to ensure that online speakers and participants have a great conference experience, while ensuring all in-person speakers and participants have a safe and great conference experience. This is reflected in the conference feedback.”

- Eric Leong, Organizer, AviAsian Conference 2021
“Thanks, Eric, for all your hard work organizing the event, it was a pleasure to participate”.

- Michael Parsons, Speaker, AviAsian Conference 2021

“Thanks Eric and Matthew. It was a really well-organized event, and the robust discussions were proof of the relevance of the topics and quality of the content. Well done.”

- Vinoop Goel, Keynote Speaker, AviAsian Conference 2021

“Thanks Eric. Congratulations on a well-organized conference and great positive feedback from participants! Once again, thanks for inviting me”.

- Prof. Chua Chee Kai, Speaker, AviAsian Conference 2021

“I am glad to note that the conference was so well received by the audience. I wish ERAU the very best ahead as aviation gradually lifts itself from the unprecedented Covid-19 pandemic. May there be blue skies ahead soon”!

- Capt. Jeffrey Ang, Speaker, AviAsian Conference 2021

“One of the first things I noticed about the first-ever hybrid AviAsian 2021 conference was the incredible energy and sense of camaraderie amongst those present - the whole day had a constant buzz about it, with a packed conference agenda covering a broad range of challenges that have beset the global Aviation industry”.

- Kim Chua, Moderator, AviAsian Conference 2021
“Being part of AviAsian 2021 was an amazing experience when everyone saw firsthand the importance of closing the loop in the industry, beginning with education, moving to experience, and then learning from the experience and completing the loop by sharing and re-educating from the lessons learned. The conference saw professionals and industry players from all corners from those on the ground such as controllers and pilots, to those in regulations and law. If you ever needed an answer from the aviation industry, AviAsian would be the place to be”.

- Ignatius Luke Chan, Moderator, AviAsian Conference 2021
References

Embry-Riddle Aeronautical University (2021). *AviAsian Conference 2021, Embry-Riddle Aeronautical University*. [https://commons.erau.edu/aviasian/2021/](https://commons.erau.edu/aviasian/2021/)
Appendix A

AviAsian 2021 Conference Agenda

Day 1: Thursday, August 26, 2021
All times listed are Singapore Time (UTC+8)

0815 – 0900  Registration & Coffee

0900 – 0930  Session 1: Opening Remarks & Keynote Address
1. Ms. Liu Mei Feng Charmaine, Director, Singapore Aviation Academy
   Welcome and Conference Opening
2. Mr. Vinoop Goel, Regional Director, Members & External Relations, Intl. Air Transport Association
   Keynote Address

0930 – 1030  Session 2: Airlines & Airports Emerging from COVID-19
1. Capt. Gopala Subramaniam, Deputy Chief Pilot A330/A350 Fleet, Singapore International Airlines
   Back to the SKIES!
2. Mr. Darius Wee, Senior Manager, Airport Operations Management, Changi Airport Group
   Restarting Airports Safely
3. Mr. Vinoop Goel, Regional Director, Members & External Relations, Intl. Air Transport Association
   IATA Travel Pass for border reopening
4. Dr. Rajee Olianganathan, Adjunct Faculty, College of Aeronautics, ERAU
   Big Data Utilization for Reopening Airlines

1030 – 1100  Coffee Break

1100 – 1200  Panel Discussion: Resuming Travel - More Tech or More Safety Measures?
1. Ms. Kim Chuah (Moderator), Instructor, College of Arts & Sciences, ERAU
2. Capt. Gopala Subramaniam, Deputy Chief Pilot A330/A350 Fleet, Singapore International Airlines
3. Mr. Michael Parsons, Global Industry Executive Travel & Transport, IBM
4. Mr. Fred Stein, Representative, Transportation Security Administration
5. Dr. Rajee Olianganathan, Adjunct Faculty, College of Aeronautics, ERAU
6. Mr. Darius Wee, Senior Manager, Airport Operations Management, Changi Airport Group
1200 – 1300  Lunch

1300 – 1345  Session 3: 3D Printing of Aircraft Parts
1. Prof. Chua Chee Kai, Head of Pillar for Engineering Product Development, SUTD
   Additive Manufacturing (aka 3D Printing) for Aerospace/Aviation
2. Dr. Koh Pak Keng, Director, ECX Pte Ltd
   Application of Cold Spray Technology in Aviation Industry

1345 – 1430  Industry Spotlight: Creating Virtual Reality Training Applications for the Aviation Sector
1. Mr. Khoo Beng Keat, Executive Director, Aviation Virtual
   Virtual Reality to serve Aviation in Training

1430 – 1500  Coffee Break

1500 – 1600  Session 4: Aviation Security & Disruptive Passengers
1. Dr. Jee Woon (June) Lee, Assistant Professor, Faculty of Law, Chinese University of Hong Kong
   The Montreal Protocol of 2014 dealing with disruptive passengers
2. Mr. Fred Stein, Representative, Transportation Security Administration
   TSA – Disruptive Individuals at the Checkpoint
3. Mr. Bernard Lim, Senior Director, International Relations and Security, Ministry of Transport
   Aviation Security and COVID-19
4. Mr. Brian Kinane, Manager Security Training, Emirates
   Disruptive Behaviour

1600 – 1700  Panel Discussion: Potential Disruptions Arising from Covid-19 Regulations
1. Dr. Somi Shin (Moderator), Assistant Professor, ERAU
2. Dr. Jee Woon (June) Lee, Assistant Professor, Faculty of Law, Chinese University of Hong Kong
3. Mr. Fred Stein, Representative, Transportation Security Administration
4. Mr. Bernard Lim, Senior Director, International Relations and Security, Ministry of Transport
5. Mr. Eric Sarandrea, Asia-Pacific Regional Director, International Operations, TSA
6. Mr. Brian Kinane, Manager Security Training, Emirates

1700 – 1705  Closing Remarks for Day 1
1. Dr. Jack Patel, Academic Officer & Assistant Professor, ERAU
Day 2: Friday, August 27, 2021
All times listed are Singapore Time (UTC +8)

0815 – 0900  Registration & Coffee

0900 – 0905  Opening Remarks for Day 2
1. Mr. Matthew Flaherty, Vice Chancellor & Head of Asia, ERAU

0905 – 1005  Session 5: Looking Beyond COVID-19
1. Mr. Kelvin Lee, Assistant Director, Member & External Relations (Asia Pacific), IATA
   Future of Aviation – Beyond COVID or With COVID?
2. Mr. Fred Stein, Representative, Transportation Security Administration
   TSA’s COVID-19 Checkpoint Screening Adjustments
3. Capt. Jeffrey Ang, Counselor, Pilots Advisory Group
   Pilot’s Mental Health – The Need for Better Attention in Aviation Industry
4. Mr. Michael Watkins, Senior Air Traffic Representative Asia-Pacific, FAA
   Looking Beyond COVID-19

1005 – 1100  Panel Discussion: Emerging Priorities for Aviation After COVID-19
1. Mr. Ignatius Chan (Moderator), instructor, College of Business, ERAU
2. Mr. Kelvin Lee, Assistant Director, Member & External Relations (Asia Pacific), IATA
3. Mr. Fred Stein, Representative, Transportation Security Administration
4. Mr. Michael Watkins, Senior Air Traffic Representative Asia-Pacific, FAA
5. Capt. Jeffrey Ang, Counselor, Pilots Advisory Group

1100 – 1130  Coffee Break

1130 – 1215  Session 6: Green Aviation
1. Dr. Jae Woon (June) Lee, Assistant Professor, Faculty of Law, Chinese University of Hong Kong
   Airline Industry’s sustainability for climate change
2. Dr. Rajee Olaganathan, Adjunct Faculty, College of Aeronautics, ERAU
   Clean Skies for NextGen Using SAF – Technologies, Opportunities, and Challenges
3. Mr. Tan Kah Han, Senior Director (Unmanned Systems Group), CAAS
   ICAO’s Aviation Sustainability Efforts

1215 – 1300  Panel Discussion: Sustainability in a Pandemic: Impact of COVID on Green Aviation Initiatives
1. Ms. Kim Chua (Moderator), Instructor, College of Arts & Sciences, ERAU
2. Dr. Jae Woon (June) Lee, Assistant Professor, Faculty of Law, Chinese University of Hong Kong
3. Dr. Rajee Olaganathan, Adjunct Faculty, College of Aeronautics, ERAU
4. Mr. Tan Kah Han, Senior Director (Unmanned Systems Group), CAAS
1300 – 1400  Lunch

1400 – 1500  Session 7: Big Data, Innovation & Blockchain Technology
  1. Mr. Michael Parsons, Global Industry Executive Travel & Transport, IBM
     *Technician of the Future*
  2. Mr. Shiva Venkatraman, Chairman & CEO, Varidus
     *Innovation in Airports*
  3. Dr. Albert Tan, Director, Shanghai Jiao Tong Uni., APAC Grad. Inst. & Assoc. Researcher at MIT CTL
     *Use of Blockchain for MRO tracking*
  4. Mr. Chua Ching Hock, Associate General Manager, Departure Experience, Changi Airport Group
     *Contactless Technology at Changi Airport*

1500 – 1530  Coffee Break

1530 – 1630  Panel Discussion: Efficiency, Security and Quality Issues Surrounding Digitization
  1. Dr. Somi Shin (Moderator), Assistant Professor, ERAU
  2. Mr. Michael Parsons, Global Industry Executive Travel & Transport, IBM
  3. Mr. Shiva Venkatraman, Chairman & CEO, Varidus
  4. Dr. Albert Tan, Director, Shanghai Jiao Tong Uni., APAC Grad. Inst. & Assoc. Researcher at MIT CTL
  5. Mr. Chua Ching Hock, Associate General Manager, Departure Experience, Changi Airport Group

1630 – 1635  Closing Remarks for Day 2
  1. Dr. Jack Patel, Academic Officer & Assistant Professor, ERAU