



ASIAN
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DESIGNERS SHOW
THEIR BEST FOR
CRYSTAL CABIN AWARDS

OEM WOES

Airlines still ordering planes despite supply chain, Boeing troubles

CAUTIOUS OPTIMISM

Indian market looks to cut losses as sector stabilises and growth returns

SINGAPORE VS DUBAI

Has Singapore lost out to Dubai when it comes to the airshow business?

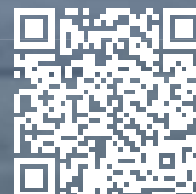
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On the cover: New interiors are being highlighted at this year's Crystal Cabin Awards. Photo: FACTORYDESIGN/BERMUDAIR

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The words artificial intelligence (AI) seem to be everywhere in aviation these days, much like the word sustainability. But while there is no true AI — yet — advanced machine learning is taking over many jobs once done by humans as Matt Driskill explains.

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Automation 2.0 and other thoughts

BACK IN NOVEMBER LAST YEAR I wrote about automation when I flew on Emirates to the Dubai Airshow. I complained about being forced to use the self-check-in at Changi and explained the problems I had with the machines recognising my passport, bag tags etc.

Come February this year and departing again from Changi (still my favourite airport in the world), I was forced at Terminal 2 to use the Singapore Airlines “automated” check-in that is supposed to make life easier for we mere mortals.

And once again, I was foiled by the computers. What should have taken minutes again took about an hour because the computers had a failure to communicate. First the machine told me there was a discrepancy between the name on my booking and the name on my passport. One used my middle name and the other didn’t. The machine asked me if I recognised said discrepancy and I replied yes and continued.

Successfully retrieved my boarding pass and bag tag, attached the tag to my one suitcase and proceeded to try to check my bag in and move on.

Failure. The machine refused to take my bag despite several attempts from me. Called in the Singapore Airlines’ staff and they too failed so it was back to the queue for assistance from a human being.

Waited about 20-30 minutes in line, had a trainee staffer helping me, but once I got to the desk it took all of about 10 minutes to approve my passport, scan the bag and send me on the way to the automated immigration gates, which, I’m pleased to report, worked perfectly and I was on the terminal’s airside headed to the lounge.

Despite what everyone in the aviation industry says, the so-called “automated” self-check-in lanes are not more efficient and from the conversations I overheard in line for human assistance, this kind of automation is also not what today’s passengers are begging airports for. Sure, manufacturers of the technology will cite chapter and verse about how their research shows that passengers want to “control” their journey with such technology but consider the source. It’s like a used-car salesman in Dallas, Texas, claiming no one buys new cars

because they lose 10 percent of their value when you drive them off the lot. He wants to sell used cars, and purveyors of automation “solutions” for airports want to sell those systems.

All of this technology is simply a way for airports and others in the service industries to cut jobs and push more of the work on to the passengers/clients.

The rise of the robots did not stop at immigration. Thanks to my Visa card I have access to lounges around the world. In this case, I used the SATS Premium Lounge. The robots have invaded there as well. SATS uses self-navigating robots with trays so that passengers can deposit their dirty dishes there instead of paying for a cleaner to do the job. Some people used the robots and some did not. Again, this is a move to push more of the work (and the cost) on to the passengers.

What all this amounts to is that people in the aviation industry complain about not being able to find people who want to work in aviation. Subhas Menon, the director general of the Association of Asia Pacific Airlines, said at an industry conference during the post-COVID era that “we need to find a way to make aviation sexy” so people will want to work in the industry.

I realise that being a gate agent and checking people in all day or being a cleaner in an airport lounge may not be sexy, but they are jobs and one should never underestimate the power and dignity of having a job. I’ve said it before and it’s worth repeating: It may not be

“sexy” to clean an airport lounge or handle bags all day, but a regular job with a regular paycheck is and it has dignity. Perhaps aviation professionals ought to rethink how they employ automation and instead employ more people.

All of this technology is simply a way for airports and others in the service industries to cut jobs and push more of the work on to the passengers/clients.

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NEXT ISSUE

MRO USED PARTS
Used parts are playing a bigger role in the MRO 'circularity' movement.

BUSINESS AVIATION
China is not the centre of the universe for business jets any longer in Asia.

ROTOR/UAM
Despite the rise of UAM, helicopters won't go away anytime soon.

People on the Move



AERO NORWAY, the specialist CFM56 engine repair facility, has appointed Dag Johnsen to the position of chief operating officer. He replaces Neil Russell who became CEO in October.



The **AIR CHARTER ASSOCIATION** has appointed Nicola-Jane Sellers as chair of its 'Next Generation' (NextGen) group. Sellers will lead the group, promoting greater awareness of the air charter industry and the association's initiatives to future talent and young professionals in the industry.



AJW GROUP has named David Ropper as vice president of business development for the North American region. Ropper previously worked at BAE Systems and Elix Aviaton.



ATR has appointed Maria Teresa Pedra Bruñó as its new head of human resources. She succeeds Sadika Moussaoui, who takes on new responsibilities within the Airbus Commercial management team.



BOEING has named Uma Amuluru as the company's chief human resources officer and executive vice president for human resources, effective 1 April. Amuluru succeeds Michael D'Ambrose who announced his plans to retire.



CHAPMAN FREEBORN has appointed Leo Teplitskiy as director of key cargo accounts for the Americas. In his new role he will oversee all account operations of Chapman Freeborn's

dedicated air cargo specialist team to further expand the company's client and supplier base.



CPAT GLOBAL has named Steve Dennis as its new vice president of training design. Prior to joining CPaT, Dennis served as director of training design at CAE, where he played a pivotal role in shaping the training landscape within a highly technical and regulatory-intensive environment.



The **CRYSTAL CABIN AWARD ASSOCIATION**, which oversees the world's biggest industry award for innovation in the aircraft cabin, has named Ralf Gust, Managing Director of Hamburg Aviation, to the role of president of the association. He succeeds Lukas Kaestner.



EIRTRADE AVIATION, the global aviation asset trading and material management company headquartered in Dublin, announced the promotion of Paul Gleeson to chief commercial officer.



ETIHAD AIRWAYS has appointed Stanislas Brun to the role of vice president cargo. Brun will be responsible for Etihad Cargo's commercial operations including scheduled and charter flights, revenue management and network planning.



HAHN AIR announced that Stephen Chung has been appointed as regional vice president APAC. In his new position, Chung will support the partner airlines using Hahnair's distribution solutions.



KOREAN AIR has appointed Jongheon Sim as its chief communications officer. Jong has honed his communications skills by serving a variety of positions in his 27-year history with the airline



NOMAD AVIATION has appointed Roberto Feijoo Lopez as the company's chief financial officer. Lopez is part of the management team where he will be in charge of all financial matters of Nomad Aviation. Lopez has more than 18 years of experience in aviation finance, business development, contract management and corporate leadership. He joins Nomad Aviation from dnata.



Bryan Batista has been appointed as **SKYSCANNER'S** new chief operating officer. He previously was the senior vice president of international at Gopuff, senior vice president at Trips and CEO, Rentalcars.com at Booking.com. He also served as director of EU sales at Tesla.



SMARTLYNX AIRLINES has appointed Edvinas Demenius as the new chief executive officer. Demenius has been a board member and chief commercial officer of SmartLynx Airlines for more than seven years.



CAAC certifies ExecuJet Haite for Gulfstream G650 heavy checks

The Civil Aviation Administration of China (CAAC) has certified ExecuJet Haite to perform heavy maintenance checks on Gulfstream G650 and G650ER aircraft. The certification means ExecuJet Haite, which is based at Tianjin Binhai International Airport, is now permitted to perform base maintenance checks, up to and including 72-month checks, on G650 and G650ER aircraft registered in China. Having the CAAC approval for heavy maintenance checks on G650s is significant as China is Gulfstream's largest market in Asia and the G650 - being a large cabin, long-range aircraft - is a very popular model in China. ExecuJet Haite was already approved by the CAAC, US FAA, the Civil Aviation Authority of the Cayman Islands and the Bermuda Civil Aviation Authority to do line maintenance and AOG support on G650s.

ExecuJet Haite also announced that it has signed a deal with Capital Airport Holding Business Aviation Management Co., Ltd., (CBM) allowing ExecuJet Haite to immediately begin providing line maintenance and AOG support at Beijing Capital International Airport (ZBAA). This agreement is built upon the Daxing International Airport MRO cooperation agreement recently signed in December between both parties. ExecuJet Haite will support various original equipment makers (OEMs) and aircraft types using certifications from the Civil Aviation Administration of China (CAAC) and several overseas national aviation authorities as it currently does at its Tianjin MRO facility. CBM already provides high-level fixed base operations (FBO) services to business jets and travellers at Beijing Capital International Airport and the newly established Beijing Daxing International Airport.

DASSAULT FALCON 6X DEBUTS AT SINGAPORE

Dassault's Falcon 6X long-range twinjet debuted at the Singapore Air Show and was showcased alongside Dassault's Falcon 2000LXS. The 6X features the largest cabin cross-section of any purpose-built business jet. It received FAA and EASA certification and entered service into service last year.

Following the show, it will undertake an extensive demonstration tour through South-east Asia, Australia, New Zealand and other parts of the Asia Pacific region, completing a worldwide tour that has already taken it across the Americas, Europe and the Middle East. "Operators who have flown the 6X as it

EMBRAER MAKES EXECUJET IN PERTH AN AUTHORISED SERVICE CENTRE

ExecuJet MRO Services Australia's Perth site is introducing maintenance services for Embraer business jets within Australia and the broader Asia Pacific region. The Perth facility is now an Embraer Authorised Service Centre. Support will begin with Embraer Legacy 600 and 650 business jets. The Perth facility has invested in the tooling and training to support these aircraft. ExecuJet MRO Services Australia, including its maintenance centre at Perth Airport, is approved by Australia's Civil Aviation Safety Authority (CASA), US FAA as well as the civil aviation authorities for Bermuda, Cayman Islands, San Marino, Vietnam, and Indonesia to do airframe heavy maintenance checks on Embraer aircraft.

AMBER AVIATION COMPLETES SERIES C FUNDING ROUND

Asia's Amber Aviation announced that it has successfully completed its Series C funding round and will launch its fractional aircraft ownership programme by the end of the third quarter of 2024. Launched in April 2022 as a sub-brand of Amber Aviation, AmberNet includes China's first fractional lease program in which clients enjoy the same status as if they owned the whole aircraft themselves, but without the high costs associated with aircraft ownership. Amber said AmberNet's key market in China has provided good response to the planned rollout. Chang Qiusheng, founder and president of Amber Aviation, said, "I am delighted to announce the successful closure of Amber Aviation's Series C funding round. This achievement provides substantial financial backing for the imminent launch of our flagship initiative, the fractional ownership programme".

has made its way around the globe, praise the unparalleled quietness, comfort and spaciousness of the cabin," said Dassault Aviation Chairman and CEO Eric Trappier. "The 6X also retains the peerless handling, versatility and short-field capability typical of all our Falcons."

EVE AIR MOBILITY AND YUGO SIGN MOU FOR SOUTHEAST ASIA

Eve Air Mobility and Yugo Global Industries, a Singapore-based aviation company, have signed a memorandum of understanding (MoU) to study the potential for Urban Air Mobility (UAM) and eVTOL flights in Southeast Asia. Yugo is a private aviation network established by aviation experts, with a global presence and a focus on Southeast Asia. In its mission to support regional Air Mobility innovation, Yugo benefits from the support of partner Air Transport operators such as PhilJets and Helistar, two of the region's solid key players. Together, Eve and Yugo will specifically focus on the potential infrastructure requirements to support eVTOL operations including regulations. The companies will also analyse service centre and vertiport size and capabilities, ground handling and other areas as needed.

CAMCOPTER S-100 APPROVED BY CASA IN AUSTRALIA

Wedgetail Aerospace, supported by Schiebel Pacific, successfully obtained the approval from the Australian Civil Aviation Safety Authority (CASA) to operate the Schiebel CAMCOPTER S-100 Unmanned Air System (UAS) in civil airspace. It is the first large (>150 kg) Vertical Takeoff and Landing (VTOL) UAS to attain this civil approval from the Australian authorities. Wedgetail Aerospace, in close cooperation with Schiebel Pacific and the Australian authorities, completed the process to achieve their experimental approval with a series of flight demonstrations in Western Australia. This endorsement enables the S-100 to operate in Australian civil airspace.

AUSTRALIA'S MICROFLITE ADDS NEW FIVE-BLADED H145

Australian commercial aircraft operator Microflite has ordered a second five-bladed H145 to support its growing training, commercial, utility, fire observation and rescue operations. Microflite is Airbus' largest civil helicopter customer in Australia, currently operating an Airbus fleet of 20 rotorcraft

ranging from single-engine H120, H125 and H130, to twin-engine H135 and H145. The operator also has on order an H135 and an H145, with the latter being the fifth Helionix equipped helicopter in its fleet.

"The H145 has proven to be an excellent workhorse for our multi-mission oper-

ations. With the second five-bladed H145 joining the fleet in the coming months, we can't wait to see these versatile helicopters making a positive impact to our expanding training and commercial portfolio," said Jonathan Booth, CEO at Microflite Helicopter Services.



Bell announces new sales, deliveries in Asia

Bell Textron announced the delivery of a Bell 429 helicopter to Sky Yard Aviation Corporation in the Philippines. The delivery of this aircraft, completed at the end of 2023, brings the total number of Bell 429 helicopters operating in the Philippines to 12. This particular Bell 429 has been outfitted to Sky Yard's exact specifications, featuring custom paint and interiors with bespoke interior fittings tailored to meet their private aviation needs. The Bell 429 is Bell's latest light twin helicopter, equipped with a fully integrated glass cockpit for critical flight information at a glance, enhancing situational awareness and safety. The Bell 429 is the first helicopter certified through the MSG-3 process, resulting in reduced maintenance costs for operators. It also features a spacious cabin with extra-large side doors, as well as IFR capability for single or dual pilot operations.

Bell also announced that over the past year, purchase agreements signed for seven new Bell 505 aircraft to be operated in Southeast Asia. The latest contracts signed with customers in Malaysia, Indonesia and the Philippines. Leading the new orders was Hammock Helicopter, a Malaysian helicopter services provider that specialises in maintenance, repair and overhaul work. The company signed a purchase agreement for two Bell 505 aircraft in a corporate configuration, with delivery planned for 2024. In addition to the purchase agreements signed for two aircraft for Malaysia, a helicopter operator in Indonesia and four corporate clients from the Philippines each signed contracts for one Bell 505 over the past year. These agreements mean the active Bell 505 fleet serving Southeast Asia will grow by seven aircraft, joining over 100 Bell 505s already flying in Asia Pacific.



Pratt & Whitney ramps up GTF aftermarket repair in Singapore

Pratt & Whitney announced it is ramping up the industrialisation of repairs for certain components of Pratt & Whitney GTF engines across its Singapore-based maintenance repair and overhaul (MRO) facilities, including Component Aerospace Singapore, Pratt & Whitney Component Solutions, and Turbine Overhaul Services. Repair industrialisation at these three facilities has been achieved for 33 components, including seal assemblies, high pressure compressor stator segments and vanes, and combustion chambers. An additional 25 will be completed in 2024 with another 177 parts by 2025. Pratt & Whitney's industrialisation also empowers the three repair facilities in Singapore to now perform certain tasks that were previously conducted at Eagle Services Asia as a result of the close proximity to the Singapore engine centre. Pratt & Whitney will extend the repair offerings developed in Singapore across the GTF MRO network. Pratt & Whitney currently has 30 GTF customers with over 600 GTF-powered aircraft in the region.

AFI KLM E&M SUPPORTS AUSTRALIAN AIRLINE BONZA

AFI KLM E&M and Bonza announced they have signed a deal to provide component support for the growing Australian airline's Boeing 737 MAX 8 fleet. The support defined by AFI KLM E&M covers a broad scope tailored to Bonza's requirements, including

repair services, pool access and the provision of a Main Base Kit (MBK), as well as logistical and AOG support for airframe and LEAP-1B engine LRU's. It will be managed and delivered from AFI KLM E&M's logistics and distribution centres in Amsterdam,

SIA ENGINEERING, THALES SIGN MRO AGREEMENT

SIA Engineering Company (SIAEC) and Thales Solutions Asia have signed a legally non-binding Memorandum of Understanding to explore business development and collaboration opportunities in the Asia-Pacific region. The objective of the MOU is to evaluate the feasibility and establish a framework for both parties to collaborate in areas such as MRO in India and SIAEC's Inventory Technical Management programmes and network of component shops.

COLLINS AEROSPACE AND HNA AVIATION GROUP ENTER INTO MRO AGREEMENT

Collins Aerospace was selected by HNA Aviation Group to provide nacelle MRO services to the air service providers subsidiaries including: Beijing Capital Airlines, Tianjin Airlines, West Air, Lucky Air, and Guangxi Beibu Gulf Airlines. Each three-year agreement between the HNA Aviation Group airlines and the Collins MRO facility in Tianjin, China, includes preferred nacelle MRO services for A320 and A320neo aircraft including the V2500, CFM56-5B, and Pratt & Whitney 1100G engine variants. HNA Aviation Group and its subsidiaries are one of China's largest airline groups, offering both domestic and international routes.

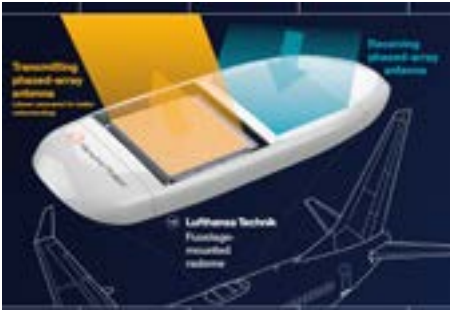
Miami and Kuala Lumpur. AFI KLM E&M already supports a number of customers in the Asia Pacific and Oceania regions, with a local infrastructure — notably in Kuala Lumpur — enabling it to efficiently serve airlines in the region.

SKYWISE SCORES WINS WITH QANTAS, JETSTAR AND KOREAN AIR

Qantas and Jetstar Airways have announced their adoption of the Skywise Predictive Maintenance (S.PM+) digital solution, making an important step in their commitment to operational excellence. By embracing proactive maintenance, both airlines aim to anticipate failures, minimise delays, and reduce Aircraft on Ground (AOG) incidents. Korean Air also announced it was adopting

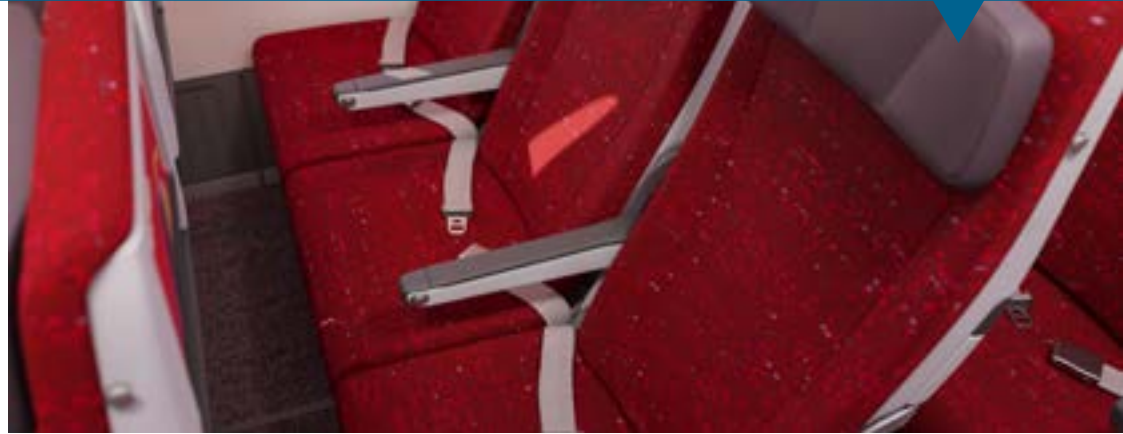
the system. The agreement covers Qantas' A330 family and Jetstar Airways' A320 family fleets, respectively. The full implementation of S.PM+ is already underway, with Qantas and Jetstar Airways having begun to integrate the solution in 2023. This builds on an earlier agreement between Airbus with Qantas and Jetstar Airways when the airlines incorporated the Skywise platform for their fleets in

2019, marking the start of a significant digital initiative in their operations. S.PM+ harnesses a wealth of advanced aircraft information, anticipating component failure by analysing abnormal behaviour. This means that Qantas and Jetstar Airways can seamlessly transition from unplanned to planned maintenance. This will lead to better management of fleet performance.



HANWHA PHASOR AND LUFTHANSA TECHNIK FORGE IFEC PARTNERSHIP

Satellite communications company Hanwha Phasor and Lufthansa Technik have partnered to deliver advanced in-flight connectivity for commercial flights. A recently signed multi-year agreement will see Lufthansa Technik design, build and supply several hundred fuselage-mounted airborne Satellite Communications (SatCom) radomes for Hanwha Phasor each year. The radomes play a crucial role in the aircraft integration as they act as outer shells to cover and protect the antenna atop the fuselage whilst being transparent to radio frequencies (RF) and having negligible impact on the aircraft's aerodynamics. This will enable the product's use on aircraft across the globe and ensure airlines can deliver high bandwidth connectivity for their customers, allowing the potential for video calls, movie streaming and other online communication in-flight. Already in the final design phase, first radome prototypes could be built as early as this coming summer, with series production set to commence in 2025. Bringing in its decades-long expertise in design and certification, Lufthansa Technik's new radome development will pay special attention to Hanwha Phasor's advanced electronically steered antenna technology, for example by employing entirely new composite material combinations and novel design methods that will ultimately result in one of the world's first aviation-certified radome design solutions for this new type of antennas.



RECARO Aircraft Seating picked by Air India for widebodies

RECARO Aircraft Seating was selected by Air India as the Premium Economy and Economy seating partner for the airline's widebody aircraft. This partnership will see more than 22,000 RECARO seats installed in both linefit and retrofit programs over the next five to six years. Air India chose the award-winning CL3710 and the new CL3810 for Economy Class, while the PL3530 will outfit the Premium Economy cabin. The first phase of this collaboration involves the retrofitting of 40 B787 and B777 aircraft with CL3710 and PL3530 seats, set to enter service in 2024. The same seat configuration shall be maintained for 12 A350 and B787 line fit aircraft entering service in 2025. Air India has expanded their commitment with an additional order for 34 A350 and B787 aircraft, featuring a new layout with CL3810 and PL3530 seats in the Economy and Premium Economy cabins, respectively. All seats will showcase Air India's signature custom trim and finish. The latest in-flight entertainment (IFE) systems will also be integrated into each seat.

RECARO also recently showed off its CL3710 seat on board a Starlux Airlines A330 aircraft at the Singapore Airshow. "RECARO takes great pride in being the chosen seating supplier for Starlux Airlines. Our CL3710 seats are meticulously designed to strike an ideal balance between aesthetics and comfort," said Dr Mark Hiller, CEO of RECARO Aircraft Seating. "We're certain that Starlux Airlines passengers will recognize and value the exceptional quality and ergonomics that are hallmarks of our seating solutions."

RECARO announced it was also selected by Southwest Airlines to equip new aircraft deliveries with the BL3710 Economy Class seat. The Dallas-based airline will begin taking deliveries in 2025. The award-winning BL3710 will feature a multi-adjustable headrest cushion, an ergonomically enhanced seat bottom, a backrest with lumbar support, and a new armrest design that maximizes seat width. Southwest selected this seat based on feedback from testing, workshops, and comfort studies.

ETIHAD AIRWAYS UNVEILS NEW IN-CABIN AMENITIES

Etihad Airways has launched a new collection of amenity kits and loungewear created in partnership with Italian design house Giorgio Armani, and luxury wellbeing brand ESPA. In addition, the UAE's national airline has introduced a range of complimentary tote bags for guests on longer flights in Economy. The stylish new range features

bespoke amenity kits for each premium cabin, as well as luxurious designer loungewear and slippers. The range will be progressively rolled out. The partnership extends Etihad's collaboration with Armani/Casa which was launched on board in 2023 and features jointly branded tableware and soft furnishings across Etihad's Business Class.



Air New Zealand pauses Chicago service until October

Air New Zealand will pause its Auckland — Chicago non-stop service from 31 March to 25 October 2024. The route is being put on hold due to ongoing challenges with the availability of serviceable Rolls-Royce Trent 1000 engines which is impacting airlines around the world. These are the engines used on Air New Zealand's Boeing 787 aircraft.

Air New Zealand Chief Customer and Sales Officer Leanne Geraghty says it was a difficult decision to make, but one that results in the least number of customers impacted. "We know this will be disappointing for customers travelling to and from Chicago during this period, especially to those travelling over the upcoming April holiday break. It's not a decision we've made lightly and we're sorry to make this change so close to the time some customers plan to fly. Unfortunately, Air New Zealand continues to be impacted by challenges with availability of Rolls-Royce Trent 1000 engines, meaning we will now have up to three aircraft unavailable for an extended period, so we've had to review our schedule." Air New Zealand also announced that it, and Singapore Airlines, were recently allowed to reauthorise their joint venture alliance for another five years until March 2029. This allows Air New Zealand and Singapore Airlines to continue offering their customers more value, greater options, and access to a wide global network in the coming years. Over the course of the 10-year partnership, Air New Zealand and Singapore Airlines have grown the seat capacity between New Zealand and Singapore by nearly 50%. This includes the addition of up to three daily services between Auckland and Singapore, and a daily service between Christchurch and Singapore.

AAV EDITOR AWARDED A TOP PRIZE AT SINGAPORE AIRSHOW

Asian Aviation Editor Matt Driskill was awarded a top prize at the Singapore Airshow by the Aerospace Media Awards Asia in the Outstanding Achievement category. His award was for "Special Recognition for Editorial Perspectives" for his opinion writing that appears as the Viewpoint in the

front of the magazine and online. This is the second consecutive time Driskill has been awarded for his editorial viewpoints and opinions. "It's an absolute honour to receive the award and for our work at *Asian Aviation* to be recognised by our colleagues in the industry," Driskill said.

AIRBUS OPENS FIRST LIFECYCLE SERVICE CENTRE IN CHINA

The Airbus Lifecycle Services Centre (ALSC) has started its operations in Chengdu (China), offering solutions to manage the entire lifecycle of an aircraft. This centre is the first of its kind to cover, as a one-stop shop, the full range of activities from aircraft parking and storage to maintenance, upgrades, conversions, dismantling and recycling services for various aircraft types, as well as the controlled distribution of used parts from dismantling. The Airbus Lifecycle Services Centre in Chengdu is certified by both the European Union Aviation Safety Agency (EASA) and the Civil Aviation Administration of China (CAAC). The Airbus Lifecycle Services Centre covers a surface area of 717,000 square metres and has a storage capacity of 125 aircraft. The site will progressively ramp up operations between now and 2025, directly employing up to 150 employees. The main buildings have obtained the LEED(1) (Leadership in Energy and Environmental Design) certification for their construction, which is a first step to reduce the environmental impacts of operations at the ALSC site. The Airbus Lifecycle Services Centre unites under one roof a joint venture between Airbus, Tarmac Aerosave and the city of Chengdu, along with the Airbus company Satair. Located in the same centre, Airbus company Satair will acquire ageing aircraft and trade and distribute the used parts to complete the full scope of lifecycle services. At least 75 percent of the aircraft stored in the centre are expected to fly again after storage and upgrade by the joint venture.



WEB MANUALS OPENS NEW AUSTRALIA OFFICE

Digital documentation company Web Manuals has opened a new office in Sydney in response to the significant growth of its business in APAC, where it increased its customer base by more than 60 percent in 2023. This will be the second APAC location for the company and will be overseen by Web Manuals' APAC office in Singapore which opened in 2021. Web Manuals won 27 new customers in APAC in 2023, bringing it to a total of 55 across the region.

SIAEC EXPANDS SCOOT DEAL

SIA Engineering Company (SIAEC) announced the expansion of the scope of its services agreement with Scoot to include the latter's new Embraer E190-E2 fleet. The expanded scope of services will commence on 1 April 2024, and cover line maintenance and selected fleet management support services. This expanded coverage is for a period of 58 months, with an option to extend coverage for a further 24 months.

ASIA PACIFIC NOW A STORY FOR GROWTH

The pandemic is now in the rear-view mirror for the Asia Pacific (APAC) region as it is expected to surpass 2019 baseline travel demand in 2024. The story is now one of growth, with China and India being the key markets of focus, according to Alton Aviation Consultancy. The global aviation advisory outlines factors that have slowed growth in the region, including delays in returning aircraft into service and sky-high airfares which have reduced international demand. While APAC airlines are predicted to become marginally profitable in aggregate in 2024, near-term risks to profitability include volatile fuel and oil prices, high labour costs and the strength of the US dollar, which is often the transactional currency for jet fuel, spare parts, rent, and financing. Adam Cowburn, managing director in Alton's Singapore office, said: "While the

industry should remain mindful of near-term headwinds that could derail recovery, the focus for 2024 should be on adapting and capitalizing on new trends. That means continued investment in airport infrastructure to support demand growth, alongside new technologies that improve the passenger experience, optimise costs, and enhance sustainability." This continued investment in airport infrastructure and new technologies will be essential for China and India, key markets for APAC air traffic demand, to overcome some of the hurdles to sustain their growth trajectories. Joshua Ng, director in Alton's Singapore office, says: "While China retains its title as the largest APAC air traffic market, the slow resumption of flights to and from the country has been the biggest barrier to recovery. India represents the region's hope for a future growth engine."

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Sterling partners with Singapore's SATS on AOG shipments

Sterling, part of Kuehne+Nagel, has partnered with Singapore's SATS Ltd. to expedite first- and last-mile airside services for time-critical Aircraft-on-Ground (AOG) shipments. While Singapore and London Heathrow airports have been identified for a trial phase, the companies plan to implement the services at other airports within Sterling's network in the coming months. The collaboration between Sterling and SATS will focus on optimising handling processes to support the urgent needs of the aviation industry and expediting the delivery of aircraft components to resolve AOG situations quickly. To achieve this, the partnership combines Sterling's critical logistics expertise with the enhanced visibility provided by SATS for express shipments booked with airlines. The services provided include specialised handling at the point of origin and destination to manage AOG shipments and via key time stamps for updates on the shipment's status on the ground. These streamlined services are the result of the strategic collaboration between SATS and Kuehne+Nagel, which was solidified through the Memorandum of Understanding (MoU) signed last October to drive value chain improvements and sustainability efforts within the air logistics industry. The two parties have successfully conducted several other Proofs of Concept to optimise ground handling for e-commerce shipments and air charter hub and spoke operations, as well as this airside service to improve shipment visibility and cargo processing speeds for time-critical shipments.

CAE SIGNS LONG-TERM AGREEMENT WITH AKASA AIR

CAE announced that it has signed a long-term agreement with India's Akasa Air to provide Boeing 737 MAX pilot training at CAE's facilities in India. Akasa Air will leverage CAE's best-in-class training facilities, instructors, and latest generation full-flight simulators for the next 15 years, fulfilling the airline's commitment to develop the world's best-trained pilots who meet the highest training standards. The partnership is also a game changer for the Indian aviation industry which will require a strong force of highly

skilled aviators to drive its growth. CAE has trained Akasa Air pilots since the start of the airline's operations in 2022, providing world-class infrastructure and a rigorous and immersive simulation training curriculum that enables them to meet superior levels of proficiency. Vinay Dube, Founder and CEO, Akasa Air said, "We are pleased to further cement our partnership with CAE, one of the world's leading pilot training technology providers. Akasa Air is built on a strong foundation of reliability and practices the highest standards

AIRBUS TOUTS A350F FOR STRONG ASIA CARGO MARKET

As the Asia-Pacific (APAC) region continues to demonstrate robust economic growth and dynamic trade activities, Airbus forecasts demand for around 400 widebody freighters in the region, over the next 20 years, including new-builds and conversions. This represents more than 25 percent of global demand for 1,490 widebody freight aircraft in the above 40 tonne segment. Crawford Hamilton, Airbus Head of Freighter Marketing said that the company is well placed to meet a strong share of this demand with the all-new A350F. "As the world's only all-new freighter, the A350F will be a step change in efficiency in competitive cargo markets," he said. "It will bring a reduction in fuel consumption and carbon emissions of up to 40 percent compared with the previous generation 747F and is the first freighter offered today that will meet ICAO's enhanced CO₂ emissions standards in 2027." The A350F can fly up to 4,700 nautical miles / 8,700 kilometres at significantly lower cost than any other freighter available today. This will enable it to serve all major cargo markets, including the world's biggest freight route between Hong Kong and Anchorage, Airbus said. Set to enter service in 2026, assembly of the first A350F fuselage sections will commence in the coming months, in line with the aircraft's production time frame.

of safety and precision in global aviation. Our approach to learning and development is rooted in developing a future-ready workforce to gain a competitive advantage in the dynamic aviation landscape. As we receive a substantial influx of aircraft in the coming decade, this partnership will provide us access to the world's best training facilities for the next 15 years and will help us build a team of highly experienced and skilled pilots, as we continue our commitment of becoming one of the world's safest airlines."



BBN AIRLINES INDONESIA SECURES ADDITIONAL AOC

BBN Airlines Indonesia, a part of Avia Solutions Group, has obtained an additional Air Operator Certificate for commercial passenger flights from the Indonesia DGCA. This certification reaffirms the airline's readiness to operate aircraft for commercial purposes, solidifying the company's commitment to meeting the needs of the Indonesian public by providing safe, reliable, and efficient

air travel services. BBN Airlines Indonesia has prepared three Boeing 737-800 fleets to accommodate charter passenger requests and three cargo planes with a mix of Boeing 737-800 and Boeing 737-400 fleets for both domestic and international flights. With the existing fleet and increasing demand, BBN Airlines Indonesia targets operating a total of 40 aircraft by 2027.

GE AEROSPACE PARTNERS ON FLIGHT OPS SOFTWARE WITH AIR INDIA

GE Aerospace announced a landmark flight operations software contract with Air India, India's leading global airline. This strategic collaboration marks a significant milestone as Air India becomes the first enterprise in India to adopt GE's FlightPulse pilot app together with Safety and Fuel Insight for its

entire group. With Safety Insight, Air India will have access to advanced analytics and real-time data monitoring to enhance safety measures and ensure optimal performance across its fleet. Fuel Insight will provide the enterprise with comprehensive fuel efficiency solutions, enabling the group to optimize

journeys for more efficient fuel management. The FlightPulse pilot app and its embedded Animation Module will drive engagement with more than 5,000 of Air India's flight crew by providing them with insights from personalised flight data, helping make informed operational decisions.



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Has Singapore lost its mojo?

The 2024 edition of the Singapore Airshow would be called a success by most measures, but it appears to be losing its mojo to Dubai. **Matt Driskill** reports.

IN THE BATTLE OF AIRSHOWS, Paris and Farnborough have reached a détente of sorts while Singapore and Dubai still appear to be battling it out with Dubai the clear winner, at least over the last few years.

Part of the problem seems to be the organisers, at least in the case of Singapore. While organisers in Dubai make it easy to tally up total orders for planes, services and other deals, Experia, the Singapore promoters, don't offer such details.

What they do offer is generalities with their statement this year being "almost" 60,000 trade attendees were at the show, saying it was a 10 percent increase from COVID and post-COVID shows in 2020 and 2022. They called 2024's show a signal of "renewed optimism and recovery in the aerospace landscape in the Asia-Pacific region."

Despite the reluctance of the Singapore organisers to disclose facts and figures, there were deals made at the show this year. Starlux Airlines ordered five Airbus A350 freighters and three A330neo passenger jets; Vietjet Air signed a memorandum of understanding with Airbus to purchase 20 A330-900 jets and Thai Airways and Royal Brunei Airlines announced orders for 45 and four Boeing 787 Dreamliners, respectively.

China was also a highlight of Singapore's show with the international debut of the ARJ21 and C919 jets made by Commercial Aircraft Corp of China (COMAC). Tibet Airlines signed a 50-plane deal with the Chinese.

Leck Chet Lam, managing director of Experia, the organiser of Singapore Airshow, said: "We are delighted to announce the overwhelming response for this edition. It clearly signals a renewed optimism and momentum driving the sector forward."

Compare Singapore's figures to those at Dubai and the difference is clear. Dubai was the venue of choice for Airbus and Boeing to announce billions of dollars in orders. Airbus signed a \$6 billion deal with UAE-owned Emirates for 15 additional A350-900 aircraft. The new-order backlog for Emirates — the largest airline in the Middle East — to 65 A350s, the airline announced. The airline committed to \$58 billion in orders for 110 additional planes at the Dubai Airshow. Airbus also scored a provisional order with Ethiopian Airlines for 11 A350-900 jets with an option to purchase six additional aircraft.

Ethiopian Airlines also agreed to order 11 Boeing 787 Dreamliner jets and 20 737 MAX airplanes, which included an option to buy 15 additional Dreamliners and 21 extra 737 MAXs.

Part of the problem with Singapore is not just the organiser's lack

◀ *China's COMAC made its international debut with its C919 passenger jet.*

▶ *Rolls-Royce returned for the 2024 show with multiple displays showing off its latest technology.*

of information, but also logistics. Complaints abounded from attendees from around the world because of the traffic arrangements, or rather the lack of proper arrangements. Attendees spent hours at the end of each day waiting for shuttle buses and taxis in the heat and humidity. Dubai makes it much easier to get to the venue and is not as restrictive as Singapore when it comes to the vehicles attendees can take to the show.

Another problem for Singapore is not one of its own making — timing. Dubai has the ability to schedule itself before the Singapore show which makes Dubai a hard act to follow. In this case, the problem was the theme of each show — sustainability. Dubai hosted a raft of meetings on SAF and other sustainability topics. Singapore did the same thing. But how much can be said about sustainability that hasn't already been said? It was the same song, second verse in Singapore, which was like hearing the same song at a singing contest over and over and over. It wasn't Singapore's fault, but the organisers might have thought about the theme more since they knew Dubai would be covering the same topic.

The flightline at Singapore's show was also missing that certain something compared to Dubai. Boeing declined to send any planes to Singapore given its current safety woes and government investigations, although it did maintain a strong presence there in terms of military aircraft and military flight demonstrations. As mentioned above, Singapore did have China's COMAC on hand, which was a coup — albeit a small one — for the show.

In Singapore, Russian companies were absent but Israeli companies Israel Aerospace Industries and Rafael Advanced Defense Systems, which dropped out of the Dubai Airshow in November attended.

But overall, "the general mood is extremely positive but also very demanding," said Dennis Kohr, head of corporate sales Asia-Pacific for aircraft maintenance provider Lufthansa Technik Group, according to a Reuters report. "It's the first air show after the pandemic; there is not only a huge demand for air travel, but also huge demand for MRO services."

Natasha Pheiffer, regional managing director for Asia at British defence firm BAE Systems, said it was great to see attendees face to face again. "We had a really busy week...discussing future air capability, our space and autonomous air technologies, our cyber, electronic warfare, sea, and land offering and our presence across Asia," she said.

So while Dubai was a resounding success with billions of dollars of orders from all aviation sectors, Singapore is running in second place — perhaps a close second — but still behind Dubai in multiple areas →.



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Celebrating innovation

The Crystal Cabin Awards once again recognise the latest innovations in the aircraft cabin interior world. **Emma Kelly** looks at some of the shortlisted entries for 2024.

SUSTAINABILITY AND PASSENGER COMFORT THEMES dominate the shortlist for this year's Crystal Cabin Awards, which recognise innovation in the aircraft interior world.

This year's shortlist comprises 72 entries in eight different categories — Cabin Concepts; Cabin Systems; Health and Safety; IFEC and Digital Services; Material and Components; Passenger Comfort;

Sustainable Cabin; and University. The shortlisted entries include products already in service or about to enter service, products under development, and concepts, which might or might not ever make it onboard an aircraft.

Among the existing products are a number of airline entries, including Japan Airlines' Airbus A350-1000 cabin interior, designed

◀ *Design studio Factorydesign makes the shortlist with the Aisle Class Suite it designed and developed for airline startup BermudAir.*

▶ *The JAL design is intended to “immerse customers in the elegance of Japanese aesthetics.*

by UK consultancy Tangerine. The design is intended to “immerse customers in the elegance of Japanese aesthetics and envelop them in tranquillity”. It features Japanese rice paper walls and latticework privacy doors inspired by Ukiyoe artwork and traditional Japanese woodcraft. The design also includes a number of firsts to improve passenger comfort, such as speakers built into the seats in business and first class, allowing passengers to enjoy in-flight entertainment without headphones; a three-person dining space in first class; and an electric automated recline seat in premium economy.

Immersing passengers in Hawaii and the spirit of Polynesian wayfinding was the design aim of Hawaiian Airlines’ interior for the Boeing 787 Dreamliner. The interior includes koa-wood-inspired panelling and flooring; a Hawaii flora printed overhead light dome; and sounds from nature.

Also on the shortlist, is Qantas’s Wellbeing Zone for its Project Sunrise flights, developed by interior manufacturer Diehl Aviation. The unique zone is designed to address passenger hydration, nourishment and jetlag requirements, and uses weight-saving sustainable materials throughout.

Taiwanese carrier Starlux Airlines makes the shortlist with two entries. Its Elements Business Class Suites featuring a reverse herringbone layout provides a larger footwell than available on other carriers, while its “Home in the Air” experience on the Airbus A350 features earth-toned interior with matte golds and brushed aluminium, rotating artwork and a signature scent.

Design studio Factorydesign makes the shortlist with the Aisle Class Suite it designed and developed for airline startup BermudAir. The suite is a premium class passenger seat for single-aisle aircraft, created by converting two standard economy seats into one suite. BermudAir operates two Embraer E175 regional jets between Bermuda and the US East coast.

Cathay Pacific is shortlisted with its Next Gen IFE, which it says provides passengers with an interactive, customised and real-time travel experience, centring on the passenger’s journey.

New seats and concepts feature strongly, with sustainability often the focus. Acro Aircraft Seating’s Series 9 claims to be the world’s first 99 percent recyclable seat. The seat features an aluminium structure and hybrid composite seatback, weighing just 7.5kg per seat. Also shortlisted is Acro’s new premium economy seat, Innovares, which has a contemporary and ergonomic design, expanded living space, reclines up to 11 inches, and a spacious footwell. The new footrest design promotes improved blood circulation on long-haul flights, while an integrated video screen (up to 15 inches) and a large table for work or dining deliver a more engaging and rewarding travel experience, Acro says.



TANGERINE/JAPAN AIRLINES

2024

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CFM International is a 50/50 joint company between GE Aerospace and Safran Aircraft Engines.



StandardAero

► Students at Virginia Tech have developed a solution to allow wheelchair users to stay in their wheelchairs while travelling.

Stelia Aerospace's Opera Essential business class seat is an autonomous seat that is responsive to passenger movements. "This innovation not only significantly reduces seat weight, but also upholds a premium level of comfort for travellers," says the manufacturer.

Safran's Signature Seat, meanwhile, is a "revolutionary airline seating innovation" for economy class, according to manufacturer Safran, featuring a fixed, pre-reclined architecture, increased living space and space optimisation.

Gen Phoenix, in collaboration with Sabeti Wain Aerospace and Doy Design, is shortlisted for the Circular Dress Cover which can be



VIRGINIA TECH UNIVERSITY



HAWAIIAN AIRLINES

▲ Immersing passengers in Hawaii and the spirit of Polynesian wayfinding was the design aim of Hawaiian Airlines' interior for the Boeing 787 Dreamliner.

► Decarbonisation and circularity are at the heart of Airbus's cabin concept, the Airspace Cabin Vision 2035+.

completely recycled at the end of its service life. The partners say until now there has been no solution to recycle full dress covers. The solution reduces climate change impact of the seat cover material by 30 percent, they say.

Recaro Aircraft Seating's R Sphere concept seat is 100 percent recyclable and lightweight, and features cork, wood, reclaimed fishing nets and cactus, while Airbus's C-Suite Business Class Seat Concept focuses on rethink, recycle, repair and reuse principles.

German plastic and fibre composite component manufacturer CompriseTec is shortlisted for FAIRcraft — The Seat project, which is a lightweight, short-range passenger seat featuring increased passenger safety and ergonomics and full material circularity. The



AIRBUS

seat results in a 25 percent weight reduction compared with existing seats, with all components designed for circularity, durability and easily replacement.

Decarbonisation and circularity are at the heart of Airbus's cabin concept, the Airspace Cabin Vision 2035+. The aircraft cabin can contribute up to 20 percent to the aircraft's overall environmental impact and Airbus worked with 10 airlines and eight technology firms on a vision to reduce this. The vision includes lightweight, bionic designs to help reduce cabin weight by up to 40 percent; materials that can be recycled, reused and repaired; and new catering concepts such as pre-ordering your meal at the gate to reduce food waste and weight by up to 15 percent.

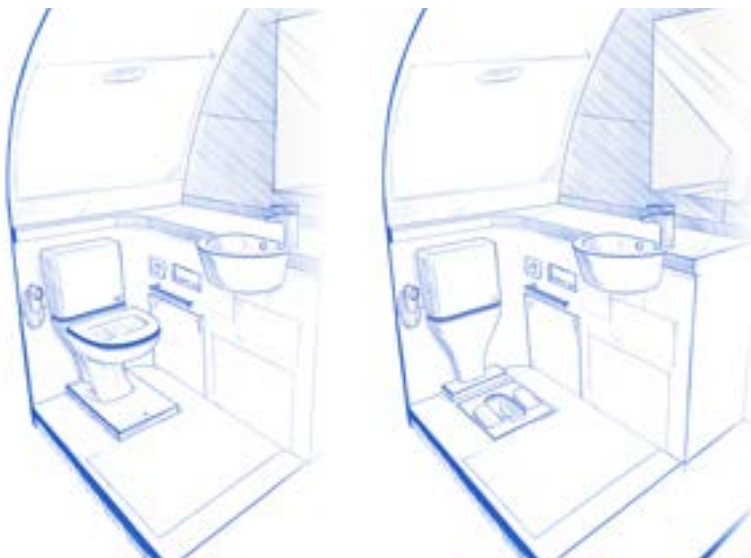
Talking of waste, Safran's CUB= galley waste disposal unit can be integrated into any unused galley space, features a plug-and-play concept for easy installation and removal, and uses 30 percent less

water per flush than existing systems. It features easy cleaning, with a UV light automatically activating when the unit is closed to eliminate odours and prevent bacteria growth. Another entry from Safran is a new onboard water dispenser, which delivers clean and safe drinking water to passengers whenever they want it.

The University category always unearths interesting projects. Students at Hong Kong Polytechnic University have designed the prefabricated Origami Cabin, comprising pre-fabricated integrated forms to enhance sustainability, elevate the passenger experience

seat, providing direct aisle access and privacy for each traveller in a two-four-two configuration. The non-mechanical seat has limited movable fixtures and is made with lightweight composite materials. A drop-down footwell cover increases personal space in each seat and supports a variety of lie-flat positions.

LSEAT Engineering is shortlisted with its LSEAT, which allows the economy seat to be converted to relaxing reading or sleep positions, with the change activated by body weight motion. The seat becomes a 40-degree flat and comfortable sleep surface.



UNIVERSITY OF CINCINNATI



TONGJI UNIVERSITY

▲ Students at the University of Cincinnati have designed the *UniversaLav*, which transforms from a standard Western-style toilet into a squat toilet.

► Tongji University made the shortlist with their *Flexifold* economy class seat.

and minimise manufacturing and costs. The concept uses recycled materials, while its “foldable structure” supports personalised space, with seat size adjustable to personal preference. Passengers can reserve double or family seats in advance.

Also deploying folds are students from Tongji University who made the shortlist with their *Flexifold* economy class seat. The seat offers efficient body support through a fold-and-snap mechanism. It uses lightweight, breathable materials in a sandwich structure of fabric, foam, Kevlar sheet, Nomex honeycomb and fabric, providing comfort and strength.

Being able to sleep on long-haul flights is something all passengers desire and a number of shortlisted candidates are focusing on trying to make that possible, even in economy class. Mexican design team T36 Design and Architecture has come up with a new seat arrangement designed specifically for long-haul economy class, which allows passengers to sit or sleep in a position similar to zero gravity. Although not lie-flat beds, passengers can still rest very well, says T36.

For premium economy, Zephyr Aerospace’s *Zephyr* seat is a lie-flat

Australian company Sleepertech, meanwhile, has made the shortlist with its economy class *SleeperSeat*, which “transforms the passenger experience”.

For those passengers who prefer to chat when they travel, Ameco’s *Fly-Buddy Hub* could be the solution. The *Fly-Buddy Hub* involves replacing three rows of economy class seating with a versatile, multifunctional zone where six passengers can sit face-to-face. The hub can feature convertible seat/beds, folding tables and smart dividers. It would be located in the rear of the aircraft to avoid disturbing other passengers, while a quick installation and removal mechanism means airlines would be able to change the configuration quickly based on bookings, says Ameco.

ACLA Studio is shortlisted with *The Perch*, which is an innovative monument design for the Boeing 787 featuring information screens, a dedicated passenger space with a library, self-service bar and media experience.

Cabin comfort is the focus for many shortlisted entries. Collins Aerospace’s *ARISE* intelligent comfort system, for example, features

sensors integrated into seats and advanced materials to elevate passenger sleep, restfulness and comfort. The sensors actively monitor and analyse seat position, cushion pressure, body temperature and lighting and automatically makes adjustments. Another entry from Collins, ADAPT, allows passengers to control their seat and in-flight experience using their mobile device.

Coolseat promises improved seat comfort and hygiene with its seat cover which provides constant air circulation.

A number of entries use artificial intelligence (AI) to improve passenger comfort and cabin environment, including Air Lab Tech's AI-powered Cabin Air Safety System which monitors cabin air for smoke and fume events.

Students at the University of Sao Paulo are using AI to improve comfort onboard, with one team developing the Silentium in Excelsis AI-based noise-cancelling device to reduce onboard white noise, while another has a concept to provide customised personal environments using AI to adjust temperature, sound and lighting.

Diehl Aviation's Advanced Cabin Inspection and Reporting Tool uses AI to quickly and easily record cabin defects, replacing handwritten recording methods, with secure data transmission allowing real-time reporting.

Numerous developments are designed to improve the flying experience for passengers with reduced mobility or other disabilities. Students at the University of Michigan have come up with a solution to safely secure wheelchairs onboard, allowing the passenger to remain in their own wheelchair for the duration of the flight. Designed for a Boeing 737-800, the solution converts an existing closet space into a wheelchair suite, with the wheelchair locked in place. The solution is at an advanced stage, with the students, working under the guidance of Collins Aerospace, having designed, built and tested it.

Students at Virginia Tech have also developed a solution to allow wheelchair users to stay in their wheelchairs while travelling, while Airbus's ACCESS Beam allows the aircraft cabin to be adapted for the transport of wheelchairs.

Safran Passenger Innovations has developed an accessible IFE product for passengers with auditory, visual, cognitive and motor function disabilities. RAVE Accessible IFE is set to be launched by Air New Zealand and Virgin Atlantic and will guide users through a suite of enablement features to tailor it to their needs.

Japan Aerospace Exploration Agency and JAMCO are shortlisted for their Metamorphic Lavatory which comprises a temporary spacious toilet allowing passengers with reduced mobility to use it with the assistance of a caregiver.

A second shortlisted toilet entry comes from students at the University of Cincinnati who have designed the UniversaLav, which transforms from a standard Western-style toilet into a squat toilet.

When it comes to materials used in the aircraft cabin, it's all about being sustainable. Zotefoams' lightweight, PVDF foams for aircraft interiors, which the manufacturer says saves up to 70 percent in weight compared to alternatives, made the list, as did AV Bio material from Tapis and Ultrafabrics, which blends renewable



plant-based materials into a multi-layer construction for aircraft seats and surfaces.

ACM Aerospace says its Tex-eco is the first aviation fabric that consists of 100 percent natural fibres. The material absorbs carbon dioxide while it grows through natural photosynthesis, says ACM Aerospace.

Scottish Leather Group Operations and Muirhead claim their FreeTan and FreeFR technology produce the most sustainable aviation leather to date, helping airlines reduce their carbon impact

◀ The ECO Sidewall is 10 percent lighter than alternatives thanks to lightweight materials and innovative design.

◀ Collins Aerospace's ARISE intelligent comfort system, for example, features sensors integrated into seats.

▼ The Fly-Buddy Hub involves replacing three rows of economy class seating with a versatile, multifunctional zone.



and providing long-lasting passenger comfort. Muirhead produces a high plant/bio content, chrome and heavy metal-free aviation leather using FreeTan technology, reducing the environmental impact of traditional leather production. Its FreeFR flame-retardent technology, meanwhile, ensures the leather meets strict safety standards.

Industrial coating manufacturer Peter/Lacke is shortlisted with its Grown Black which uses agricultural waste, in this case peach stones, as a raw material base to produce a pigment solution for a new bio-based coating solution for cabin interiors. The use of bio-based raw material instead of fossil-based significantly decreases the carbon dioxide footprint of the coating material, says Peter/Lacke, which has already developed sustainable coatings for the automotive industry. By 2030, the company aims to swap 30 percent of fossil-based carbon to renewable, bio-based carbon.

Diehl Aviation makes the shortlist with its latest sustainable aircraft interior structures. The ECO Sidewall is 10 percent lighter than alternatives thanks to lightweight materials and innovative design, reducing the carbon footprint by 19 percent during production and resulting in fuel efficiency onboard, cutting CO2 emissions during operation by 10 percent. The ECO Bracket is an ultra-lightweight bracket made from recycled thermoplastic production waste, resulting in a 50 percent weight reduction and 50 percent reduction

in production costs. In operation, the bracket leads to a CO2 saving of 17.5 tons per aircraft.

Collins Aerospace's STARLight structural technology uses advanced composite design tools, robotic manufacturing and renewable materials to create tailored and bionic architectures that significantly reduce weight, associated fuel burn and manufacturing costs. STAR-Light structural materials are a direct replacement for honeycomb panels, but are thinner and designed to provide customisable space between stiffener supports for thermal and acoustic materials. STAR-Light can achieve 20 percent weight reduction while maintaining the strength and reliability found in traditional honeycomb materials.

Numerous IFE and connectivity solutions also feature. Thales Avionics' FlytEdge cloud-based, natively digital IFE solution makes the list, as does Moment's Flyingo Connect data server and wireless platform that delivers connectivity, entertainment and passenger services. IdeaNova's Inplay Edge is all about efficient use of the existing connectivity bandwidth to load content on an aircraft just once, with content cached onboard for use over the local area network without the need for expensive connectivity.

Conetic's Touch Media Center, used by Delta Air Lines, simplifies IFE content management and uses analytics to customise entertainment to customer preferences, enhancing satisfaction and loyalty, while AerQ in collaboration with Geven are shortlisted for the AeroArco curved plastic OLED display for business class, providing an immersive viewing experience.

Connectivity shortlisted entries include Airbus's Airspace Link HBCplus high bandwidth connectivity, which will allow airlines to connect to a choice of managed service providers via a new agnostic terminal and low-profile radome, supporting both GEO and LEO connectivity services. Intelsat is also on the shortlist with its Multi-Orbit Connectivity, which incorporates Intelsat's GEO network and Eutelsat OneWeb's LEO network, which will provide high-speed, low-latency connectivity this year.

QMap's Internet Monitoring for Aviation allows airlines to check on how their internet service providers are performing. The platform continuously monitors internet service performance in the cabin and at the airport.

With passengers increasingly using their personal electronic devices onboard, in-seat power systems become more important than ever before and a number make the shortlist, including Burrana's RISE Power, Imagik International's iPD Intelligent Power Delivery System, and KID Systeme's GeniusPOWER Core.

And as lithium battery fires cause concern, Accenture's PED Safety Bag offers 100 percent containment of fire, smoke and toxic gases from lithium battery faults onboard, protecting passengers, crew and the aircraft. The double layer safety bag allows an aircraft to continue its flight for up to six hours to reach an airport, says Accenture.

The Crystal Cabin Awards 2024 finalists and winners will be selected by a panel of industry experts, with the successful products, concepts and ideas to be announced at this year's Aircraft Interiors Expo, which will take place in Hamburg, Germany, in late May. ➔



Airlines still ordering despite Boeing, supply woes

While border and travel restrictions are a thing of the past, the lingering effects of the COVID-19 pandemic can still be felt across much of the aviation supply chain, particularly at the major manufacturers of airplanes and engines as **Michael Doran** reports.

◀ *Boeing's quality issues also stopped deliveries of the 787 Dreamliner.*

▶ *The 737-8 MAX is now a success story and operating with many airlines around the world.*

WITH INCREASING PRESSURE ON AVIATION to become cleaner and greener, airlines are clamouring for new generation aircraft and engines, but with those in short supply, they are being forced to keep older aircraft in service longer than expected which is not helping them meet their short-term 2030 emission reduction targets.

The complete breakdown at Boeing has exposed the fragility of the two-supplier situation for new aircraft and opened the door for China's local plane maker COMAC to gain a foothold, even if only in its own sphere of influence in China.

Airlines are placing larger than ever orders for aircraft and manufacturing backlogs are stretching out for more than decade even though the future of commercial aviation and the aircraft types it will need are yet to be determined.

The real currency has become slots in production lines, which are so valuable it is surprising there is not already a secondary market on which they can be traded. Airlines and lessors are booking slots in production lines just as much as ordering aircraft and engines they don't actually need for a decade.

The lack of available slots is also rife in the maintenance, repair and overhaul (MRO) sector, where getting aircraft returned to service has been a primary factor in the slow restart. It is a significant factor in why so many aircraft are grounded due to engine issues where there are examples of wait times of more than a year just to get an engine into an MRO facility.

While there are delays and issues across the industry, Asian Aviation is looking at the major ones affecting the delivery of new aircraft from Boeing and Airbus and the issues with the Pratt & Whitney GTF engines that are causing so much disruption and grounding aircraft.

The trials and tribulations at Boeing are well known but perhaps the most telling fact is that it is no longer in command of its production output, which is what most impacts all those airlines waiting for new aircraft to meet unmet demand.

At the end of February Boeing had unfilled orders for 6,177 aircraft, of which 4,767 are for the narrowbody 737, with all but 15 for 737 MAX aircraft. In January the US Federal Aviation Administration (FAA) told Boeing it could not increase MAX production beyond 38 jets per month without its permission at least until the findings of the agency's quality control audit are complete.

Most estimates suggest Boeing is currently making around 20-25 737 MAXs a month and at the end of January CEO Dave Calhoun said the company would not issue delivery targets for 2024 as it works through the current crisis.

"We will simply focus on every next airplane and ensuring we meet all the standards that we have, all the standards that our regulator



BOEING

We have to acknowledge that we have lots of things to focus on in terms of keeping the airplanes in position longer so that we can incorporate all the learnings that we're finding, and that's just fine.

BRIAN WEST, BOEING

has and that our customers demand," he revealed in an earnings call.

Despite that outlook, Boeing has told its suppliers to ramp up their production of MAX components to 48 aircraft per month, up from 38, in line with previously planned production increases from February 2024.

In February Chief Financial Officer Brian West told a conference that Boeing had been frequently forced to pause its production line due to enhanced quality measures in the wake of the Alaska Airlines

incident where a door plug panel blew out in flight.

“We have to acknowledge that we have lots of things to focus on in terms of keeping the airplanes in position longer so that we can incorporate all the learnings that we’re finding, and that’s just fine,” he said.

While the situation may be ‘fine’ with Boeing that’s certainly not the case with many of its major customers, who are continually changing their fleet plans as the timing of deliveries of the new generation aircraft remain uncertain. Staunch Boeing customers including Southwest Airlines, United Airlines and Alaska Airlines



▲ IndiGo has more than 900 A320neo aircraft on order.

are announcing capacity reductions and expressing little confidence that deliveries will meet even the revised forecasts.

In March Alaska Airlines CEO Ben Minicucci said his airline does not expect to receive all of the 47 Boeing aircraft deliveries planned for the next two years. Southwest said it expects to get 46 MAX jets down from the 79 it had planned for in 2024 and that it will need to reduce capacity and reoptimise its schedules for the second half of the year.

In Asia-Pacific unfilled orders for 737 MAXs are dominated by carriers from India, headed by Akasa Air (202), Air India (177), and Spice Jet (129). The Boeing report shows orders from Garuda Indonesia (49), Jeju Air (38), Virgin Australia (25), Japan Airlines (21), All Nippon Airways (20) and Singapore Airlines (13).

The only order of note from China is from China Southern Airlines which is for 32 737 MAXs, although there are many already produced for Chinese airlines but not yet delivered or diverted to other customers.

While many narrowbody orders from Chinese airlines have gone to Airbus, it would also be interesting to see how local manufacturer



COMAC is benefitting from the issues at Boeing and the impact of the geopolitical situation between the US and China.

The fall from grace of Boeing has been another one of those unexpected shocks that continually hit aviation and with Airbus operating at full capacity it has highlighted the fragility of the supply chain for new generation and more sustainable aircraft, just as demand recovers completely from the pandemic.

The situation at Airbus is somewhat different in that while it is operating at full capacity its order book keeps expanding and major airlines, including from China, are happy to place their trust that aircraft will be delivered on time.

In February Airbus delivered 49 aircraft to 28 customers and in



AIRBUS

the first two months of 2024 delivered 79 jets, keeping it on track to meet its 2024 target of 800 commercial aircraft deliveries this year, 65 more than in 2023.

At the end of February Airbus was sitting on a backlog of 8,552 aircraft with 7,724 of those orders for single-aisle jets. The backlog highlights just how successful the A320neo Family program has been despite the adverse effects of the ongoing issues with the Pratt & Whitney GTF engines.

Airbus has orders for 4,887 A321neos and 2,195 A320neos waiting to be delivered and at the current production rate of around 45 per month that's a healthy 13 years' worth of aircraft to be built.

The A220 is also growing in popularity and now making inroads

◀ *The Tianjin FAL is adding more capacity to A320 manufacturing.*

▼ *Qantas has added its first two Airbus A220-300s.*



QANTAS

in Asia-Pacific, with Australian flag carrier Qantas introducing its first A220 in February. Airbus has delivered 322 A220s, including 263 A220-300s and 59 A220-100s and had a total of 592 in its February backlog.

In Asia-Pacific Airbus recorded a backlog of 2,824 aircraft, which is 33 percent of global unfilled orders, with single aisle aircraft accounting for 2,636, A330 for 36 and A350 for 152 airplanes. The backlog includes 941 A320neo Family aircraft for Indian low-cost carrier Indigo, with other large orders for AirAsia (364), Air India (210), Qantas (145), Vietjet (106) and China Eastern (100), with those six airlines accounting for 70 percent of the regions narrowbody backlog.

Asia-Pacific is also fertile ground for the Airbus A350 with a backlog of 152, including 13 A350F freighters. The major A350 customers are Air India (34), Qantas (24), Eva Air (18), Asiana (15), Starlux (14), Japan Airlines (13) and Philippine Airlines (9).

Airbus has plans to increase its monthly output in the coming years and has been aided by Pratt & Whitney maintaining deliveries of new GTF engines ahead of diverting them to the troubled aircraft with earlier versions that are currently grounded.

Without any of the major dramas that are afflicting its rival it seems there is plenty of clear air ahead for Airbus to add more manufacturing capacity and keep its new generation aircraft flowing into the hands of eager customers.

The troubles with Pratt & Whitney GTF engines have been more than well documented but it may surprise some that sales of the engine are moving along just as if nothing untoward has happened.



PRATT & WHITNEY

▲ P&W is increasing MRO capacity in Singapore to support the GTF recovery programme.

That's despite 600 to 700 GTF engines needing to be taken off-wing by 2026, with the majority of those expected during this year, and hundreds of aircraft being grounded.

In September 2023 Pratt & Whitney (P&W) owner RTX advised it would record a pre-tax operating charge in the third quarter of 2023 of approximately \$3 billion, which it said represented P&W's net 51 percent share of the PW1100 GTF program, with overall estimates putting the damage at between \$6 billion-\$7 billion.

The issue hit the headlines in September last year when Indian low-cost carrier IndiGo suffered three engine incidents that eventually grounded around 40 of its Airbus A320neos. Since then more than 40 airlines and aircraft lessors have been affected by the GTF issues, including respected carriers like Air Baltic, Volaris, All Nippon Airways, JetBlue, Air New Zealand, Spirit Airlines and Cebu Pacific.

P&W said there will be an average of 350 aircraft grounded each month during 2024, although it forecasts that will likely peak in the first quarter of this year. While the fix is available, finding MRO slots and replacement parts is slowing everything down so it was good news to see P&W recently announce significant investments in its Singapore operations.

In February, P&W officially opened a massive expansion of its Singapore engine services centre, Eagle Services Asia (ESA), and announced a US\$20 million investment to grow manufacturing ca-

capacity for GTF engine high-pressure turbine disks, also in Singapore.

Eagle Air Services is a joint venture with SIA Engineering Company and since the GTF was introduced in 2019 it has completed more than 500 GTF overhauls, and with A320neo Family aircraft flooding into Asia-Pacific it has many more to come.

The expansion will allow ESA to grow its GTF maintenance capacity by two-thirds in 2024 and greatly add to the available GTF repair network. It will integrate cutting edge technologies in robotics, automation and machine learning to increase efficiency, including using a robotic arm to install and remove high-pressure compressor bearing sleeves.

The \$20 million investment will add manufacturing capacity for GTF high-pressure turbine (HPT) disks in Singapore, increasing output from 2,400 disks annually to around 3,400 by 2026.

Automation is high on the agenda to boost productivity and efficiency levels and keep pace with the growing fleet of GTF engines. This facility is a joint venture between P&W and Hanwha Aerospace and is only the second P&W fan blade and HPT disk production facility globally.

It reached full operational capability in June 2023 and is a vital part of the GTF supply chain, producing hybrid metallic fan blades and highly complex turbine components for the global production of GTF engines. →



Cautious optimism in India

Backed by fast paced recovery in domestic and international air passenger traffic and a relatively stable cost environment, Indian operators look forward to significantly cut losses in 2024 but old problems continue to haunt the sector **Shelley Vishwajeet** reports.

THE GROWTH MOMENTUM in Indian aviation sector continues. According to the latest report by the rating agency ICRA, India's domestic air passenger traffic is likely to grow 8-13 percent in FY24 to reach the level of 150-155 million, which is way ahead of the peak pre-COVID level of 141.2 million witnessed in FY20. The growth momentum is also likely to continue in FY25 as the Indian economy continues to do well. ICRA expects that high economic growth, rising disposable income and improving airport infrastructure will lead to increased demand for air travel and will also provide leverage for operators to charge a higher premium per kilometre.

The international passenger traffic for Indian carriers also surpassed the pre-COVID levels in FY2023, although it trailed the peak levels of 25.9 million witnessed in FY2019. ICRA expects to cross this level in the current fiscal, with an estimated 25-27 million passengers, representing a YoY growth of 7-12 percent. The same is expected to further grow by 7-12 percent to 27-29 million in FY2025.

"The industry has witnessed improved pricing power, as reflected in increase in yields and thus the spread between revenue per available seat kilometre/cost per available seat kilometre (RASK-CASK) for the airlines. The same is expected to remain favourable, aided by a decline in aviation turbine fuel (ATF) prices and the relatively stable foreign exchange rates," points out Suprio Banerjee, Vice President and Sector Head, Corporate Ratings, ICRA Limited.

He adds that due to favourable market conditions, the Indian aviation industry is estimated to report a significantly lower net loss of "US\$362 million to US\$483 million" in FY2024 and FY2025 compared to "US\$2.05 billion to US\$2.11 billion" in FY2023.

CAPA India in its comprehensive report on India Aviation Outlook FY2024 has projected an even more optimistic scenario. CAPA expects domestic and international traffic to be in the range of 160+ million and 72-75 million in FY2024, respectively, with both increasing by 20 percent or more YoY.

More good news is on the fuel front. For Indian operators, ATF prices and INR-USD movement have a major bearing on the airlines' cost structure. The average ATF price stood at USD 1250.96/KL for the last 12 months, a YoY decline of 15 percent compared to FY2023. However, this was still 60 percent higher compared to an average of USD 782.09/KL during FY2020. Fuel accounts for nearly 30-40 percent of the airlines' expenses, while 35-50 percent of the airlines' operating expenses, including aircraft lease payments, fuel expenses, and a significant portion of aircraft and engine maintenance expenses, are denominated in USD terms. Further, some airlines have foreign currency debt. While domestic airlines also have a partial natural hedge to the extent of earnings from their international operations, overall, they have net payables in foreign currency.

At present, the Indian aviation industry has a total order book of 1,700 aircraft, which is more than double the size of the current fleet. The deliveries, however, are likely to be gradual, spanning over the next decade, and will also be impacted by the current supply chain challenges encountered by engine and aircraft original equipment manufacturers (OEMs). Also, a large part of these are replacing old aircraft with new fuel-efficient ones. ICRA expects the demand-supply balance to be maintained in the medium to long term, aided by improvement in air penetration levels. Furthermore, a sizeable part of the aircraft additions by airlines will also be meant for expanding international operations.

“More recently, the Indian aviation industry has been affected by engine failures and supply chain challenges. This has resulted in grounding of aircraft for certain airlines, thus impacting overall industry capacity (as measured by available seat kilometre or ASKMs), with nearly 20-22 percent of the total industry fleet grounded as on September 30, 2023,” ICRA said. “The recent powder-coating related concerns in engines are expected to result in additional grounding of aircraft in Q4 FY2024, implying that nearly 24-26 percent of the industry capacity will be grounded by March 31, 2024, thus affecting the industry’s ASKMs. This will also result in higher operating expenses for the airlines with extra cost of grounding, an increase in lease rentals due to additional aircraft being taken on lease to offset the grounded capacity, along with increasing lease rates and lower fuel efficiency (as these grounded aircraft get temporarily replaced by older aircraft), thus adversely impacting the airlines’ cost structure. However, healthy yields, high passenger load factor (PLF), and partial compensation available from engine OEMs would help absorb the impact to an extent,” points out ICRA.

According to the Indian Ministry of Civil Aviation, 100 plus aircrafts are on the ground due to supply chain issues and the situation is unlikely to improve even by mid-2024. Maintenance costs for operationalising these planes could also impact industry P&L in FY2024. On the positive side, 135 plus aircraft are expected to be inducted (net inductions) in FY2024. However, the industry continues to be hit by a shortage of experienced pilots, including for wide-bodies, and significant increase in cost per block hour of pilots. There is also a shortage of other skilled resources across ATCOs, DGCA, airports, CISF etc. Nonetheless, the government is optimistic that this shortage will soon be a thing of past. Recently, Civil Aviation Minister Jyotiraditya Scindia had emphasised that the augmentation of human resources in the country is happening at a fast pace with organisations like the Airports Economic Regulatory Authority (AERA) and DGCA (Directorate General of Civil Aviation) going for induction of an additional 10 and 400 personnel respectively in current fiscal while 3,600 more Air traffic controllers would be added across airports. In addition, some 15 flying training organisations are also expected to be set up in 2024, taking the total number to 50 which would help ease the shortage of trained aviation personnel in the country.

And as industry is heading for consolidation, both domestic and international, fears are being raised that this could impact pricing

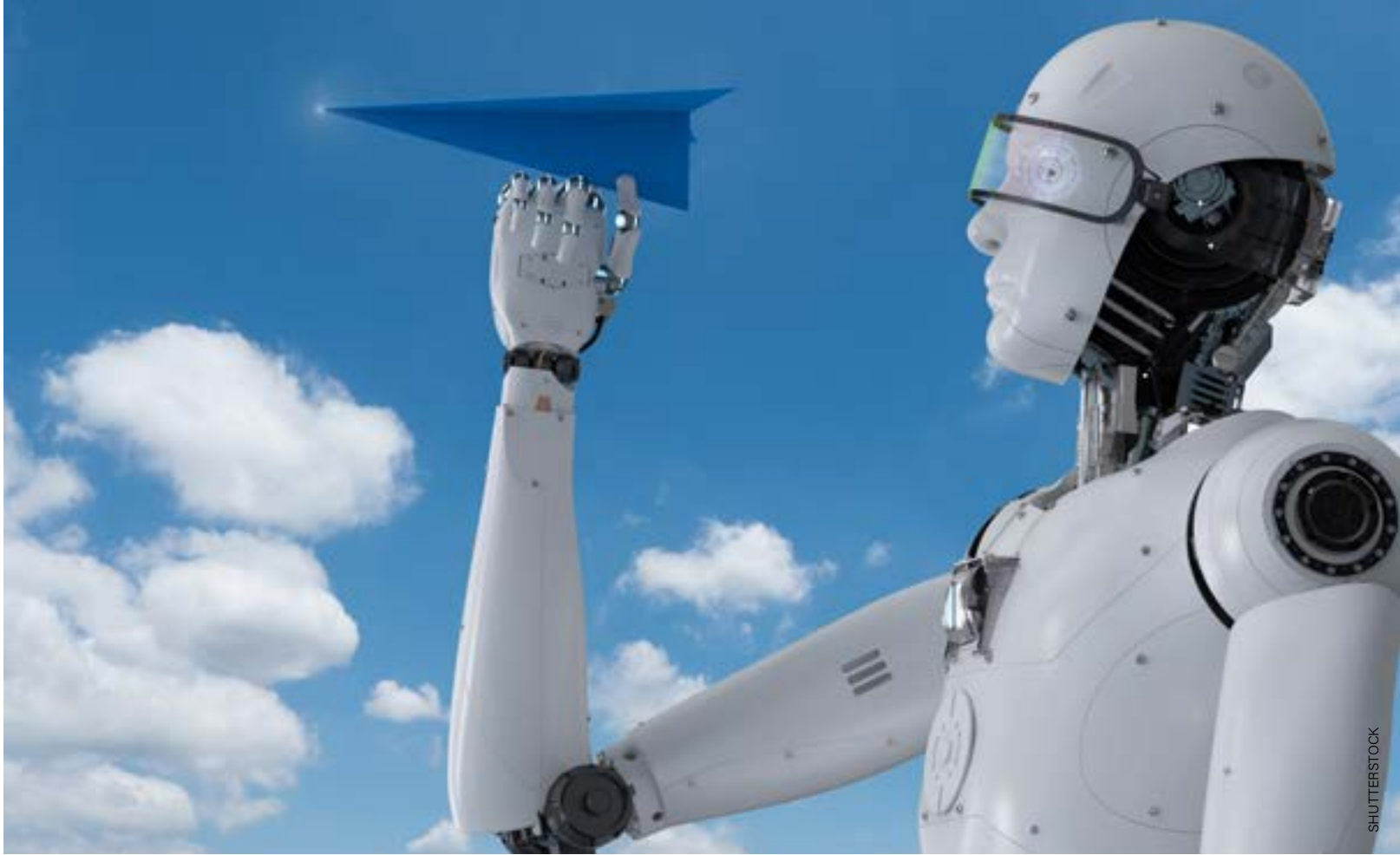
and other dynamics. Currently, between IndiGo and Air India Group which includes Air India, Vistara and AIX Connect (formerly AirAsia India), they together control 88.4 percent of market share with IndiGo alone cornering 60.2 percent. GoFirst (earlier GoAir) is now grounded, while financially troubled SpiceJet’s market share has been declining each quarter for the last two years.

A few trouble spots include airport capacity constraints especially at Tier 2 and Tier 3 cities, which could also negatively impact the network development and fleet utilisation. However, with the Modi government committed to enhancing regional air connectivity, it is quite bullish on airport capacity expansion, both Greenfield as well new terminal additions. Recently Prime Minister Narendra Modi had inaugurated 15 airport projects, including 12 new terminal buildings of Pune, Kolhapur, Gwalior, Jabalpur, Delhi, Lucknow, Aligarh, Azamgarh, Chitrakoot, Moradabad, Shravasti and Adampur Airports, along with laying of the foundation stone for new terminal buildings of Kadapa, Hubballi and Belagavi airports. Together they will have a combined capacity to serve 61.5 million passengers annually. Apart from Pune and Delhi, the rest are designated as regional airports. The government has assigned US\$120 million for the development of above projects.

One of the projects inaugurated by Modi is Lucknow airport’s new terminal building. The Adani Group runs the Lucknow airport and with its new terminal would now be handling about 13 million passengers per year, which is nearly three times that of the old terminal capacity. Another major project inaugurated is Delhi airport’s expanded Terminal 1 which can now serve 40 million passengers per annum, more than double its previous capacity, which stood at 17 million passengers per annum.

Despite a focus on regional connectivity, the fate of regional airlines continues to hang by thin thread. The largest existing regional airline called Alliance Air which serves 75 destinations with a fleet size of 22 aircrafts is owned by the government of India and has been surviving chiefly due to periodical financial bailouts by the government. Three regional airlines have closed in the past four while the future of surviving three regional operators namely Star Air, FlyBig and IndiaOne Air remain uncertain.

The high cost of aircraft maintenance remains another pressing challenge for Indian aviation. It is estimated that the expenditure for MRO accounts for 15 percent of total revenues, which is the second-highest expense after fuel cost. Currently, by value and at best only about 15 percent of aircraft MRO is being performed within India, mostly basic works and quite down the MRO value chain. In a reply to the Indian Parliament, the Minister of State for Civil Aviation, General V K Singh (Retd) had stated that the market size of the MRO sector in India stood at around US\$2 billion while 85 percent of MRO work was done abroad. Indian airline operators typically conduct on-tarmac inspections in-house while out-sourcing engine, heavy maintenance, and modification work to third party MRO service providers. Engine and component repairs make up more than 60-70 percent of MRO costs, while airframe maintenance accounts for the remaining 30-40 percent. →



AI is not taking over — yet

The words artificial intelligence (AI) seem to be everywhere in aviation these days, much like the word sustainability. But while there is no true AI — yet — advanced machine learning is taking over many jobs once done by humans as **Matt Driskill** explains.

IT'S EASY TO TAKE ISSUE with the use of the word AI because despite all the heavy-duty computing happening these days there is no true AI yet and the human race may rue the day if and when a true AI becomes a reality. But the world of aviation has embraced the term and applied to any number of applications from MRO to route scheduling to aircraft design and more.

In the world of aviation design for example, researchers in Australia are working on new aviation designs using AI and say new aircraft designs that meet modern demands could be a reality by 2025.

Thomas Luke, a PhD candidate at Swinburne University of Technology's Aerostructures Innovation Research (AIR) Hub, says that AI should be a crucial consideration in the industry's transformation

and could help Australia become a global aviation leader.

"We're on the precipice of a big transition, with new modes of air transportation scheduled for introduction across the world as soon as 2025. AI can radically innovate in this space and allows Australia to fast-track sovereign projects in the aerospace sector."

Luke is investigating how AI can be used in the conceptual design phase using text-to-image generators and has developed new concepts that could be adapted by industry to make innovative new aircraft. Traditional illustration and concept renderings can take days and valuable resources to produce. Luke's designs are created within 20 seconds. "This new horizon of aerospace known as Advanced Air Mobility (AAM) demands a different approach," he says. "Small

aircraft that are super functional and are achievable to fast track into the industry for public use, designed with a user-centred vision.”

With the help of emergent AI, AAM also offers a glimpse into the future of electric vertical takeoff and landing (eVTOL) vehicles that are expected to play a pivotal role in AAM and the future of aviation. “AAM represents a significant evolution in aviation,” says Luke. “It envisions the future of air transportation, embracing modern technologies, materials, processes, user experience and innovative thinking to solve complex problems. AAM and its unique air vehicles will also encounter new challenges; this makes it an opportune moment to weave AI into the fabric of this emerging industry from the ground up.”

Generative AI (GenAI) also has the potential to address existing issues within the aviation sector. It helps tackle pressing matters like safety and provides insights into how the industry can evolve and improve.

Luke says GenAI serves as an invaluable ‘co-author,’ empowering professionals to enhance their work. “This allows for re-examining existing challenges with fresh perspectives and tackling new tasks more innovatively than traditional approaches,” he said.

The drone space seems to be one popular among aviation players around the world. In particular, AI can be used to designate and identify no-fly zones such as high-security areas like airports.

A project announced earlier this year in Germany — the fAIRport research project — was to automatically recognise and identify such zones. It received funding from the German Federal Ministry for Digital and Transport as part of the mFUND innovation initiative. Experts from the German air navigation service provider (DFS Deutsche Flugsicherung GmbH), wetransform GmbH and Fraunhofer IGD collaborated on the development of a solution that makes extensive use of artificial intelligence. The resulting geodata platform for local authorities, which is based on open standards, is now operated by wetransform, a spin-off of Fraunhofer IGD.

To automatically identify such no-fly zones, the Fraunhofer Institute for Computer Graphics Research IGD has developed a variety of object-specific artificial neural networks (ANNs). Inspired by the structure and functioning of the human brain, these machine learning methods can reliably identify wind turbines, overhead power line masts or helipads on aerial photographs supplied by the German federal states. Fraunhofer IGD researcher Matthias Vahl said, “In this way, we can quickly identify no-fly zones for drones throughout Germany and integrate them into a system. Done manually, this process would take a very long time.” Such work is particularly important, because objects such as wind turbines are constantly being added to or removed from the landscape.

As drones mostly fly at low altitudes, their safe operation requires much more precise information about the ground they overfly than is the case for manned air traffic. Hardy Polevka, head of Geodata Management at DFS, said “The better the data situation in an area, the more precisely no-fly zones can be displayed. This also guarantees legal compliance with Section 21 of the German Aviation Regulation. Thanks to the additional information from the fAIRport

project, we are significantly enhancing our data for manned and unmanned aviation and thus making decisive progress in the safe and equitable integration of drones into German airspace.”

Gregoire Thomas, head of Vertical and Specialised Partnerships for Americas, APAC & MEA at Alcatel-Lucent Enterprise, wrote recently that AI can be applied and is being applied to help with sustainability as well as weather and climate-related delays. “With the help of machine learning and AI to help the airlines plan and execute more efficient flight paths, the time to reduce the variables and assumptions is now. This will help airlines squeeze more mileage out of the same amount of fuel and realise potential savings on other costs such as maintenance and flight crews,” he wrote. “Maintenance and spare parts inventory management can be augmented by technology too. Algorithms can analyse flight schedules against maintenance programmes, ensuring that spare parts are available when needed in conjunction with predictive maintenance that helps identify potential points of failure before they happen. This leads to lower maintenance and inventory costs, while also minimising flight disruptions.”

New global research from Amadeus, Travel Technology Investment Trends, has revealed a strong appetite for investment across the travel sector in 2024. Nearly all (91 percent) travel companies surveyed said that they expect ‘moderate to aggressive’ increases in technology investment in their organisations in 2024. And no surprise, AI, or machine learning, was at the top of the list. The Amadeus report showed the “most important technology this year and through 2029 was machine learning (AI). Second this year was data analytics while by 2029 Generative AI took second place.

Amadeus also said Generative AI is one of the most promising ways that companies across the industry can deliver more connected and more valuable journeys. The company said it is working with Microsoft to deploy Copilot for Microsoft 365 on a global level from Generative AI capabilities within Microsoft products like Outlook, PowerPoint, Teams and Word. Employees at Amadeus are already seeing the benefits with Generative AI proposing time-saving options in a wide range of scenarios. This could be as simple as suggesting draft text for an email based on the context of the employee’s work, summarising a meeting and adding action points, or more effectively searching for information from the web and Amadeus’ own information assets.

Lufthansa Systems recently announced its AI-powered operations control assistant for the airline industry. NetLine/Ops ++ aiOCC is a web-based AI assistant that supports airline operations controllers in increasing the stability and efficiency of daily operations. The system analyses historical data and monitors all events around aircraft, rotation, passengers, and crews simultaneously to identify delay risks ahead of time. Then, it generates concrete recommendations on how to improve operations in real-time. To enable the user to make an informed decision, the system provides additional information regarding the impact of the proposed solution on the overall resilience, the buffer and the propagated delay. The smart assistant focuses on recommendations, the decision itself always remains with the operations controller. →

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iata.org/en

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