

Inflight



www.inflight-online.com

January/February 2020
Volume 11 / Issue 1

Wandering Star

Air Astana takes the silk road

Connecting the dots

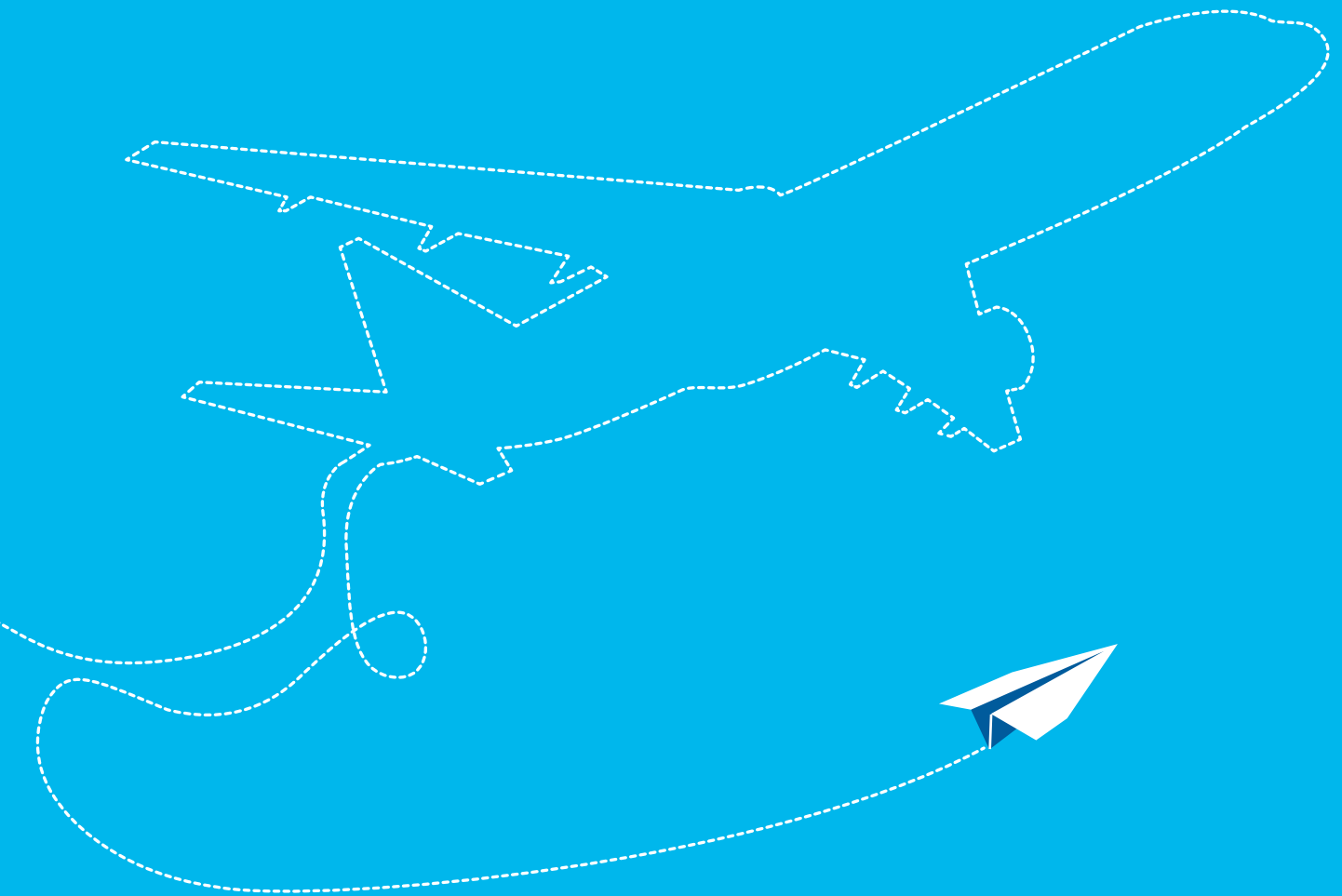
The map as visionary education

Hailing the future of flight

Urban air taxis set for take-off

KID-Systeme ***Seamlessly*** ***innovative.***

KID-Systeme is a market-leading supplier of electronic cabin systems for passenger and corporate aircraft. More than 80 airlines worldwide rely on our innovative products, which provide passengers with a range of in-seat power, communication, connectivity options and video surveillance.



Cover: Uber and out there! Designed in conjunction with Safran Cabin, the Mission Driven Cabin (MDC), which seats four passengers plus a pilot, is modifiable for different eVTOL vehicle developers.

Volume 11 / Issue 1 / January/February 2020 Contents

04

Viewpoint

Ch-ch-changes

Boeing are hoping that significant management changes will turn around its fortunes after the most difficult year in its history.

06

News

A round-up of recent events from the world of IFEC and cabin technology.



Air Astana

Alexander Preston travels to the heart of Kazakhstan to witness the unveiling of Air Astana's jewel in the crown, its new Airbus A321LR.

18

Alpha LSG

Inflight speaks to Kevin Love, Michelin star chef and Head of Culinary at catering giant Alpha LSG, who outlines his recipe for success.



24

IFE

Kimberley Young tracks the pioneering suppliers shaping the transformation of the in-flight moving map.

30

Ancillary Revenues

In search of more ancillary revenues, airlines are turning slowly to advertising, but, encouragingly, they're not working alone, says Kathryn B. Creedy.

36

Seating

Ultra-low-cost carrier Spirit has 'ditched the pitch' with its new economy class seating, but what exactly is pitch?

43

Bluetooth Connectivity

John Persinos looks at the latest developments and rules governing the use of Bluetooth in the cabin and cockpit.



46

Passenger Experience LGBTQ+

Are airlines really aware of the power of the so-called pink pound? We report on the drive to be inclusive, but find reticence still exists for IFE content.



50

eVTOL

The visionary Emma Kelly looks at the future of flight and the rise of the urban air mobility vehicle.

56

Desert Jet

Tim Guest talks to Desert Jet's new CEO about his cutting-edge terminal and hangar facility in Southern California.

62

The last word

Nino Judge, founder of flypop, asks how can we learn from Thomas Cook's mistakes?

In the next issue

- Catering
- Onboard Connectivity
- MRO

EDITORIAL

Editor / Alexander Preston
alexander@hmg aerospace.com

Senior Reporter / Kimberley Young
kimberley@hmg aerospace.com

Asia-Pacific Correspondent / Emma Kelly
emmajkelly@bigpond.com

Contributors / Henry Canaday, Tim Guest,
Kathryn B. Creedy and John Persinos

ADVERTISING SALES & MARKETING
Sales Manager / Toby Walton
toby@hmg aerospace.com

Media Sales Executive: Richard Prescott
richard@hmg aerospace.com

Marketing and Communications Specialist
/ Emma Walker
emma@hmg aerospace.com

PRODUCTION & DESIGN

Graphic Designer / Paul Firth
paul@hmg aerospace.com

Production and Design Editor /
Steve Lodewyke
steve@hmg aerospace.com

CIRCULATION
Subscription Enquiries:
subscriptions@hmg aerospace.com

MANAGEMENT
publishing@hmg aerospace.com
Publisher / Mark Howells
Director / Becky Howells

Inflight is published six times per year – in January/February, March/April, May/June, July/August, September/October and November/December – by HMG Aerospace Ltd.

Distribution of Inflight is carefully controlled for industry-related individuals. An annual subscription rate is applied for non-qualifiers who wish to subscribe.

Articles and information contained in this publication are the copyright of HMG Aerospace Ltd and may not be reproduced in any form without the written permission of the publisher.



HMG aerospace

HMG Aerospace Ltd,
The Hub, Fowler Avenue,
Farnborough
Business Park,
Farnborough, GU14 7JF
United Kingdom
Tel: +44 1252 545993
www.hmg aerospace.com

Follow us:
@inflightmag
inflightmagazine

© HMG Aerospace Ltd, 2020
ISSN 2045-385X





Alexander Preston Editor

Ch-ch-changes

While many cities rung in the New Year with fireworks and a sense of optimism for a new decade, Chicago was preparing to usher in a new era at Boeing with the pre-Christmas announcement of a change of leadership.

In the wake of Dennis A. Muilenburg's 'resignation' from his positions as CEO and Board Director effective immediately, Boeing decided 'There's gonna have to be a different man' as President; David L. Calhoun was named as his replacement as of 13 January.

According to a statement, the Board of Directors decided that a change in leadership was necessary to restore confidence in the company moving forward as it works to repair relationships with regulators, customers, and all other stakeholders.

For Ronn Torossian, a crisis expert and CEO of PR agency 5W PR, "Boeing is already falling behind on its opportunity to regain lost public trust, and now the clock is ticking."

Under its new leadership, Boeing will operate with a renewed commitment to full transparency, including effective and proactive communication with the FAA, other global regulators and its customers. To affect this, Niel Golightly has become Senior Vice-President of Communications. "Niel is a world-class communications professional with deep knowledge, expertise and relationships acquired over an accomplished career in both the private and public sectors," said interim CEO Greg Smith. "Importantly, he shares our values of safety, quality and integrity."

The MAX was grounded worldwide in March 2019 following the fatal crash of Ethiopian Airlines Flight 302, the second fatal accident involving the MAX in just five months. At the time of writing, the grounding has lasted for nine months, the longest in history of any US airliner.

Despite this accident contributing to the bulk of the 257 fatalities recorded during 2019, which witnessed 86 accidents, 8 of which were fatal, according to To70's annual Civil Aviation Safety Review, 2019's fatal accident rate is lower than the average of the past five years.

With an estimated 4.2% growth in air traffic for 2019 over 2018 means that the fatal accident rate for large aeroplanes in commercial air transport is just 0.18 (2018: 0.20) fatal accidents per million flights. That is an average of one fatal accident every 5.58 million flights.

The Dutch-based aviation consultancy believes, "that the 737 MAX will likely return to service in 2020. It may go on to serve the aviation industry and the travelling public very well for probably the next 20 years." Welcome news for Calhoun and Golightly.

4K Ultra HD Resolution • 4K Content Upscaling • Bluetooth Headset Capable
• Ultra-Responsive Touch Screen • Thinner & Lighter

RAVE Reliable, Affordable and Very Easy

WRC-19 agrees to open more access to Ka-band spectrum

✎ The recent month-long World Radiocommunication Conference 2019 (WRC-19) concluded in Sharm el-Sheikh, Egypt, with agreements signed by 3,400 delegates from approximately 165 Member States enshrined in the Final Acts of the Radio Regulations, the international treaty governing the global use of radio-frequency spectrum and satellite orbits.

One such treaty has opened more Ka-band spectrum for

satellite mobility solutions, ensuring that Earth Stations in Motion (ESIM) provide access to four times more global Ka-band spectrum for satellite-powered aviation and maritime broadband connectivity.

The decision reaffirmed the WRC-15 decision that Ka-band is the optimal band for expanding satellite broadband services. It also ensures a harmonised international framework for authorising ESIM services throughout the band and

across the world, opening the door for airlines and shipping lines to digitise their fleets, and connect more passengers and crew on a single network.

The WRC-23 Agenda (the next WRC event is in 2023) includes further defining the conditions for communications of ESIMs with non-geostationary space stations in the fixed-satellite service to provide reliable and high-bandwidth internet services to

aircraft, ships and land vehicles. Also on the table will be modernising aeronautical HF radio, new non-safety aeronautical mobile applications for air-to-air, ground-to-air and air-to-ground communications of aircraft systems, as well as possible new allocations to the aeronautical mobile satellite service to support aeronautical VHF communications in the Earth-to-space and space-to-Earth directions.

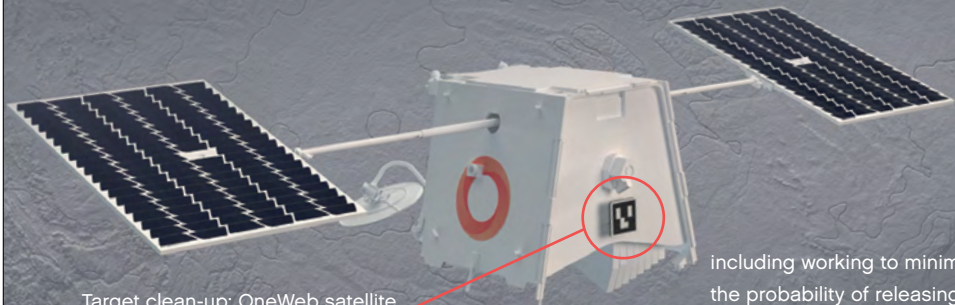
EUTELSAT to provide extra Ku capacity for Panasonic

✎ Panasonic Avionics' investment in its Ku-band connectivity network has continued with a multi-year agreement for capacity on two multi-beam payloads on the EUTELSAT 10B satellite, due for launch in 2022.

The contract with Eutelsat Communications will provide Panasonic with multiple gigahertz of new extreme throughput (XTS) Ku-band connectivity to airlines and passengers flying over a wide area across Europe, Africa and the Middle East.

Panasonic collaborated closely with Eutelsat on the satellite design, which will be stationed at Eutelsat's 10° East location. EUTELSAT 10B will be the second XTS satellite to join Panasonic's connectivity network.

OneWeb to tackle space debris capture challenge



Target clean-up: OneWeb satellite with Altius's grapple fixture.

✎ OneWeb and OneWeb Satellites, a joint venture between Airbus and OneWeb, have joined forces to implement an advanced-technology grapple fixture, developed by Altius Space Machines, on OneWeb's satellites, as part of efforts to ensure that multiple types of removal technology are developed and embedded in every satellite launched to prevent the creation of space debris.

By partnering with Altius Space Machines, whose team includes RUAG Space USA and Astroscale, OneWeb Satellites is helping to implement a low-cost, advanced grapple fixture across the OneWeb constellation that can support a variety of capture techniques for satellite servicing and disposal. This design is consistent with the CONFERS Recommended Design and Operational Practices for satellite servicing,

including working to minimise the probability of releasing secondary debris in the course of servicing operations.

"Altius's goal in developing our DogTags grapple fixture has been to create an interface that enables safe and reliable capture of our customers' satellites by the broadest range of capture methodologies possible. We are proud to be supplying OneWeb Satellites and OneWeb with our DogTag grapple fixture to help them achieve their commitment as a responsible space partner," Altius Space Machines CEO, Jonathan Goff, said.

BA explores 3D printing opportunities



Print solution: BA looks to use 3D-printed replacement parts to reduce delays and cut carbon emissions.

As part of the UK flag carrier's flightpath to net-zero carbon emissions commitment by 2050, British Airways is exploring the possibility of using 3D printers to create aircraft parts in the future. These printers would be located at airports around the world to reduce delays for customers and carbon emissions caused by transporting replacement items.

The airline's innovators predict that non-essential cabin parts will be first on the list to be generated, including pieces of tray tables, entertainment systems and toilets. While these components do not impact the safe operation of the flight, they can reduce the number of seats or toilets available for customers and cause delays as engineers wait for the parts to be flown to wherever the aircraft is.

British Airways' top ten predictions for how 3D printing could be used by airline's in the future include cutlery; products for amenity kits, such as toothbrushes or combs; tray tables; aircraft windows; in-flight entertainment screens and seats.

KLM trials closed-loop recycling system for its catering supplies



Food for thought: KLM Royal Dutch Airlines in co-operation with their catering suppliers have developed the closed-loop system.

In a trial organised jointly with De Ster, which supplies KLM with its catering materials, and with the meal suppliers Marfo, Izico, Ipack and AA Bakeries, a KLM Royal Dutch Airlines flight has become the first to fly with catering supplies onboard that have mostly been collected and recycled within a new, closed-loop system.

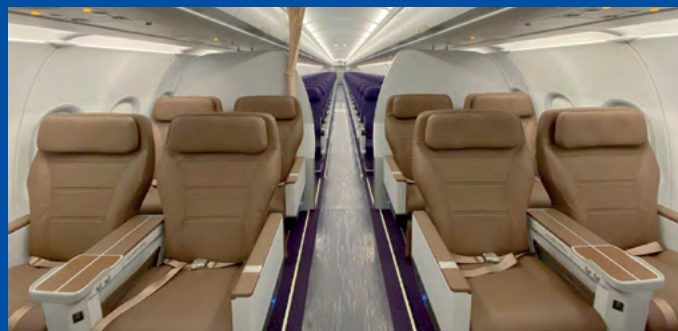
The containers, lids and glasses were collected in early December

off four Vancouver–Amsterdam flights, and then cleaned and recycled before being reused on the flight.

"The material for the products has been adapted especially for the test. The dessert and salad bowls, lids, and glasses for the flight on 18 December are made of a material with a lower specific gravity than the original. It now can be washed in accordance with the law and

properly recycled into new catering equipment. In addition, the material is less harmful to the environment during production. Lighter materials result in lower carbon emissions, and contribute to meeting the target 15% reduction in CO2 emissions by 2030, compared to 2005. This will also lead to less waste, of course. We therefore expect the overall environmental impact to be reduced," commented Martine van Streun, Director Cabin Product & Service Engineering at KLM.

APAC first for Recaro and Juneyao Air



Juneyao Air has become the launch customer for Recaro's CL4710 business class seat in the Asia-Pacific region (pictured).

The first of Juneyao Air's new A320neo aircraft has entered into

service with a full cabin of Recaro seats: Its economy cabin features the BL3530, while in an APAC first, business class offers the CL4710.

Juneyao's flagship Boeing 787-9 fleet is already equipped

with Recaro CL3710 economy class seats.

"We are thrilled to be the first airline in the region to debut the Recaro CL4710 seat to our passengers. Our discerning flyers can look forward to a top-of-the-range business class seat that offers them greater comfort and premium features," said Wang Junjin, Chairman of Juneyao Air. "The customised design will support Juneyao Air branding, while the comfort features Recaro is renowned for ensures an excellent passenger experience."

In-flight test for Gilat's ESA Terminal



Beam me up: Gilat's Electronically Steered Antenna.

✎ Gilat's In-Flight Connectivity Electronically Steered Antenna (ESA) has been tested onboard Honeywell's Boeing 757 test aircraft with Gilat's ESA terminal operating over Ka-band capacity on Telesat's Telstar 19 VANTAGE High Throughput Satellite (HTS).

The ESA terminal can serve both GEO and NGSO constellations that operate in Ka-band and features Gilat's aero modem.

"Honeywell sees the electronically steered antenna as a key future technology, and this test is an important milestone showcasing its potential," said Kevin Calcagni, Chief Technology Officer at Honeywell Connected Enterprise, Aerospace. "We have been investing in this technology for several years, and in parallel look to industry partners to innovate with us."

"The accomplishment of the successful in-flight demonstration of Gilat's IFC ESA terminal onboard Honeywell's commercial jetliner using Ka-band capacity on Telesat's Telstar 19 VANTAGE HTS demonstrates Gilat's innovation and progress for next-generation IFC ESA technology, and our ability to overcome massive technological challenges," said Liran Wiener, Director of SatCom On-the-Move Programs at Gilat.

"This exciting solution meets the communication needs of the aero market including both commercial and smaller jets that until now could not be served efficiently by existing solutions and opens up great opportunity for Gilat both over GEO satellites and non-GEO constellations," Wiener concluded.

Disney+ streams into Delta cabins

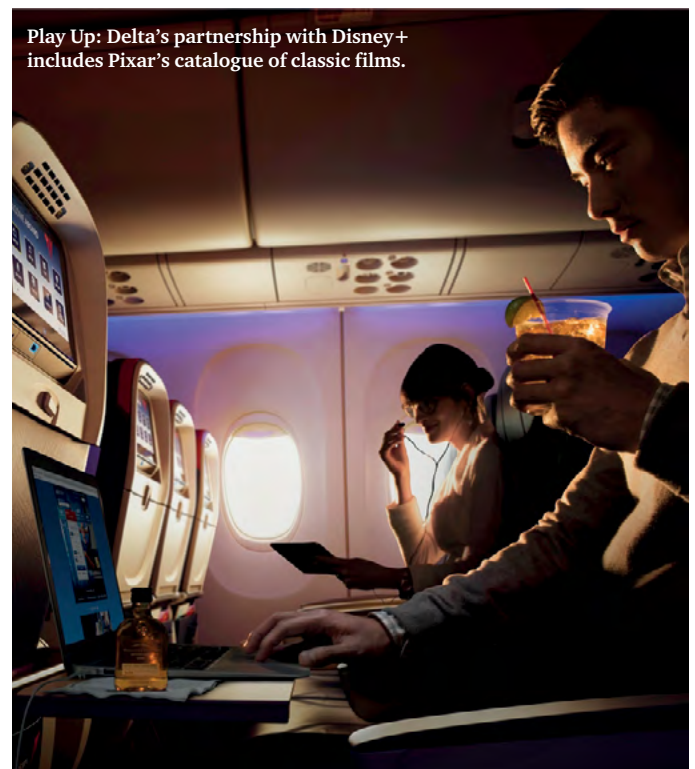
✎ Delta has signed an exclusive partnership with Disney+, the recently launched streaming service from Disney, giving passengers on selected routes an opportunity to sign up for a 14-day free trial.

Delta customers can access a selection of movies and TV shows from Disney, Pixar, Marvel, Star Wars and National Geographic on seatback screens in over 700 aircraft.

"We know how much our customers value entertainment on board," said Ekrem Dimbiloglu, Director of Onboard Product and Brand Experience. "That's why we have installed seatback screens in

over 700 aircraft and continue to forge partnerships with entertainment giants like The Walt Disney Company to bring more diversity and variety to the entertainment options we offer our passengers in-flight."

A selection of content from the Disney+ library catalogue joins the more than 3,000 movies, TV shows and music options already available through Delta Studio – free of charge to all customers in all cabins. In addition to investing in seatback entertainment, customers can choose to stream Delta Studio to their personal devices on the airline's entire mainline fleet and most regional aircraft.



Play Up: Delta's partnership with Disney+ includes Pixar's catalogue of classic films.

AMAC AEROSPACE



DELIVERING YOUR DREAMS

AMAC Aerospace is a world leader in Maintenance and Completion services for both narrow and wide-body VIP aircraft. Our bespoke handling of VIP maintenance projects is world-renowned and our 'Return to Service' are world class for completions.

AMAC's hangars are fully equipped with the latest technologically advanced equipment and manned by certified personnel. We offer a full spectrum of maintenance services and welcome the opportunity to serve you in any capacity.

www.amacaerospace.com

evelop! embraces VR IFE

Spanish holiday airline evelop!, the airline of Avoris group, has introduced Inflight VR's Virtual Reality Entertainment on its flights to Cancun (Mexico), Punta Cana (Dominican Republic), and Havana (Cuba). Based on customer feedback, the offering will be expanded to the rest of their fleet.

"When passengers fly with us, we want them to feel that they are on holiday. Inflight VR's Entertainment solution will help to make our passengers' flights to destinations around the world a unique experience, taking them to places they have never been before," said Bruno Claeys, Director-General of evelop! Airlines. "This solution aligns perfectly with our strategy which continuously introduces innovative and cost-effective improvements to our passengers' experience."

evelop! will offer the VR Entertainment free of charge to its 21 passengers in the Turista Plus class on its Airbus A350.



Air France joins sustainable aviation initiative

Air France and the Solar Impulse Foundation have issued a joint call for clean, efficient and profitable solutions to accelerate the ecological transition of the aviation sector.

The Solar Impulse Foundation will first examine the solutions on the basis of the criteria of its Solar Impulse Efficient Solution Label, assessing their environmental impact, economic profitability and technological feasibility.

Projects that meet the label's requirements will be made available to the aviation industry, to help build a more sustainable world. Those that come within the framework of Air France's trajectory will be developed within the company.

The solutions put forward within the framework of this partnership must address one or more of the following challenges:

- Carbon footprint
- Efficiency (fuel, weight etc.)
- Alternatives to single-use plastics and cabin waste management
- Clean ground operations
- Noise reduction
- Aviation and new energies

"My ambition is to offer everyone, both current and future generations, a responsible travel experience," said Anne Rigail, CEO of Air France. "We must step up the transition to more sustainable air transport and we voluntarily make new commitments for today and 2030. The Solar Impulse Foundation is our partner of choice, to help innovate now, and pioneer a more sustainable aviation for the future."

"Reducing carbon footprint in the air and on the ground, stepping up in circular economy, offsetting impacts whenever possible: these are the paths we explore with all labelled Solutions for Clean Aviation," Rigail added.

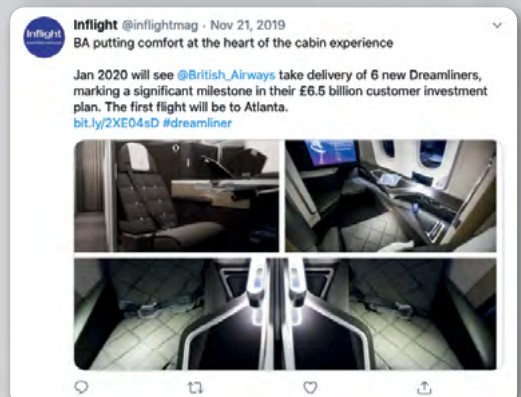
"Numerous clean and profitable solutions already exist to make aviation more sustainable. We want to promote and implement them at scale in the air and on the ground. This is precisely the objective of our partnership with Air France which is committed to taking the lead in the future of clean aviation. The Solar Impulse Foundation is dedicated to helping them get there," said Bertrand Piccard, President of the foundation.



Social Media



@inflightmag
@inflight_editor



Inflight

MENA

Pavilion • Workshop • Awards
Cairo 9 – 10 June 2020

Co-located with:



The Middle East and North Africa's premier event for in-flight technology and cabin interiors

Join us in Cairo in June 2020 for Inflight MENA, which will comprise a pavilion, workshop and awards, a unique format which brings together key airline leaders in an environment that stimulates discussion and debate. Having enjoyed continued success in Dubai over the past seven years, this year sees the event move to Cairo in recognition of North Africa's catalytic role in the development of the aviation industry over the past decade.

Enquire about exhibition and sponsorship opportunities:

Contact Toby Walton: +44 (0) 1252 545993 / toby@hmg aerospace.com



www.inflight-online.com/inflight-mena



Inflight media



@inflightmag

#InflightMENA

A wandering star

In a hangar in Nur-Sultan, capital of Kazakhstan, Alexander Preston sees the unveiling of Air Astana's jewel in the crown, its new Airbus A321LR.



All in the details: "It's far better than anything the competition have got," says CEO and President Peter Foster.

According to data provided by the Republic of Kazakhstan's Ministry of National Economy Statistics Committee, air traffic in Kazakhstan has doubled over the past decade to 8 million passengers, growing by 7% in 2018.

As Nurzhan Baidauletov, the then Chairman of the Board of Directors, noted in the airline's Annual Report 2018, "Air Astana has a clear edge when it comes to serving Kazakhstan and capturing the high growth markets that surround it. We do so by carrying passengers in the latest, most modern, fuel-efficient aircraft. We provide value for money, high levels of comfort and market leading levels of punctuality. We



Over the hills and far away: The A321LR will offer Air Astana greater capacity and flexibility with its range of 7,000 km or 7.5 hours of flight.

continue to be well recognised in the industry for these qualities.”

Under the helm of its President and CEO, Peter Foster, Air Astana became the first carrier from Russia, the Commonwealth of Independent States (CIS) and Eastern Europe to be awarded a 4-Star rating by Skytrax at its World Airline Awards 2012 and to its credit has repeated the achievement for eight consecutive years. It was also awarded a 5-star airline rating at the 2019 APEX Awards. That same year, it also won the best in Central Asia for “Food, Drink and On-Board Entertainment Systems” from APEX.

Founded in September 2001 as a joint venture between Kazakhstan’s national

wealth fund, JSC Samruk-Kazyna, and BAE Systems, with respective shares of 51% and 49%, Air Astana’s first flight came in May 2002, with the introduction of the Almaty-Astana (Nur Sultan)-Almaty route. International flights followed four months later with an Almaty-Dubai-Almaty route.

In 2017, the airline’s Board of Directors approved a 10-year strategic plan (2017–2026) aimed at ushering in a new phase of growth. This involves plans to almost double its fleet size, which currently sits at 36 aircraft including Airbus A320 family aircraft and Boeing 767-300ERs and 757-200s to serve a more than twofold increase in passengers by 2026.

This expansion was kick-started with the delivery and introduction of five Embraer E190-E2 aircraft, which by the end of 2020 will replace Air Astana’s older Embraer E190s which have been in operation since 2011.

ADDING BITE

The airline’s first E2 and the first to be delivered to an airline in the CIS, entered commercial service from Astana to Almaty in December 2018, and is part of a leasing agreement signed with AerCap in 2017.

The “Snow Leopard” features 108 seats in a four abreast/two-by-two layout for more legroom and additional luggage storage space, and a portable wireless IFE system from



The newly designed business class on the new A321LR, features a variant of Thompson's Vantage seat with a more intuitive seat control mechanism; RAVE IFE and purple and white soft furnishings.





“

Air Astana has a clear edge when it comes to serving Kazakhstan and capturing the high growth markets that surround it.

”

and 150 seats in economy – the same configuration as our 757 which these aircraft are intended to replace.” The new Super Arrows will gradually replace the fleet of Boeing 757s, which have been in operation since 2003.

The average age of Air Astana’s fleet is currently 7.1 years, one of the lowest in the industry, and will fall even further to 4 years by 2021, once the 757s are pensioned off.

“We think this aircraft is going to be a very significant driver of change in Air Astana, because it will give us the flexibility with narrowbody economics to operate up to 7,000 km which represents a range of 7.5 hours flying. This covers almost our entire present network and most of the routes we have aspirations to fly in the coming years.” [New destinations under consideration include Shanghai, Singapore and Tokyo].

Expanding on the airline’s aspirations, Foster explained: “This aircraft gives us huge flexibility in terms of range and capacity because it is not too large and has terrific range. For example, we can deploy it to London, Frankfurt, Hong Kong, Kuala Lumpur, Bangkok and Paris [launching in June 2020], but we can equally deploy it on shorter routes where we can establish a massive competitive advantage, for example, Moscow. And it’s far better than anything the competition has got.”

In a nod to comments made by David Bourdages, Vice-President, In-Flight Service and Customer Experience at Canadian leisure airline Air Transat, who said at the time of delivery of its first A321LR in May 2019, “For many airlines, the A321LR is a ‘Goldilocks’ aircraft that is neither too big nor too small for many destinations,” Foster added steel to the compliment, “It’s a very powerful weapon for us. We’d call it a stiletto rather than a Goldilocks.”

Air Astana’s Business Class cabin compromises of five rows of an upgraded version of the lie-flat business class Thompson Vantage seat, the standard version of which flies on the carrier’s fleet of Boeing

767s. Four of the 16 seats, the so-called ‘Throne seats,’ offer additional personal space. Foster sees the Throne as a clearly chargeable opportunity, but only once passengers get used to the product, and even then, its ancillary potential may not be courted.

FAVOURITE VANTAGE

“It’s a more intuitive and much better developed version of what was already a very good seat of the original Vantage,” says Foster. On a tour of the interior, Margaret Phelan, the airline’s VP Inflight Services, expounded: “We have them on the 767s and we love the product which is why we decided to continue with this model. We worked very hard with Thompson and Airbus to really make the seat nice, because the seat is mainly used on widebody aircraft and this is a narrowbody. We took a lot of effort to make it comfortable.” A fact Air Astana’s Head of Engineering, who stands at over 2 metres (6.5 feet), can testify to.

Of the Throne, which Phelan calls a “completely superior product”, she points out the details which are sure to make it a must-have, such as the touchscreen remote control, mirror, water bottle, noise-cancelling headphones and ample stowage. “People like stuff around them – you can see what is in these pockets. It’s very functional,” she says.

The seats offer a new tray table, which is larger and wider and much more accessible, than previously. Says Foster: “The ergonomics are better. The seat controls are simpler and easier to use. It’s intuitive convenience.”

Speaking of the changes made to the Vantage seat, Phelan adds: “You want to appeal to the broader market... it was difficult to squeeze what was naturally a product for a widebody aircraft into a narrowbody and ensure the success of the flatbed concept. There is no point having it if people are cramped.” The efforts of Phelan and Yelena Obukhova, Director Inflight Product, have certainly paid off.

On the IFE front, Air Astana has continued its relationship with Safran Passenger

Bluebox, the first time long-standing customer Air Astana has deployed a wireless IFE solution.

Bluebox Wow was also deployed in business class on five Airbus A320s, replacing the 850 Bluebox Ai iPads previously offered to the airline’s premium passengers on its Airbus A320, A321, Boeing 757 and Embraer E190 aircraft.

The upgrade to Bluebox Hybrid gives passengers access to both pre-loaded early window content and additional streamed content. The devices also connect to existing fixed wireless systems deployed in the Air Astana fleet.

INTRODUCING THE SUPER ARROWS

But it’s the entry into service of the airline’s first of seven planned Airbus A321LR aircraft, affectionately known as ‘Super Arrows’ by Foster, which is set to shoot the airline’s status into a higher orbit.

Speaking to the media, including Inflight, at a ceremony held in the airline’s technical centre at Nursultan Nazarbayev International Airport in early September last year, Foster said: “For us, today is a hugely important day, and for the industry as well, in that we’re presenting the A321LR as the second airline to operate it. We’re the first airline to operate it with the configuration we’ve selected, namely – 16 flat-bed seats in business class



The 150-seat economy cabin features Recaro seating, each with individual 10-inch RAVE IFE screens.

“We do not believe there will be a 321LR with a similar level of product excellence in the market for some time.”

Solutions, installing the RAVE in-flight entertainment system, which is in common with all other Airbus and Boeing aircraft in the fleet. With individual 16-inch screens, these are larger than the 9.5 inch screens found in the business class of the 757, and offer an improved view of the huge mix of entertainment from the airline's KCTV library.

Working with Moscow-based content service provider Aerogroup, IFE is refreshed every two months, with Hollywood new releases refreshed on a monthly basis. Unusually for a CEO, Foster has a huge input into the content available. “We are proud of our extensive music library,” says Phelan. “Peter Foster is a huge music fan and a movie buff too. He has his own radio channel – Radio 502 – which plays 10 to 15 of his track choices. There is a specific reason behind each for picking them. He is very passionate about music.”

The 150 seats in economy class are courtesy of Recaro Aircraft Seating, who supplies seating for the A320. “It's a very comfortable seat and good for long-haul flights, with people of different heights,” says Phelan. “The slim seat has an upper literature rack which gives more knee space, and all have in-seat power, and in-seat IFE from RAVE,” on individual 10-inch screens.



Economy Sleeper in the dedicated and partitioned section in the front of the economy class cabin allows guests to sleep, by transforming with a mattress layer and a luxurious duvet and pillow set.



Interestingly, the A321LR has been provisioned with Wi-Fi but is not connected. In 2017, Air Astana became the first airline in the world to offer Inmarsat's GX Aviation to passengers onboard a widebody aircraft, after the service went live onboard the airline's initial Boeing 767. Air Astana selected the next-generation in-flight broadband solution through Inmarsat partner Collins Aerospace.

The service was rolled out across all its 767s, with passengers able to choose from three connectivity packages: The Light option covers 15 Mb, the Business option covers 50 Mb, and the Super option covers 100 Mb. All services are estimated to operate at an average speed of between 2-5 Mbps.

5-STAR INTERIOR

One of the most striking aspects of the A321LR is its interior. The design of the interior trim, curtains and seat covers for both business and economy classes have been developed internally by Obukhova and her team. The natural touches present a combination of elegance and sophistication that embraces a clear national identity, and complements the mood lighting.

“The LR takes the entire product of Air Astana to a completely different level,” says

Foster, “Because up to this point we've had the 767 operating as a well-regarded product – a flagship product. But we just have three of those. With seven LR, really that level of product is extended. Not just to the entire long-haul network but also to all the key regional-haul markets – Moscow, Beijing, Istanbul and Dubai. We are taking our flagship products, an upgraded version and putting it into all of our major international markets, so it really is taking the airline to a brand new level in terms of service. We are already 5-star but we are taking this to a much higher level with his product.

“We do not believe there will be a 321LR with a similar level of product excellence in the market for some time. In our opinion it is the best narrowbody premium product in the world today. It's only been flying for a week, but the initial reaction from our passengers who've flown it so far find it to massively exceed expectations in terms of service.

“It is very important to us. It's been a long time in the making – we signed off the agreement for these aircraft back in 2015 at the Paris Air Show. It's taken us four years to get them, but now we have them,” says Foster.

“We are proud to be a pioneer of this technology and proud to be a pioneer of Kazak aviation.” ■

CERTIFIED

Inverters
Converters
USB Charging Ports
Emergency Power Supplies
Lithium-ion Batteries

**TRUE BLUE[®]
POWER**

A division of Mid-Continent Instrument Co., Inc.



Happy pilots. Happy passengers.

There's an ongoing power struggle on most aircraft today — not enough power for all the electronic devices pilots and passengers bring on board. The solution is **True Blue Power[®]**. Our complete line of USB charging ports are available in a variety of mounting options and configurations, including USB-A, USB-C, and new ultra-fast charging USB-C PD units. These next generation in-seat, cabin, cockpit and galley power sources enable nonstop entertainment and business productivity on the fly.

They're all the power you need in a small, economical, easy-to-install package.

telephone +1 316 630 0101
toll free +1 800 821 1212
email tbp@mcico.com

truebluepowerusa.com



**ULTRA-FAST
CHARGING**
USB-PD POWER

USB POWER DELIVERY (PD)

60 WATTS PER PORT







Made with Love

Alexander Preston skips his lunch to visit Alpha LSG's Culinary Academy, near Heathrow, and meets its Michelin star Executive Chef, Kevin Love – A man tasked with creating dishes to delight our tastebuds in-flight.



Kevin Love: "You've got to be smart when developing menus, and think about how the food is going to look after being cooked and served onboard the aircraft."

Many airline passengers would probably find agreement with author E.M.Forster when he asserted that, "We do not demand good food in public, and when we eat upon an object that moves, such as a train or a boat, we expect, and generally get, absolute muck."

But times have changed and so have passenger's taste buds. As onboard catering technology has evolved so too have expectations and airlines have recognised that the in-flight food experience is a key factor in differentiating them from the crowd. As such carriers have been prompted into offering customers the same style of food found in a favourite café or restaurant, as part of multi-million-dollar investments in the overall customer experience.

So much so, that according to forecasts, the global in-flight catering service market size was worth over US\$18 billion in 2019 and is expected to surpass the \$24 billion mark by 2026.

One of the world's largest providers of in-flight catering and services is Alpha LSG, formed in 2012 as a 50/50 joint venture between the Alpha Flight Group (owned by

dnata – part of the Emirates Group) and LSG Sky Chefs (part of Lufthansa).

With combined revenues of over £290 million, the company employs around 3,500 people to provide in-flight catering, onboard retail and logistical services from facilities at 15 UK airports.

From these sites it produces over 30 million meals a year, serving more than 160,000 aircraft belonging to its 80 customers – a stellar roll call of award-winning airlines.

In the 2019 Skytrax World Airline league table, Alpha LSG caters four of the top five airlines: Singapore Airlines, Qatar Airlines, All Nippon Airways and Emirates. Of the other top 10 airlines, they also cater Eva Air and Hainan.

No wonder dnata recently agreed to purchase the remaining 50% of the joint venture, making it the sole shareholder.

But such performances cannot be maintained without the skills, dedication and passion of its workforce, and for Alpha LSG, the one behind the planning and execution of every cherry tomato, piece of braised beef or cheese sauce that finds its way onto a plane is Kevin Love, the Head of Culinary, who joined the business in June 2017.

LET'S INSPIRE YOUR PASSENGERS in a **WHOLE NEW WAY**



Best SONGS

Contact us:
Email: content@loveworldair.com
Website: www.loveworldair.com
Tel: +1 404-840-0021





Food for Flight: Alpha's Heathrow facility has a dedicated Halal kitchen and a Japanese and Asian kitchen, as well as a customer lounge.

FROM BLUMENTHAL TO HESTON

Love's office is the Culinary Academy, opened in 2013 and a core part of the company's £10 million Premium Kitchen facility at The Encompass Centre in Heston, Middlesex.

It's here, on a blustery late autumn day, that Love walks me through the impressive facility which has Heathrow's only dedicated Halal kitchen, a Japanese and Asian kitchen, as well as a Customer Lounge. And it's from here the Michelin Star chef heads up a talented group of development chefs, shaping the direction of culinary innovation both technically and inspirationally, all the while supporting the budgetary requirements of airline customers.

The classically trained Love came to in-flight catering relatively recently having had a distinguished career in hotels and restaurants in Spain and the Pyrenees, including the legendary three Michelin starred El Raco de can Fabes in the Montseny Hills north of Barcelona, and in the UK, where he worked with Gordon Ramsay and spent five years with Heston Blumenthal at the 15th century pub, The Hind's Head in Bray, during which time it received a Michelin Star and three AA Rosettes.

But it's his consultancy work with supermarket Lidl UK, with whom he

developed his own range of 30 products, 'Deluxe with Love', that has given him a working knowledge of food manufacture and the aptitude for the mechanics of in-flight catering.

Despite such a background, Love modestly admits he is still learning, but during his two years to date, he has already seen changes taking place in the airline catering market, and how the Cuisine Academy, is supporting this transformation.

IN COD WE TRUST

While the catering budget is often the first to be slashed in times of cost-cutting, Love says airlines now acknowledge and understand that catering is a critical factor to both brand perception and in the passenger's decision on which airline to fly with.

"We're seeing a leaning towards airlines turning to caterers to do their creative and development work," Love says, adding that airlines are putting greater trust in their catering supplier.

Such trust begins with recognising the effect that altitude and air pressure have on passenger's taste buds.

It's from this starting position that Love pays particular attention to flavour when drafting a menu, a task made easier by his time with celebrity British chef Heston Blumenthal, with whom Love researched and learned to play with ratios of flavour.

Whereas some would add salt to counteract the change in taste, Love prefers to use Umami, which doesn't dissipate with cabin pressure, cabin noise or other factors, and is found in foods such as kombu (a type of seaweed), anchovies, mushrooms, tomatoes, parmesan cheese etc.

"We make sure every element that's on the plate tastes the best it can taste, and that sauces don't congeal. All elements must taste good and taste good together," Love asserts.

So how is a menu designed? Love explains that an airline will send over a brief, which he and his team turn into potential menus.

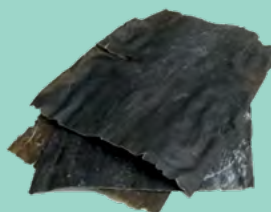
"We have an innovation table where we showcase the ideas we think fit the brief," says Love, who admits that the weights of each potential ingredient can be very prescriptive.

A PECK OF PICKLED PEPPER...

"A standard first class menu for example, may consist of a red meat dish, white meat dish, a fish and vegetarian dish. Typically, this will include a designated weight of say 120 g of

Umami – The 5th Taste

Often called the 5th taste, Umami is a subtle savoury taste, which blends well with other flavours. It is particularly prevalent in Japanese foods, such as kombu (seaweed), dried shitake mushrooms and soy sauce. Its active ingredient is Glutamic acid, one of the 20 amino acids necessary for good health. Umami compounds are present in all protein-rich foods, such as fish, meat, eggs, asparagus and cheese, and also in tomatoes and mushrooms. Umami-rich condiments have been in use around the world since ancient times and are still popular today – Soy sauce, Worcester sauce, tomato ketchup, Marmite etc. Unlike our other taste senses, Umami taste is largely unaffected by air travel. It may also explain why drinks like tomato juice and Bloody Mary cocktails are so popular in-flight.



Good taste team (right): Love and his cohort of fellow chefs at Alpha LSG's Culinary Academy. Some of the 40,000 dishes created every day for its airline customers.



“

In the 2019 Skytrax World Airline league table, Alpha LSG caters four of the top five airlines: Singapore Airlines, Qatar Airlines, All Nippon Airways and Emirates.

”

protein, 100 g of starch, 80 g vegetables 30 g of sauce etc, and you develop dishes from this,” he says. “We do amazingly well with such restrictions, and every airline is different and has different specifications.”

Any potential menu is sent to Alpha LSG's commercial team to be costed, and if it includes new ingredients it is also sent to the procurement team to source samples. To compile a detailed list of ingredients with their respective weights can take up to three days, Love explains, such is its granularity.

With the menu developed, Love and his team meet with the airline customer at Alpha LSG's dedicated Culinary Academy and Customer Suite located at Spitfire House on a meal presentation day where the new menu is served.

Although every airline has its own strategy of introducing new menus, catering is typically refreshed every six months for international flights, and domestically every three months. In 2018, Love oversaw more than 70 presentations.

Because passengers don't like to be faced with the same selection on their outbound flight as their inbound flight, or are keen to have foods associated with their point of departure, Love and his team will also provide some variance of the menu, which will take into account the route length and order of service for a day and/or night

flight, for all cabin classes. This, says Love, can mean up to six menus. For example main meal, light meal and breakfast and their reverse. The presentation day will also include menus for the crew and different menus for the pilot and first officer.

“You've got to be smart when developing menus,” says Love, “and think about how the food is going to look after being cooked and served onboard the aircraft.”

Part of this thought process is the crew brief, which Love and his team write to stipulate how long the foods should be cooked for, based on the aircraft's onboard ovens, as well as how the constituent parts, i.e. salad dressings, sauces, vegetables etc should be incorporated to make the final dish.

The brief also uses stage photographs to show, step by step, how to plate (foods may come in foils) and serve the meal. “Bear in mind we are dealing with cabin crew and not chefs,” says Love, highlighting the fact that passenger safety is always the crew's main priority, not necessarily the catering service. “They work in stressful conditions often with limited space, so we need to be aware of that and help them as best we can with our development,” adding his team strive to protect the menu against the working environment of an aircraft by having knowledge of how the aircraft is configured and the service routine of the crew.

PRACTICE MAKES PERFECT

The development process can be long, but Love and his team pay meticulous attention to all aspects, which begins with the questions: Is this a good robust dish? Can the chefs produce it in production? Does it look good? Will it hold well and will it regenerate well?

From the start, Love's team practice like the chefs in the kitchen. “We use the same ordering system; start with the same basket as those preparing the food. It's a real environment in which we try to create new things,” explains Love.

“You have to make sure you think about the chefs while making the menu,” he stresses. Having the development team and kitchen side by side in the same building, allows Love to support all involved as much as possible, especially when it comes to covers and the number of flights involved.

And here practice is key. “We carry out a ghost flight on all new menu start-ups where we analyse and look out and highlight potential issues, such as scaling up or evaporation for instance. We taste the food, and compare it to the presentation and recipe.”

“We collaborate together on these challenges,” says Love. “Consistency is key and is what we are always striving to deliver to our customers.” ■



Your Independent Aerospace Service Provider

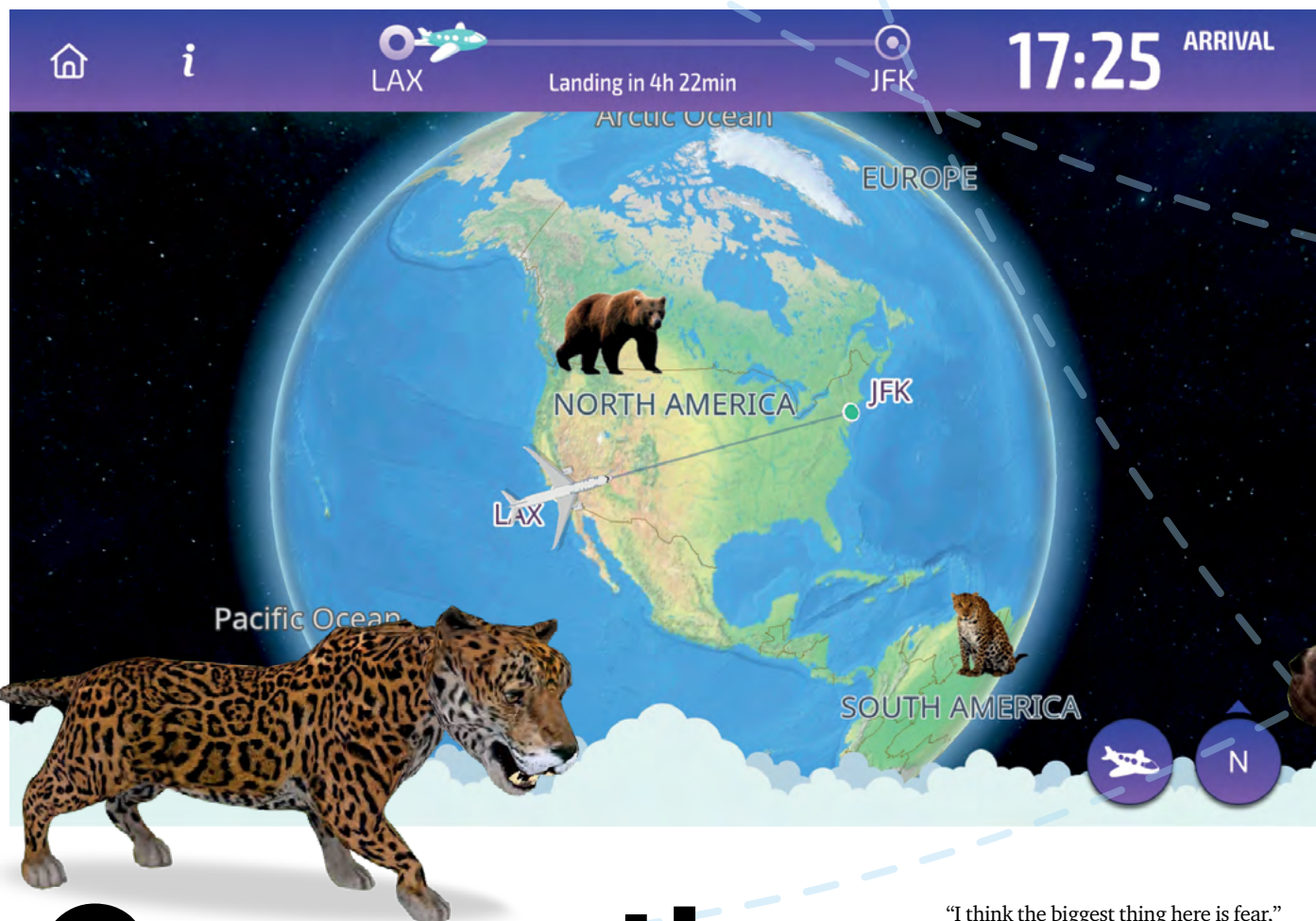


We are driven to exceed reliability expectations and keep your aircraft where they belong, in the sky. Our team engineer innovative and tailored solutions for a range of aircraft.

**Aircraft MRO | Component MRO | Exchange Programs
Parts Availability | Aircraft Modifications | Engineering Services**

Learn more:
www.fokkerservices.com
info.fokkerservices@fokker.com





Connecting the dots

The in-flight moving map has transformed over the years from a simple journey-tracker to a resource for rich content, entertainment and even education, particularly when it comes to catering for younger passengers. Kimberley Young tracks the pioneering suppliers that are mapping the way ahead.

As access to air travel has improved and become more affordable, it is now more commonplace for families to journey to far-flung places, keen to explore the world and learn from their experiences. It is also true that people appear to be travelling at a younger age than previous generations, with surveys suggesting the average British child goes on two overseas holidays each year, takes their first flight three times earlier than their

parents did, and will have travelled to four different countries by the age of 10.

Despite this, many parents worry about the journey, particularly how to keep youngsters entertained during the flight. Family travel company Tots to Travel found that 69% of parents (of under-fives) worry about the journey before they have even arrived at the airport, and almost a third would not consider flying for over three hours with their children.

"I think the biggest thing here is fear," Wendy Shand, founder of Tots to Travel, told Inflight, such as "fear of the unknown, of upsetting other passengers, or if their baby were to start crying. I think they also worry about being in a contained place for a prolonged period of time. Their normal strategies such as taking the kids to the park for some fresh air don't apply, so the stresses associated with flying can be profound!"

A well-stocked in-flight entertainment (IFE) channel for children could alleviate some of the pressure, but after several rounds of cartoons or fending off the dreaded question – "Are we there yet?" – parents might wish for a different activity to engage young travellers.

A WINDOW ON THE WORLD

First introduced on commercial airlines in 1982 (KLM and Swissair were the earliest of early adopters), the moving map offered passengers an opportunity to track their journey and understand more about their flight path.

The Airshow 100 system was launched by Airshow Inc (which later became part of Rockwell Collins – now known as Collins Aerospace). Derrick Parker, Principal



Helping to both entertain and educate children in-flight, FlightPath3D launched a themed map for kids in 2014, using animated 3D animals to bring the moving map to life.



“According to FlightPath3D, on one US domestic carrier 1 out of 7 passengers used the map to check points-of-interest (POIs).”

Program Manager at Collins Aerospace, explains: “In 1982, the moving map was a low-resolution, very basic picture of the world with a plane overlaid on the map. The map gave very basic inputs from the flight management system such as time to destination, altitude and ground speed.”

Of course, the technology has evolved, now providing detailed maps with multiple points of data. “Today a user can not only see the details of the map, but they can control the layers of information and use touchscreens to control where and what the map does,” says Parker.

Systems such as Airshow now offer points-of-interest that can be customised to an airline or turned off and on based on the end-user interaction with the map. Parker adds: “More recently, we have found the map being used as an educational tool as well. Kids use the map to see where a city is and find points-of-interest on the map.”

As well as an evolution in the appearance and content of the map, it seems the map is becoming a platform in itself, a trend Parker has identified across the consumer market, such as in how televisions are operating: “Applications are embedded into a larger ecosystem that act as one environment for the user. Airshow is similar in this aspect as it is just one application in a larger picture of

the user experience. It has hooks to fit into multiple ecosystems or can act as an independent system. This trend will continue and expand.”

INTERACTIVE LEARNING

Map provider FlightPath3D has offered a Kids Map since 2014. It features interactive 3D animals (the only one to do so, the company says) as well as geographical information and landmarks.

“The map remains the most watched piece of content displaying on any IFE system,” FlightPath3D’s Vice-President of Marketing, Jon Norris, explains. “The kids map development was sparked by our desire to provide rich and entertaining ‘geotainment’ content to children and to show how our platform can deliver both standard and customised themed-map services, using a similar content update process to that used to deliver movies, TV programming and music to IFE systems.”

The Kids Map is currently flying on a long list of airlines including Air Canada, El Al and Norwegian, to name just a few, and several new customers have also selected the map for deployment in early 2020.

“The volume of information displayed on the map has been simplified and optimised to aid children’s learning about different

countries, continents, their location relative to each other, large bodies of water (seas and oceans) as well as the animals of course,” Norris tells Inflight. “It really is all about entertaining and teaching children through play.”

The map is available on seatback IFE screens and FlightPath3D expects it is a service that children will likely “access intermittently throughout the flight” but could also find absorbing enough to hold their interest from take-off to landing.


Recent months have seen new entrants to the map market and discussions of new child-oriented map platforms. Norris comments: “We see that there are other providers launching a children’s map five years plus after we did, and I believe that this is just a delayed reaction to the growing need to provide a richer, deeper experience to all passengers, not just adults.

“In parallel, over the past 2–3 years there has been an exponential increase in location-based services, geo-tagging, experiential travel and social media-hyped locations that is driving an increasing appetite for map-based services.”

This boost in demand for location-based services could suggest why map providers are looking to meet new requirements from travellers, particularly as demographics evolve.

“

Interactive says, different



The map features a variety of animals including a koala, a polar bear, a rhinoceros, a giraffe, a crocodile, a hippopotamus, and an elephant. Cultural icons such as a djembe, a pyramid, a hot air balloon, and a hot air balloon are also present. The map is set against a blue background with white clouds.

To capture the imagination of younger passengers, Display Interactive offers bright images based on hand drawn illustrations as well as enabling airlines to tailor the map content through text, audio, images or games.

844 km to Brussels 1402 km total distance 10980 m altitude

26 / Inflight January/February 2020

IFE, CMS & COMMUNICATIONS

YOUR EXPERIENCE. YOUR AIRCRAFT.
OUR SOLUTION.



IDAIR



For more information about IDAIR, please visit www.idair.aero



GORE® Aerospace Cables

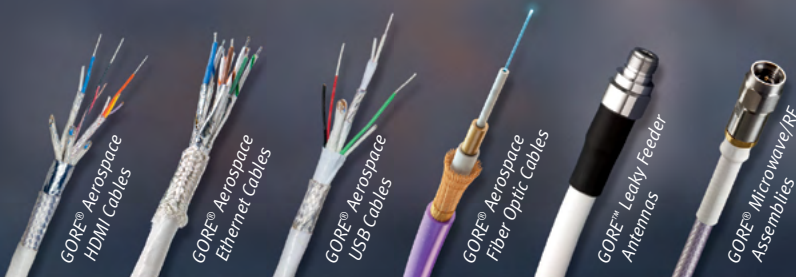


Take off and stay connected

Connectivity and In-Flight-Entertainment

GORE® Aerospace High Speed Data Cables keep passengers connected anytime, anywhere while traveling. Ensure they get the ultimate in-flight experience on their laptop, tablet or mobile phone no matter where they sit on a plane.

Passengers can watch movies and videos in ultra high definition, charge devices quickly and easily, conduct business online faster, and stay connected to family and friends in real time.



Panasonic and Toca Boca are exploring the creation of an in-flight map tailored for children, extending the current in-flight gaming partnership.

On the revenue side, creating space for advertising in a children's product is a careful balance requiring good judgment, and the company has been inspired by native advertising [non-disruptive sponsored content]. Advertisers could also completely customise the map and subjects of points-of-interest, sponsoring specific content, contests or games.

"We want this product to become a differentiator from one airline to another," the company says, working with each of the clients "to make sure that their own geotainment project with us is unique and remarkable for their specific audience."

EMBARKING ON NEW JOURNEYS

Panasonic announced its entry into the moving map market in 2019 with the Arc Inflight Map Platform, followed in September by the news that it had expanded its existing partnership with children's digital toy and game creators Toca Boca to evaluate the creation of an in-flight map for kids, utilising the Arc platform.

Jace Hieda, Product Marketing Manager for Panasonic, tells Inflight the idea for the Arc platform was inspired by what the company viewed as "limited choice in the

market that had been in existence for quite a while" along with the company's exploration of connectivity and advances in gaming and design.

Meanwhile, the 'youth experience' concept came out of a desire to "address and incorporate as much of our audience as we can," particularly inspired by trends in design, gaming and the idea of exploration.

While the concept is still in a developmental phase, Hieda says of the partnership with the toy creators: "I think that the cutting-edge interface, lack of reliance on words and making it language agnostic is a fun thread that Toca Boca brings that we can weave into the Arc platform."

The two companies are looking at creating engaging, educational experiences, he says, with one consideration being: "What if we could explore other worlds; take the flight path we're flying on and lay it against another planet or maybe the Earth as it was years ago?"

The Arc platform itself is set to take to the skies in June 2020, and it is expected that a future development or update to the system would see the youth experience built in. "The Arc map experience is one we hope



will be more than just 'open the map, close it and return to whatever you're doing', and so that idea of exploration appeals to more than just adults."

Arc will be designed to be omnichannel, feeding into the passenger's desire to use multiple devices at the same time.

For many professionals in this industry, it was an early experience of flying that inspired a career path into aviation. Could enhancing the moving map to further engage children help to capture the hearts of the next generation of aviators?

As Display Interactive's Vanuzzi tells Inflight: "The time when passengers passively watched a traditional moving map is over. With our positioning, those passengers pilot the map!" ■



'App-y travellers

Founded by two pilots who noted that their passengers were always interested in the countries they were flying over, the Inflightto app aims to provide real-time, live information for passengers interested in tracking their journey.

Inflightto says it provides information on all commercial airlines globally, providing live flight data including arrival times and gate numbers. The app also offers point-of-interest content, as well as features like live weather radar, marine tracking, natural event tracking and in-flight chat.

The aim to provide engaging information was particularly true for their own families, Inflightto director Chris Smyth tells Inflight: "We wanted to satisfy our own kids' natural curiosity and provide them with an educational experience while they were in the air and had a bird's-eye view of the landscape below. It makes it a more relevant and powerful learning experience."

The app is available for download, but the company also offers airlines the ability to plug the technology into their existing mobile apps via an SDK (software development kit) to provide a branded experience.

The app connects to in-flight WiFi systems onboard or is used with mobile data services on the ground and receives live updates, making it the only in-flight moving map app that provides real-time, live information, the company says.

"We wanted to create apps because we want passengers to engage on a platform they are familiar with," Smyth says. "This is especially true for children as they know how to use a familiar device and can access it easily in-flight, while most kids can't reach seatback screens installed on aircraft which obviously limits interactivity."



Successfully targeted advertising must be the right campaign served at the right moment to the right people with the right message.



Going native

In search of more ancillary revenues, airlines are turning slowly to advertising, says Kathryn B. Creedy.

Advertisers have always regarded the business traveller with the admiring eye of the savant or collector of fine art; coveted for their buying power and the potential for making commercial whoopee while they are comfortably ensconced in the front of an aircraft. However, excepting the paid-for pages within in-flight magazines, airlines have not taken advantage of this promising source of revenue.

But it seems the times they are a-changing: airlines are becoming increasingly aware of the potential hidden in advertising within video content and in-flight apps. They are recognising the value embedded in the information shared by passengers, such as meal preferences, and the opportunity such information presents for targeted digital

native advertising. Nevertheless, in the main, airlines are just not there yet.

Historically, airlines around the world have run their own advertisements onboard – house ads for their own travel services or upselling to passengers – but today, significantly, they are working with third parties skilled in both advertising and onboard service delivery to increase and improve the ads passengers see.

PRIZE ON THE EYES

Today, as airlines begin to leverage those passenger eyeballs for their bottom line, they are moving beyond print to Wi-Fi, IFE systems, games, apps and in-seat power solutions. But, according to industry experts, problems remain in realising the full potential.

“Airlines personally do not directly book the onboard advertising,” says Global Eagle’s Vice-President of Advertising, Sponsorship and Partner Marketing, Kimberly Creaven, who also chairs the APEX Ancillary Revenue Committee. “Some outsource advertising to companies like Global Eagle because we have existing relationships with ad agencies who want to target professional business travellers. Our go-to-market strategy is to represent the airlines, tell their story and sell their brand and audience.”

The first step for airlines, she explains, is sitting down with the in-flight and marketing teams to establish how much advertising they want to display. Global Eagle then develops recommendations on what and when to advertise. “We always suggest IAB- [The Interactive Advertising Bureau] spec banners for Wi-Fi portals or airline apps, websites and digital landing pages,” she says. “Another

desired ad placement is forced roadblocks and pre-roll advertisements before movies and TV shows.”

MINE THE GAP

“Digital in-flight advertising is fairly popular among the US, European and the Middle East carriers,” adds Creaven. “Digital media assets allow for more upselling and cross selling for the airlines and it contributes to the ancillary revenue targets. Advertising is an additional enhancement to that experience. South America and Asia are still heavy on the print side. Some airlines do a great job of upselling and cross-selling. Others don’t do it much because they don’t have the product or they don’t have the resources to do it. Some airlines try in-house advertising sales, although it is not as successful as working with third parties like Global Eagle, who have a full understanding of both the content and airline worlds, including advertising. The larger/legacy carriers tend to have more resources and tend to do a good job at ancillary revenue sales.”

Quantifying airline ad revenues can be difficult, according to Creaven. “Right now, it is estimated advertising delivers US\$200 million to airlines, half of which is in print placements,” she says. “More comes from hotel or credit card partnerships which place ads as part of the partnership or revenue-share agreements but there is no way to quantify that. But the total worldwide digital advertising spend is \$600 billion. So, airline advertising revenues are very small compared to total digital spend. Our team thinks airlines could realise a 40% to 50% increase over the next five years with digital enhancements such as shortened lead times, better reporting and increased targeting.”

Creaven also says the products advertised are, unsurprisingly, luxury goods such as cars, watches, consulting and financial services, among other things, although airlines tend to stay away from alcohol, tobacco and gambling. She indicates that a general rule of thumb is that the bigger, legacy airlines will get a larger market share owing to their larger, professional and loyal passengers.

David Pook, Vice-President of Marketing at in-flight solutions provider Burrana, agrees. The most common ad types are for large global brands, such as financial services or

“

Total worldwide digital advertising spend is \$600 billion. So, airline advertising revenues [at \$200 million*] are very small compared to total digital spend.

*Including print advertising

”

luxury goods, or for region-specific real estate investment opportunities.

“Airlines that have well-established credit card programmes will also commonly promote them via the in-seat IFE platforms,” says Pook. “Yes, these are all current examples of in-flight advertising. Common among these examples is that they are not time sensitive or event/opportunity specific. In-flight advertising is brand focused rather than transactional in nature. The advent of connectivity and ad serving solutions that allow for the advertising to be managed independently of the content support a wider variety of advertisers and introduce the capability for transactions to accompany and complement the ad campaigns. This is where the real lift in ancillary revenue will come from.”

HELP ME TO HELP YOU

Creaven adds: “Advertising needs to work for both advertisers and the airline. The bigger and more international airlines will attract global brands.”

In light of this fact, she stresses that airlines need to do more to attract advertisers. “There are some pain points in advertising on

airlines,” she says. “A few include long lead times, little to no reporting and very little targeting. Digital lead times could be anywhere between one-to-five days while airline lead times for IFE systems is 45- to 60-days. That is something that needs to be fixed and that will happen in the future as airlines either update their IFE software or invest in new planes or seats and Wi-Fi portals. They also could develop more targeting capabilities to capture passenger data but that is hard with some of the old systems. Some airlines are starting to do it with their newer planes but they are grappling with privacy issues. Airlines aren’t convinced they want to release demographic data to advertisers. Privacy and loyalty programmes are very coveted.”

Burrana notes that performance reporting is typically achieved by correlating the movie viewing statistics to ad views. But the company agrees current IFE constraints are hampering expansion of advertising on airlines.

“Increased advertising revenue will largely come through opening the IFE platforms to a broader market of potential advertisers by reducing ad preparation lead times,






DIEHL
Aviation

WE ARE PRACTITIONERS OF PERFECTION.

Climbing higher. Together.

In hardly any other industry is perfection as important as it is in aerospace. This is why we are so meticulous when it comes to further optimizing our above-average solutions. We are always on the look-out for the opportunity to improve, even critically appraising our own products, and dare to change. Precisely what we are doing alongside with our customers for our joint success.

www.diehl.com/aviation



Visit our
Booth 1510
at the
MRO Middle East
2020

providing for targeted/personalised ads and delivering meaningful performance reporting that advertisers and agencies can plug into their current ROI models,” says Pook. “Reducing the traditional constraints surrounding in-flight advertising will broaden the market base and ultimately create competition for the finite ad inventory available. This will drive up the value and price of this limited inventory.”

CHARGING AHEAD

One clever concept currently creating a buzz for airlines and advertisers is IFPL’s AdPower in-seat power system. It’s programmed to sell advertising via a passenger’s own device when he or she plugs in to charge it up. IFPL’s customers – airlines and OEMs – can integrate the solution into their apps, and IFPL is actively discussing advertising opportunities using the system with a number of interested airlines, seeking to reap the revenue potential from passengers keen to alleviate the stress of battery anxiety. It is also an innovative way to provide passengers with in-seat USB power that can be monetised.

“IFPL provides the AdPower interface which allows the airline to customise its app to enable advertising through the AdPower software,” IFPL Marketing Executive Jason Davies tells Inflight. “This software is managed by the airline working with its media partners for content delivery. The passenger manages their preferences using the airline app on their device. Alternatively,

if airlines would prefer passengers to pay, then this option can be enabled.

“Therefore, onboard USB power solves the battery anxiety issue,” he continues. “But it really depends on the airline’s advertising preferences. The airline can promote its own products and services or those of its brand partners. In addition, IFPL Personalisation could be achieved by the airline and media provider working together, so that the passenger would be able to view personalised adverts.”

Much of her job, says Creaven, is educating airlines about how advertising revenue works and how to monetise digital media assets.

“We’d like to see airlines planning proactively with advertising options as opposed to being reactive when it comes to technology investments like new seats, new screens and Wi-Fi portals,” she says. “We want to ensure that before the digital technology is developed, they are not just programmed to air movies and content but are programmed to air advertising and options for curated paid-content. Today, it seems to be a reactive decision, which then becomes more costly to try to update.”

Global Eagle is now exploring programmatic advertising which refers to the use of software to trade digital advertising. It allows advertisers to better plan, optimise and target their advertising and allows publishers (in this case airlines) an efficient and automated way to sell their inventory at the highest price and volume.

BE IN IT TO WIN IT

Creaven believes such advertising is fantastic and works. For airlines, however, it is stymied by the pain points including the lack of targeting from airlines who protect their audience from third-party messaging. The second pain point is airline approval.

“Airlines are not totally sold on this media,” she says. “In true programmatic buying, it’s instant buying and instant placement. In the airline world, nothing can happen instantly. We need airline approval on every ad and that can take anywhere from three to 10 days! They need approval from multiple teams. We also need to program the software to not sell and display certain categories like transportation, competitors to their loyalty partners, firearms, tobacco, alcohol, gaming, etc. I am testing programmatic in a few of my media outlets, but it’s more of a delayed buy and it’s in the private market segment, not the open market.”

It is clear airlines are starting to dip their toes into the advertising revenue stream but are far from jumping in with both feet. It is also apparent that the biggest problem is the airlines themselves. After a decade of talking personalisation, the availability of dozens of travel-related apps designed to increase revenues beyond the seat and baggage buckets, the industry’s plodding pace is blocking their ability to realise the vast potential of new revenue sources. ■



Inflight entertainment systems, whether wireless or seatback, provide an advertising platform for brands to target passengers, with models ranging from channel sponsorship to branded content.



INNOVATION AT STARTS WITH

Some companies start with a contract. We start with eye contact.

In a world of mega-mergers, a simple conversation isn't always that simple anymore. That's why Astronics takes a down-to-earth approach that invites collaboration. It's a process that accelerates the innovation of technology systems that integrate seamlessly with your aircraft. Ready to work differently? Your seat is waiting.

POWER | CONNECTIVITY | LIGHTING | INTERIORS | SERVICES | TEST

ASTRONICS

30,000 FEET

A CONVERSATION AT 30 INCHES



ELEVATING *innovation*

Let's start the conversation. **AIX 3B30**

[Astronics.com/Partner](https://astronics.com/Partner)

It's all academic

American ultra-low-cost carrier Spirit has 'ditched the pitch' with its new economy class seating, but what exactly is pitch? Henry Canada talks to the bright sparks behind a revolution in seating design.

Aircraft seating sales, both line-fit and retrofit, will reach US\$13.4 billion by 2026, up from \$7.7 billion in 2018, according to the consultancy Fortune Business Insights. This is a big market, getting much bigger, and also facing increasing demand for comfort from passengers while airlines, especially low-fare carriers, try to squeeze more revenue from the cabin.

With so much concern over tight cabin spaces, it should not be a surprise that academic and other researchers are getting interested in passenger seats. Nor is it a surprise that airlines and seat manufacturers are tapping researcher's wisdom in designing new seats and arranging cabin layouts.

Airlines already knew from booking data one recent research result: when given a choice, passengers choose seats located on the right side. A University of Edinburgh-Queen Margaret University study found the right side was preferred no matter how seating layout is shown on a website screen. And of course, passengers like front seats to disembark quickly and prefer window or aisle seats, one reason middle seats are often about an inch wider than their neighbours.

More surprising is what Spirit Airlines learned when it asked the UK's Chartered Institute of Ergonomics and Human Factors (CIEHF) to study the ergonomics and comfort of new seats created by Acro Aircraft Seating. The goal was to prove that pitch, the distance from a point on one seat to the same point on the seat ahead – a conventional measure of legroom and comfort – is not all that it's cracked up to be.

IMPERFECT PITCH

CIEHF found pitch is an outdated metric that does not consider key factors such as back curvature, seat width, cushion thickness and usable space. Spirit Airlines' new Acro seats, with curved backs and more legroom, were designed to provide comfortable seating for at least 20% more of the passengers onboard, compared with standard a flat-back seats.

CIEHF studied two rows of three seats arranged with a 28-inch pitch configuration. Each seat was Acro's extra-spatial series 6LC seat with a back curved in two dimensions, horizontally and vertically. This curvature creates two inches more space for knees when lower legs are extended, thus accommodating

males beyond the 92nd-percentile in leg length, or up to six-feet, four-inches in height. The CIEHF researchers argued this would benefit about a fifth more passengers who positioned their knees at seat height. And since tall men shift knees to use available space under the seat in front of them, even more passengers might benefit.

Further, CIEHF found more freedom to move legs and feet enabled more variation in all passengers' posture in-flight, adding to comfort over time and countering leg thrombosis. The Acro 6LC also puts the literature pocket above the seatback table, freeing up more space.

So the new and better comfort metric is not simple pitch, but what CIEHF calls 'usable legroom'. This is the distance from the centre of the back of the seat cushion to the outer edges of the seat in front. CIEHF found this metric closely approximates the buttock-to-knee length that drives knee clearance, a big determinant of seat comfort. And this metric can be applied to all types of aircraft seats to understand the



Spirit's updated Big Front Seat features a new ergonomically improved headrest with plush memory foam, additional memory foam in the seat cushion for comfort and thigh support.

ESSENZA

Essentially: class!

*Geven's latest response to the newest quirks of
high density comfort seating.
Light and tight - Essenza's little body is all that
you need to carry passengers in comfort inspite
of the smaller pitches.*

*Essential in design, but substantial in reliability.
Conceived for the short haul - its life cycle is
one you can count on for the long haul.*

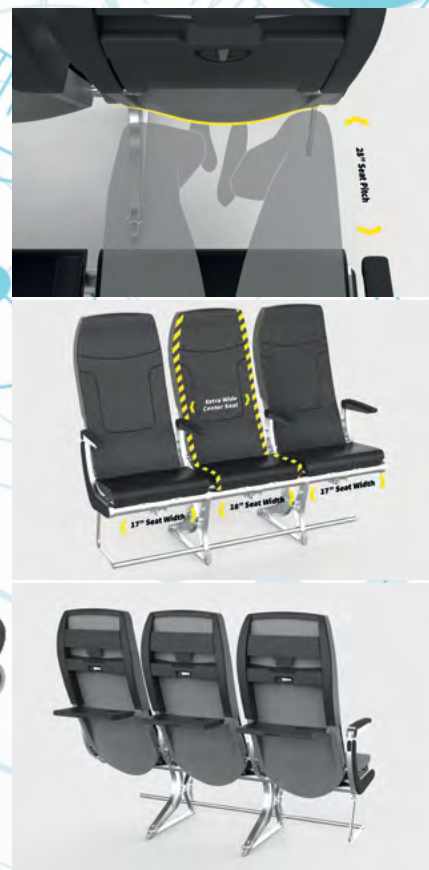



Geven

Fly beyond expectations

www.geven.com

The curved back seat unlocks more usable legroom not available with standard flatback designs. Spirit found that the new design accommodates tall passengers (up to 6'4") comfortably without changing the pitch.



comfort yielded by seat design, width and row spacing.

"We set out to challenge the status quo," summarises Acro Head of Marketing, Rachel Barnett. "We believe that seats can't be comfortable, only people can, and comfort is found in the space." Acro thus sought to maximise space opportunities overlooked by traditional seating. "Our approach optimises hidden dimensions," Barnett explains.

The company says the 6LC is easy to maintain, limiting cost of ownership. Aesthetically, the seats are like contemporary furniture, sleek and minimalist.

Al Roots, Acro's Head of Industrial Design, says ergonomics affect many aspects of seat design, including seat pan heights, seat heights, cushion thickness, backrest length, head support, armrest heights and lengths, table heights and reach. "We also have to factor in additional challenges which are unique to aircraft interiors, such as head injury criteria and dynamic testing."

And trade-offs abound. "In economy seating the seat pan height, cushion thickness, foot clearance and under-seat baggage requirements are all closely linked," Roots notes. "If we reduce the cushion height,

"We believe that seats can't be comfortable, only people can, and comfort is found in the space."

then cushion thickness, foot space or baggage capacity are reduced."

Seats with in-flight entertainment also add challenges. Direct-view requirements can limit seatback height. IFE screen size can compromise table size and type, whether single leaf or bi-fold, and table position relative to the passenger.

Furthermore, Roots says short-haul seats without an adjustable headrest may compromise head support. "And arm rest length on short-haul seats tends to be shorter than the ergonomic optimum to reduce weight and aid faster turnaround between flights."

Long-haul armrests tend to be longer.

In November 2019, the new Acro seats began rolling out across Spirit's fleet with the carrier's new Airbus deliveries and will continue through 2020. In addition to the critical curved seatback, the 6LCs have a wider middle row, thicker padding, and an inch more of pre-recline in exit-row seats than current economy seats.

Apart from new economy seats, Spirit is also enhancing its so-called Big Front Seats with a better headrest and memory foam, more memory foam on the cushion for comfort and aesthetic improvements. These roomy front seats have helped make Spirit a global leader in ancillary revenue.

Acro is not alone in tapping academic seat expertise. Safran Seats is actively involved with several universities on seat projects, notes its Advanced Concept Manager Arthur Glain. "We have an extensive relationship with TU Delft regarding aircraft seat design based on human factors and ergonomic studies," Glain says.

Every year Safran launches a university partnership with one of the top Paris-based design schools, such as the École Nationale Supérieure de Création Industrielle (ENSCI)

“Seat cushions are shaped to fit most body types, features are located to enhance passenger and crew accessibility and business class seats are designed to offer comfort positions such as the zero-gravity relax mode.”

or the Strate School of Design, focusing on improving passenger experience in either business or economy.

Safran has a strong relationship with the University of South Wales in Cardiff, with which it makes low-fidelity prototypes to validate posture and space early in product development. In addition, the Welsh school studies technologies to improve passenger experience. Finally, Safran's facility in Chihuahua, Mexico, works with the University of Monterrey on long-term studies of new technologies.

COMFORT ZONE

Safran's primary ergonomic goal in designing seats is straightforward, Glain explains. “We need our passengers to feel comfortable for the whole duration of their

journeys.” For long-haul flights, that ideally means all feel at ease for 20 hours, even at the back of the plane. For practical purposes, Safran follows standard human-factor guidelines and focuses on people whose dimensions fall between 5% and 95% of the population.

In addition to comfort, Safran emphasises accessibility. This includes accessing the seat itself, “what we call egressing,” Glain says, as well as an intuitive feel for every seat feature. Lastly, the OEM aims for emotional comfort, making sure passengers feel safe, relaxed and secure in their privacy.

These considerations have several implications: seat cushions are shaped to fit most body types, features are located to enhance passenger and crew accessibility and business class seats are designed to offer

comfort positions such as the zero-gravity relax mode.

Passenger seat preferences can also influence Safran seats. “For instance, knowing that passengers tend to prefer window seats, we try give a little extra to the passenger without windows,” Glain says.

The main trade-off in meeting these goals is weight. “Weight has a massive influence on total cost of seat ownership,” Glain explains. Safran is constantly seeking the right balance of weight and seat comfort. “For instance, reducing cushion thickness may save weight but compromises comfort after a few hours.”

Oliver Forgatsch, Head of Ergonomics, Design and Prototyping at Recaro, agrees that seat ergonomics are both crucial and tricky. One design objective is providing sufficient space to accommodate all seating positions for in-flight tasks such as dining, working, relaxing and sleeping, and ensuring the passenger does not feel cramped. In addition, aircraft seats should enable a relaxed body position to ensure low muscle tension and good distribution of pressure in all support areas, such as buttocks, thighs, back and neck.

These considerations set the seat's anthropometric requirements for height, backrest angle and armrest height. And seats should provide comfortable body support when moving between positions, for example, as a business class passenger moves from a dining position to a horizontal full-flatbed position.

“These requirements influence even the structure of the seat,” Forgatsch adds. “Soft parts are important for direct contact with the seat and influence the pressure distribution and perceived quality of the seats.”

SPACE JAM

Yet, all these objectives must be pursued while recognising important trade-offs, including restrictions on space, weight and costs, as well as certification requirements such as dynamic testing and fire, smoke and toxicity standards that limit material choices.

The Recaro executive says his company's CL3710 is the most successful long-range, economy class seat because it has well-balanced comfort features. The seat-pan shape is both ergonomic and light, the front edge is flexible to release pressure on stretched legs. And the CL3710's suspension

Safran has established relationships with academic institutions around the globe to help influence its seating designs.



Recaro's CL3710 and CL6710 seat (far right) which features an extended seat bottom that increases the size of the seating surface to support upper and parts of lower legs and reduces pressure points.



system provides good local support for the lower back and is flexible in the shoulder area. Finally, soft silicon arm caps provide comfortable arm support.

Recaro's latest business class seat, the CL6710 NG, offers seat kinematics with the

most relaxing seat angles in different seating positions, Forgatsch says. Ergonomic kinematics provide very high sleeping comfort, especially for hips, which can sink in, while offering natural spine support. A six-way headrest supports head and neck

relaxing positions. Both the CL3710 and CL6710 NG were introduced at AIX 2019 in Hamburg. Forgatsch says carriers are highly interested, and five-star airlines are especially interested in the CL3710 economy seat. ■

IFPL

DELIVERING AN OUTSTANDING PASSENGER EXPERIENCE TOGETHER

SEE
IFPL AT
AIX 2020
STAND #4B20

INTEGRATED SEAT POWER



- Complements the seat design language
- Ergonomic positioning of peripheral
- Removes complexity and cost
- Fewer components delivering lighter seats

USB POWER



- Allows passengers to use USB-A & C devices
- Supports PED and tablet charging
- Upgrade to USB-C using existing on-board IFEC or power system

UNIVERSAL POWER OUTLET



- Designed to accept a broad range of worldwide consumer plugs
- Provides 110V AC power, enabling passengers to use and charge their electronic devices
- Multiple safety features to ensure safe operation

T: +44 (0)1983 555900

IFPL.COM

E: innovate@ifpl.com

2020 INFOCUS Safety & Security

Brought to you by the team behind LARA, Inflight, Regional Gateway and RotorHub, Infocus puts one of the year's most pertinent aviation topics under the microscope.

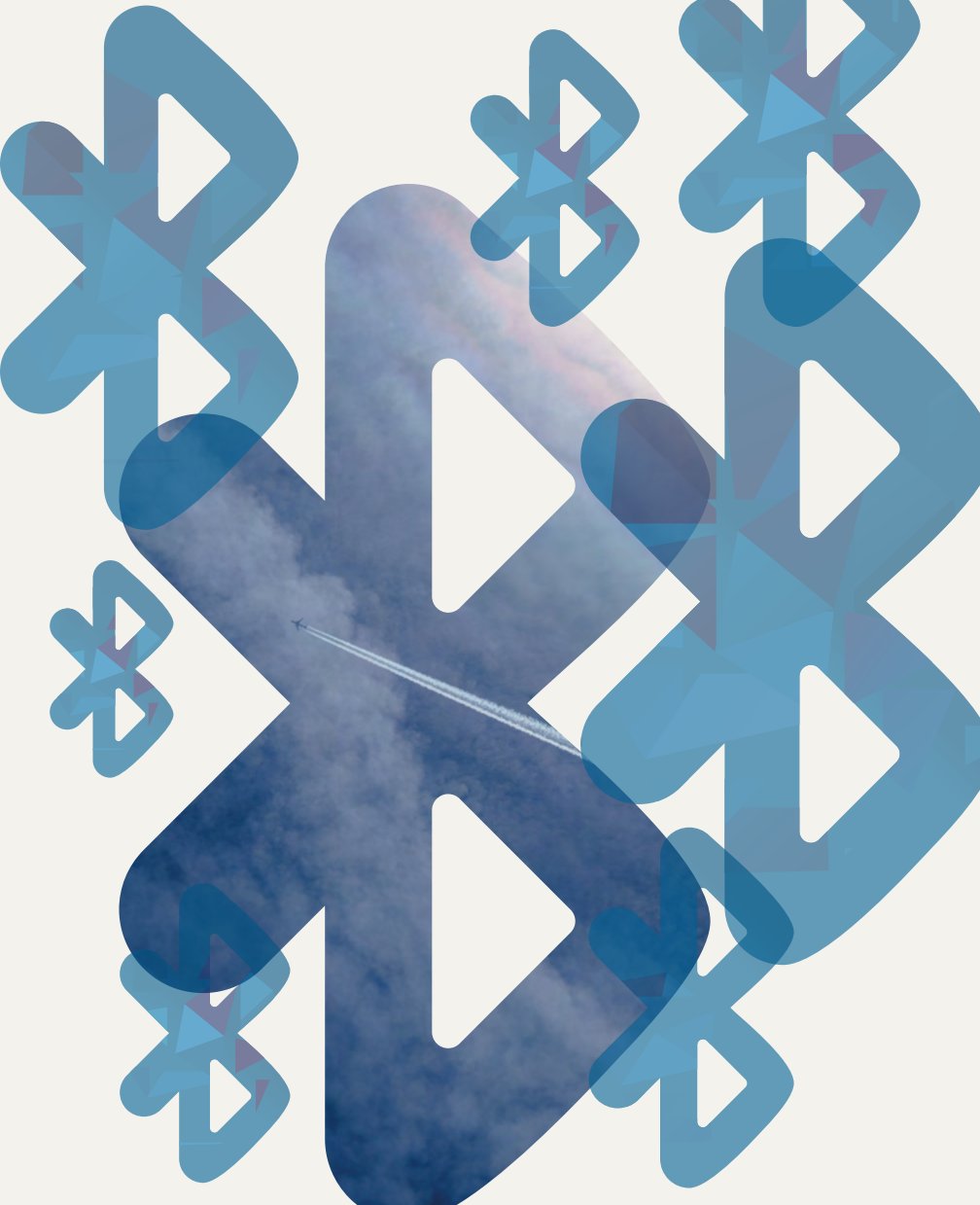
In 2020, Infocus Safety & Security will provide a highly targeted platform for companies looking to showcase their products, services and latest innovations. Bring your company into focus through a tailored editorial and marketing package which will reach upwards of 12,000 senior aviation executives actively involved with landside, airside and in-flight safety and security.

#infocusaero

Enquire now for more information:
toby@hmgaerospace.com or
janine@hmgaerospace.com

Published by:

HMgaerospace



For the present and future of the aircraft interior, turn to Silicon Valley, where the crux of change lies with Wi-Fi.

In-flight Wi-Fi is demanded by more and more passengers, and there are a host of suppliers vying to dominate the space. The pervasiveness of Wi-Fi is forever changing the airplane interior, opening up new possibilities for a wide range of aircraft products in the passenger cabin and the pilot cockpit. Interconnectivity is the name of the game.

Which begs the question: where does Bluetooth fit in all of this? Bluetooth is the gold standard for short-range wireless interconnection of mobile phones, computers, and other electronic devices. Bluetooth banished the cumbersome wires that once connected devices to people or other devices.

More and more airline passengers now travel with Bluetooth headphones. They can use them with their own devices, but they're not compatible with airline in-flight entertainment (IFE) systems.

The airline industry's argument against enabling Bluetooth has hinged on limited radio frequency spectrum available in the cabin. But Bluetooth/IFE incompatibility is becoming an obsolete dichotomy.

THE NEXT WAVE OF TECH CHANGE

The automobile, airplane and telephone of the early 20th century revolutionised society, shrinking distances and speeding up life. The personal computer, smartphone and Internet represent another wave of profound change.

Welcome to the next wave: the Internet of Things (IoT), with Bluetooth as the infrastructure.

IoT devices exchange information with each other via a central server, without a human being as intermediary. They use sensors to communicate actionable data, such as fuel levels, inventory capacities or room temperatures, through a wired or wireless network to a software application.

IoT is giving birth to driverless cars, self-calibrating medical devices, and smart homes, among other things. IoT also automates the delivery of services and billing, supply chains, and warehouses.

IoT is already transforming the aviation world, by interconnecting pilots, passengers, mechanics, air traffic control, and airports.

Bluetooth skies ahead?

John Persinos looks at the latest developments and rules governing the use of Bluetooth, from the perspective of passengers as well as pilots.

From Viking kings to PAN – a potted mythology of Bluetooth

Bluetooth is a Wireless Technology Standard, so needs both a hardware and software component. The hardware sends the necessary signal via radio frequency, and the software determines what's sent over that signal and how it's interpreted...

...This means that to use Bluetooth, the software must be **universally accepted** across all devices (hence, “standard”), otherwise they wouldn't be able to communicate...

...The standard is managed by the Bluetooth Special Interest Group (SIG), but Bluetooth SIG didn't choose the name, instead, the name was proposed by Intel engineer **Jim Kardach** in 1997 after he read a book on the Vikings...

...Bluetooth was named after a 10th century Viking king, **Harald Gormsson**, who was nicknamed Blåtand – Bluetooth – after his legendary penchant for eating **blueberries** or his poor dental hygiene. His real claim to fame, however, was in uniting all of Scandinavia and converting the Danes to Christianity. It was this **ability to create connection** between his people that led to Bluetooth being adopted as the name for the wireless communication standard. The Bluetooth logo is a combination of King Bluetooth's initials in Scandinavian runes: **ᚱ** and **ᚷ**... The original name chosen for the standard was **PAN** (Personal Area Networking) which was preferred by the project's developers at **IBM, Intel, Ericsson** and **Nokia**. However, the name ran into problems due to SEO complexities and potential trademark difficulties, so Bluetooth, the official codename, was adopted.



Bluetooth is an increasingly important piece of this puzzle.

For some passengers, flying can be a dull experience, which makes them all the more eager for access to the remote devices that allow them to work or get entertained. Many of these devices, such as wireless earbuds, smart watches and wireless keyboards, depend on Bluetooth.

After months of study and industry feedback, the US Federal Aviation Administration (FAA) in 2013 gave the green light for airplane passengers to use Bluetooth-enabled devices in flight. The FAA gave each airline the discretion to set its own rules regarding Bluetooth use; most airlines freely allow it during flight.

According to an official statement from the FAA: “The Personal Electronic Device (PED) Aviation Rulemaking Committee (ARC) concluded most commercial airplanes can tolerate radio interference signals from PEDs. In a recent report, they recommended that the FAA provide airlines with new procedures to assess if their airplanes can tolerate radio interference from PEDs. Once an airline verifies the tolerance of its fleet, it can allow passengers to use handheld, lightweight electronic devices – such as tablets, e-readers, and smartphones – at all altitudes. In rare instances of low-visibility, the crew will instruct passengers to turn off their devices during landing. The group also recommended that heavier devices should be safely stowed under seats or in overhead bins during take-off and landing.”

THE FLYING OFFICE

Many of us are addicted to our high-tech gadgets. We crave instant gratification. We want to watch any movie, or listen to any song, or play any video game, anywhere and on-demand. The aircraft interior is becoming a flying office, a flying home, and a flying entertainment centre. Being unavailable

en-route is no longer a valid excuse. The aircraft interior of today is equipped to provide levels of in-flight connectivity once considered impractical.

Passengers can now perform everything from simple email exchanges to high-bandwidth computational tasks.

Airlines are smart enough to know all this. Airlines would lose business if they compelled passengers to stow their beloved devices under the seats or in the overhead bin.

BLUETOOTH-FRIENDLY

Rules regarding Bluetooth vary, depending on the airline. Southwest, JetBlue, and Delta inform travellers that they can use wireless accessories like Bluetooth headphones and keyboards during flight, but any cellular service must be deactivated. However, Bluetooth devices that connect to a tablet or laptop must be stowed and turned off during take-off and landing.

British Airways allows passengers to use Bluetooth devices during flight but not during taxiing, take-off or landing. Air Canada allows Bluetooth headphones, but only once the plane has reached at least 10,000 feet and only if the battery is removable. Air Canada doesn't allow the use of a wireless mouse. Interestingly, Lufthansa allows travellers to use Bluetooth headphones during the entire flight, including take-off and landing.

Due to the enhanced security concerns of Middle Eastern countries, Emirates and Qatar Airlines don't permit wireless earbuds for passengers travelling to the US.

The official international rule is that you can't use any Bluetooth-enabled devices that are larger than a smartphone and that can't function in “airplane mode” during flight.

Regardless of the different specifics, one constant runs through all the rules regarding Bluetooth: the use of cellular data is still forbidden. Passengers must switch to

“ Seatback IFE is expensive and heavy, so if there is a way to offer IFE via Wi-Fi and without that hardware, airlines are keen to do it. ”

airplane mode when using Bluetooth devices and their connected gadgets.

If the airplane has a Wi-Fi connection installed, you can connect to it, but passengers must first confirm if the airline allows it.

But here's a key point: Bluetooth-enabled gadgets and headphones can't be connected to the airplane's IFE. That's because an IFE must run on its own standard, whereas a cabin will be home to many disparate Bluetooth systems.

Bluetooth incompatibility with IFE is becoming a moot point. Evolving technology is changing the equation.

People want to do things on the airplane similar to what they can do at home. Chief among them is streaming Netflix or similar video services.

Accordingly, some carriers are boosting their bandwidth capacity to allow the elimination of seatback IFE. The goal is to migrate towards a Bring Your Own Device (BYOD) streaming entertainment model.

American Airlines, for example, is phasing out seatback screens on its new aircraft. The airline offers ViaSat's high-speed Wi-Fi instead, which also powers JetBlue's Fly-Fi in-flight connectivity. ViaSat has sufficient capacity for passengers to support video streaming.

Seatback IFE is expensive and heavy, so if there is a way to offer IFE via Wi-Fi and without that hardware, airlines are keen to do it. And for most airlines, Bluetooth is compatible and allowed with airplane Wi-Fi.

THE PILOT'S PERSPECTIVE

Private pilots have unlimited ability to use Bluetooth. What they do in the cabin of their own airplane, regarding private Bluetooth use, is up to them. Many pilots connect their headsets wirelessly to various devices by using Bluetooth, especially their smartphones.

Bluetooth technology allows them to receive phone calls, listen to music, or even receive crucial audio alerts from mobile aviation apps, without having to remove their headsets.

It's different for professional pilots.

"What a private pilot does in the comfort of their own cabin is up to him or her," says Richard Aboulafia, Vice-President of Analysis for the Teal Group, aerospace consultants in Fairfax, Virginia. "But for professional pilots,

“

Airlines would lose business if they compelled passengers to stow their beloved devices under the seats or in the overhead bin.

”

there's no need nor use for Bluetooth. In fact, it's a distraction."

The FAA agrees. In 2014, the agency banned pilots' personal use of electronic devices in the cockpit. The FAA rule prohibits non-essential use of laptops, cell phones, and other electronic devices – including Bluetooth capability.

"The rationale is to prevent crew member distraction during flights," explains Matt Soergel, a Florida-based aviation consultant. "The 2014 rule supplements the FAA's 1981 so-called sterile cockpit rule, which compels pilots to refrain from non-essential and distracting activities during flight."

Many commercial airlines allow the use of tablets and other portable devices within Electronic Flight Bags (EFBs). These devices contain data such as maintenance, repair and overhaul (MRO) documents, company and

aircraft manuals, and approach charts.

However, before the FAA allows an airline to allow this, the device must go through a rigorous evaluation period, typically six months, to ensure they are reliable and won't cause interference with the airplane's electronic systems.

Pilots are not permitted to use personal wireless communications devices or laptop computers for personal reasons at any time during aircraft operations. Period.

While the FAA prohibits personal use of electronic devices, professional pilots can still use laptops, iPads, or other devices that are essential for airplane operation.

I've just described the technological landscape, as it exists now. But technology never stands still. As the tech evolves, so will the rules. ■



Delta's Bluetooth future?

During his keynote address at this year's CES in Las Vegas, Delta's CEO Ed Bastian (pictured) teased that its subsidiary Delta Flight Products was currently testing the ability to use Bluetooth with its new seatback screens, and was pleased the progress being made. If its rollout is to occur, then Isle of Wight-based IFPL will probably be on Delta's contact list. The company has designed the latest 3.5 mm Long Life audio jack to include Bluetooth connectivity, therefore allowing passengers to pair wirelessly or use a wired headset. Both the airline and the passenger can then select their choice of headset, with the airline also having the option to sell Bluetooth headsets onboard, which the company claims provides an additional product line for ancillary retail sales. The Bluetooth unit is already in service with a leading, though unnamed, airframe manufacturer.



IFPL's 3.5 mm Long Life audio jack with Bluetooth connectivity.



Pride without prejudice: Delta and Virgin Atlantic people take to the streets and the skies to celebrate Pride and to commemorate the 50th anniversary of the Stonewall Uprising and to show their collective support for inclusivity and respect for all.

Over the rainbow

With the proportion of those identifying as lesbian, gay, bisexual or transgender at an all-time high in many countries, especially those aged between 16-24, are airlines really aware of the power of the so-called pink pound? Alexander Preston finds out.

In the 2017 research 'Missing out: The business case for customer diversity', undertaken by The Australian Human Rights Commission and Deloitte Australia, which included Qantas as a supporting partner, the rise of 'customer centricity' was brought out into the open. With social media helping shift power from organisations to customers, the research authors asked if the customer experience was creating advocates or detractors.

One key finding found that 45% of customers identifying as lesbian, gay or bisexual were positively influenced by an organisation's reputation as being supportive

of gender equality. Conversely, customers who identify as lesbian, gay or bisexual were twice as likely to dissuade others because of an organisation's negative diversity reputation.

According to Dana Artz, Sustainability Manager at French travel company Evaneos, "LGBT+ travellers clearly prefer to buy from travel providers offering personal recognition and respect." Those that succeed will have access to a rather rich vein. The Out Now Global LGBT2030 Study values LGBT travel at more than US\$218 billion annual spending each year, while Australian gay and lesbian households control an estimated annual disposal income of \$10 billion.

A long overdue helping hand was given in early 2019 when the US trade group Airlines for America (A4A) and the International Air Transport Association (IATA) approved a new international best practice standard to enable non-binary gender booking options.

The option for gender 'X' is in addition to the established 'M' and 'F' designators, for male and female, but despite becoming effective from 1 June 2019, it was left to the discretion of individual airlines to make the option available on their booking platforms.

In a statement to *USA Today*, A4A commented: "US airlines value a culture of diversity and inclusion, both in the workplace and for our passengers, and we work hard each day to accommodate the needs of all travellers, while delivering a safe, secure and enjoyable flight experience."

In response, United Airlines became the first US airline to offer non-binary gender options throughout all booking channels in addition to providing the option to select the title 'Mx' during booking and in a MileagePlus customer profile. The move gives passengers the ability to identify themselves as M(male), F(female), U(undisclosed) or X(unspecified),



corresponding with what is indicated on their passport or identification.

“United is determined to lead the industry in LGBT inclusivity, and we are so proud to be the first US airline to offer these inclusive booking options for our customers,” said United’s Chief Customer Officer Toby Enqvist. “United is excited to share with our customers, whether they identify along the binary of male or female or not, that we are taking the steps to exhibit our care for them while also providing additional employee training to make us even more welcoming for all customers and employees.”

SHE, HE, THEY, ZIR

As part of implementing these new changes, United worked with the Human Rights Campaign and The Trevor Project on employee training initiatives. These initiatives include teaching employees about preferred pronouns and the persistence of gender norms, LGBT+ competency in the workplace and other steps to make United an inclusive space for both customers and employees.

“At the Human Rights Campaign, we believe being acknowledged as the gender you identify with is part of treating everyone with dignity and respect,” Beck Bailey, the acting Director of the Workplace Equality Program at the Human Rights Campaign, said in a statement at the time. “By providing non-binary gender selection for ticketing and the

gender-inclusive honorific ‘Mx’ in user profiles, United Airlines is taking an important step forward for non-binary inclusion.”

American Airlines followed suit, albeit quietly, in December 2019, while others are reportedly examining how to implement the change during the booking process.

In June, Air Italy became the first airline in Europe to implement and make available a non-binary gender option for passengers booking flights. Customers can now select M (male), F (female) or X (other), to correspond with gender-neutral passports that are issued by some countries.

Air Italy also added ‘Mx’ to its online dropdown menu of titles for those who do not wish to define themselves with binary gender options. The airline works with Arcigay – Italy’s first and largest national gay organisation – on other inclusivity initiatives.

“Air Italy is determined to lead the industry in inclusivity, and we are so proud to be the first European airline to offer these inclusive booking options for our customers,” said Rossen Dimitrov, Air Italy Chief Operating Officer.

“Air Italy’s brand tagline is – ‘Imagine the world differently’. Within this is a vision that embraces every manifestation of freedom, inclusion, the acceptance of diversity and striving for progress. Our introduction of non-binary options on our website is therefore another demonstration of these important values.”

Gabriele Piazzoni, General Secretary of Arcigay, said: “We are proud to co-operate with Air Italy, the first carrier in Italy to decide to make its airline inclusive and its aircraft welcoming places for all people. The decision of a first-tier airline like Air Italy to invest resources and time to focus on inclusivity, is a positive example that we hope is followed by others. The civil progress of a country depends not only on its laws, but also by the way in which the private sector puts in place anti-discrimination initiatives that take into consideration the many differences that exist.”

A number of airlines publicly fly their rainbow coloured flags through their support of Pride festivals around the world.

Last year marked the 50th anniversary of the Stonewall uprising, the night in 1969 when a group of gay, lesbian and transgender people stood up to harassment at a bar in New York City. In response, Delta supported a number of Pride events across the US, and participated in Paris Pride for the first time in partnership with Virgin Atlantic, Air France and KLM.

“I couldn’t be prouder that an environment such as this – celebrating inclusion and equality – is what has brought us together in our first event as extended joint venture partners,” said Shane Spyak, Delta’s VP – Europe, Middle East, Africa and India Sales. “We believe that the diversity of our



Content is queen: Popular shows starring LGBT+ performers such as *Ru Paul's Drag Race* or storylines featuring gay icons such as Elton John biopic *Rocketman* have received a mixed response from airlines.



employees is our strength, and we are proud to create a workplace where all people are treated with dignity and respect.”

For their part, Virgin Holidays and Virgin Atlantic marked the 50th anniversary of the Stonewall Uprising with the UK's first Pride Flight.

The flight was hosted by Tituss Burgess – Broadway musical actor and star of the hit Netflix show *Unbreakable Kimmy Schmidt*, and crewed entirely by LGBTQ+ crew. Passengers were treated to six hours of Pride extravagance with a troupe of drag queens leading games, inter-seat dating and a set from DJ Jodie Harsh.

“AIRLINE OF FIERCE”

Over the pond, JetBlue, the self-appointed “airline of fierce”, partnered with VH1's *RuPaul's Drag Race*, with the airline's newly named “Shantay Blue Stay” aircraft.

To kick off the partnership with *RuPaul's Drag Race* and to celebrate the introduction of “Shantay Blue Stay,” JetBlue debuted a one-of-a-kind video featuring Bob the Drag Queen and Trixie Mattel. The pair gave a unique in-flight demonstration highlighting features such as the most legroom in coach, free and unlimited brand-name snacks and more. The video was made available on *RuPaul's Drag Race*, VH1 and JetBlue social media channels.

“With crewmembers and customers reflecting incredible diversity, we celebrate all our differences and live JetBlue's mission to inspire humanity as a leader in inclusion both inside and outside the company,” said Joanna Geraghty, President and Chief Operating Officer, JetBlue. “Every day, but especially as we celebrate World Pride in our hometown, JetBlue values the uniqueness of each and every individual – not only because it's the right thing to do in keeping with our integrity value, but because we think it's more fun that way, too.”

Elsewhere, five of the now defunct Thomas Cook's A330s were emblazoned with a Pride rainbow heart, each representing a decade since the Stonewall riots and to promote each of the five years the airline supported Manchester's Pride festival.

In April 2019, Norwegian unveiled its newest ‘tail fin hero’, and eighth American to be immortalised on a Norwegian aircraft: civil rights leader, Harvey Milk. His portrait graces the tail fin of a Norwegian Boeing 787 Dreamliner aircraft.

Bjorn Kjos, Chief Executive Officer at Norwegian, said: “Like ours, Harvey Milk's mission was reflective of a pioneering spirit. He demonstrated a tireless hunger to look past the differences of people and instead focus on bringing them together for the

greater good. We can't think of a better way to honour Harvey Milk's bravery and courage than to dedicate a Boeing 787 Dreamliner to his legacy of equal rights – a tribute that will span the globe for years to come, reinforcing our joint commitment to making the world a smaller, friendlier and more inclusive place.”

And of course there was Iceland's WOW Airlines which in 2016 named a plane ‘TF-GAY’ to support the LGBT+ community, and mark the airline's flight route to San Francisco – Harvey Milk's home city.

However, all this seems at odds to the representation available on in-flight entertainment, where LGBT+ content suffers mixed fortunes.

SUCCESS AND FAILURE

During Alaska Airlines' sponsorship of Pride 2019 celebrations, the free in-flight entertainment during June and July featured 18 films from the LGBTQ+ media-arts non-profit Frameline, including two documentaries by director Jennifer M. Kroot: *The Untold Tales of Armistead Maupin* and *To Be Takei*.

To celebrate Gay Pride in San Francisco and the LGBT Pride March in Paris, Air France operated two special LGBT-friendly flights. A film presenting ‘Le Refuge’, whose role is to support and provide accommodation for the young gay, lesbian and transgender population living in precarious conditions, and the LGBT-themed films, *120 battements par minute* and *The Adventures of Priscilla, Queen of the Desert* were shown as part of the in-flight entertainment.

In a surprising move in 2018, Emirates picked up and added *Evening Shadows* to its IFE library. The film was the first LGBT+ film to get a child friendly rating in India, and became the first LGBT themed independent film to appear as in-flight entertainment on an airline.



Harvey Milk: Honoured by Norwegian.

But with airlines often showing LGBT content to accompany their support of events such as Pride or the Oscars, there have been claims of pinkwashing – where retailers and brands who undertake PR strategies to appear LGBT-friendly but in reality, don't practice what they preach – levelled against certain airlines.

Delta Air Lines was recently the centre of controversy when it was discovered that the company was showing censored versions of movies like Elton John biopic *Rocketman* and *Booksmart* as part of the US carrier's in-flight entertainment.

Olivia Wilde took to Twitter to vent her criticism of the censorship of *Booksmart*, the American coming-of-age comedy film she directed: "What message is this sending to viewers and especially to women? That their bodies are obscene? That their sexuality is shameful? I urge every airline, especially those who pride themselves on inclusivity, to stop working with this third-party company, and trust the parental advisory warning to allow viewers to opt out if they choose."

Delta later reversed its decision announcing it would stop showing edited versions of both films and was working with its vendor to get editions that restore deleted same-sex love scenes.

In a statement, the apologetic airline said it did not ask for any "homosexual content"

to be removed, adding: "We value our in-flight entertainment options as a means to reflect the diversity of the world," the company said. "We are reviewing the processes of our third-party editing vendors to ensure that they are aligned with our values of diversity and inclusion."

As Mark Kember, Director of Membership Operations at Stonewall, told Inflight: "It's great airlines are looking to take steps to be more inclusive and address some of the barriers LGBT+ people face when travelling. Initiatives such as updating systems to be inclusive of all gender identities and having LGBT+ media on airline entertainment are steps in the right direction. But there is much more to do to ensure that airlines are accommodating their LGBT+ passengers, including making sure all staff receive diversity and inclusion training. It's vital that airlines ensure that their LGBT+ customers feel safe and supported during their travel, as well as creating LGBT-inclusive environments for their staff." ■

April 28-30, 2020 • Dallas, TX

AVIATION WEEK
MRO
AMERICAS

**THE MAIN
MRO EVENT**

25 YEARS OF BRINGING THE MRO COMMUNITY TOGETHER!



**One-on-One
with
Oscar Munoz**

CEO,
United Airlines

UNITED 

New in 2020

MRO Innovate: Game Changers – Innovators looking to disrupt and change the way the MRO industry operates will have 7 minutes each to pitch their solutions to the MRO Americas audience.

Next Up: How the new generation workforce is changing the way we do business.

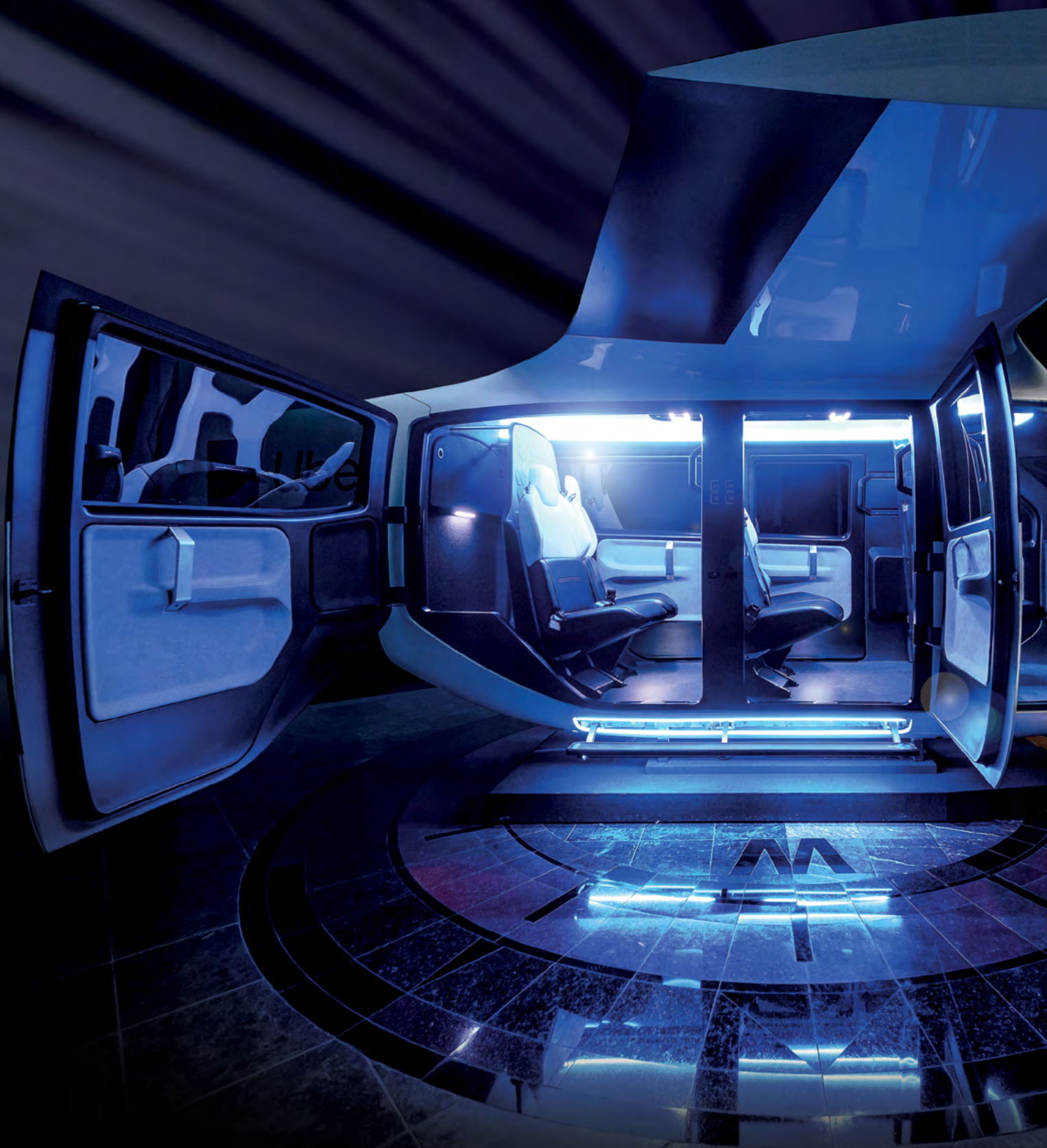
MRO Go Live Theater in Exhibition – Featuring: Tech Talks, Interactive New Technology Demos and Ask the Experts – Your opportunity for live Q&A on topics including Blockchain, supply chain, cyber security and more!



REGISTER NOW mroamericas.aviationweek.com

#MROAM





Scott Savian, EVP of Design and Innovation Studio – Safran Cabin: “Through the process with Uber, we had six full-scale mockups, with multiple iterations in each one, looking at the seats, liners, and window positioning. So while the cabin may be minimal in some ways, it’s absolutely purpose built to the mission.”

On the up

The visionary Emma Kelly looks at the future of flight

secure an advantage in what is becoming an extremely competitive sector.

Bell Helicopters and Uber are among the few that have revealed cabin interiors for their solutions.

Bell revealed in early 2019 the interior configuration of its Bell Nexus air taxi, displaying a full-scale model at consumer technology show CES 2019 in Las Vegas. The Bell Nexus is a hybrid-electric vehicle featuring Bell's 'powered lift' concept incorporating six tilting ducted fans.

The Bell Nexus cabin features four passenger seats with console storage and digital information systems, as well as a single pilot seat with easy access to the Garmin flight system and a 180 degree rotation, says Bell. The cabin is 58 inches wide with each seat having a 40-inch seat pitch that provides "ample legroom and comfortable ingress/egress," says Bell. The seats are made from carbon fibre and feature leather upholstery, while lighting is provided by an overhead LED track. There is a 28 cubic feet baggage compartment which is right-sized for luggage and golf bags, the company says.

User experience, space, comfort, safety, ease of use, weight and cost were all important factors in the design of the interior, says Bell. "From comfort and safety to

technology and user experience, Bell is continuing to focus interior designs based on the passengers and their needs," it says.

Passengers are also likely to benefit from air conditioning and Wi-Fi, while the ducted fan design and onboard vibration suppression systems mean that they will benefit from a smoother and quieter ride than available on some of today's helicopters.

What was seen at CES might not be the final product, however. "We are continuing to develop the interior design based on feedback we have received regarding accessibility, comfort and technology," says

Aerospace manufacturers

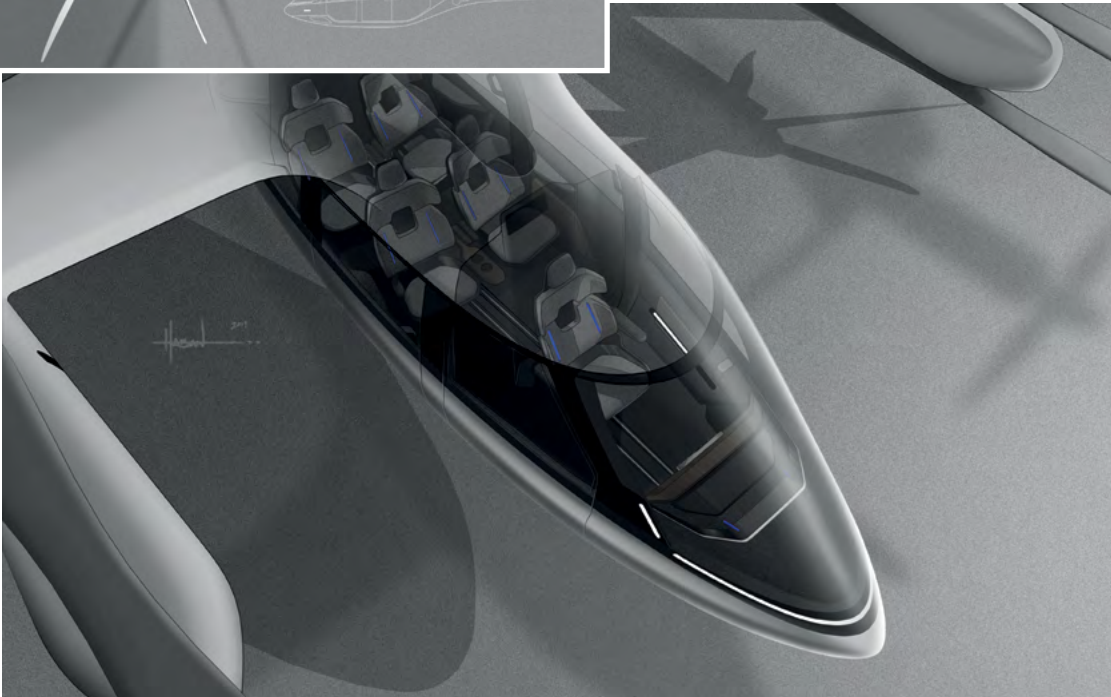
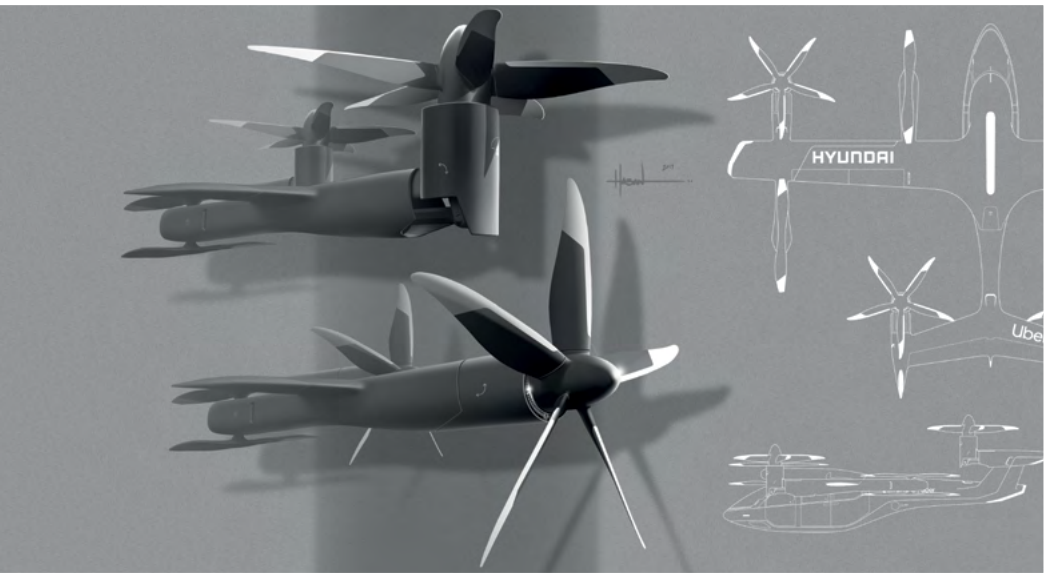
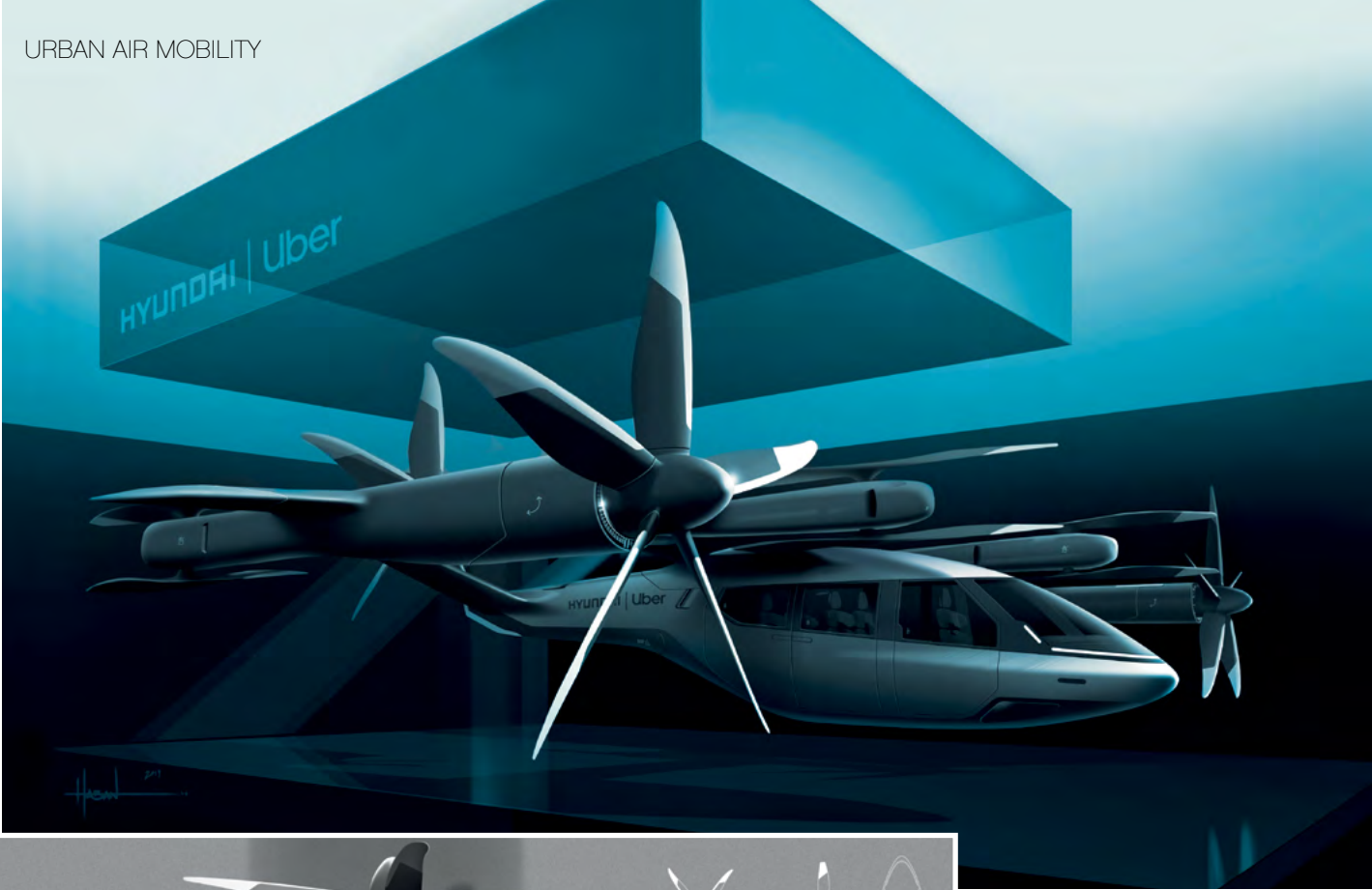
including Airbus, Bell, Boeing and Embraer; transport disruptors including Uber; and a raft of start-ups around the world such as Kitty Hawk, Lilium Jet, Vertical Aerospace and Volocopter are designing and developing urban air mobility vehicles.

By 2035, as many as 23,000 such vehicles are expected to be plying air routes in cities, creating a market valued at US\$32 billion, according to a Porsche Consulting study on vertical mobility.

Much has been published on the flying technology and performance of such vehicles, but their cabin interiors have received less attention. Many companies developing eVTOLs are keeping their interior cabin designs close to their chest – either because they are focusing on the vehicle itself and its performance or to



The interior of the Bell Nexus.



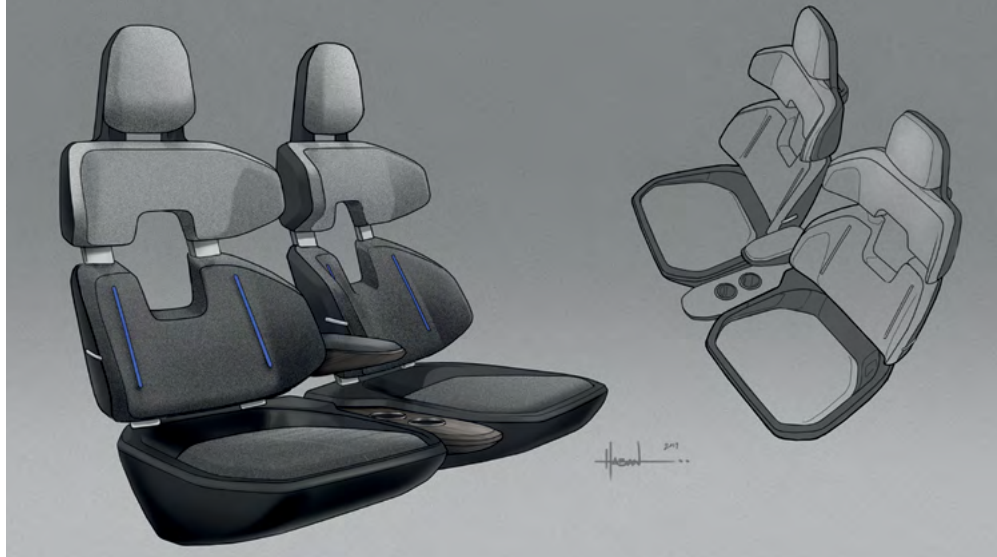
The shape of things to come (right and facing page): Hyundai Motor announced its Ridesharing partnership with Uber at CES 2020 with a spectacular launch highlighting its innovative designs for smart mobility.

Bell. The manufacturer is working in-house on its design, leveraging 80-plus years of experience in flying people around the world, and using outside design experts.

UBER AND FRIENDS

Uber, meanwhile, has been working with Safran Cabin on the interior design of its Uber Air vehicles. Uber has partnered with aerospace companies including Boeing's Aurora Flight Sciences, Pipistrel Aircraft, Embraer, Bell, Jaunt Air Mobility and Karem Aircraft to develop eVTOLs with the aim of conducting flight demonstrations in 2020, leading to commercial aerial ridesharing services from 2023 in Uber Air cities, which initially have been named as Dallas and Los Angeles in the US and Melbourne, Australia.

In June, Uber Elevate unveiled its first air taxi cabin design at the third Uber Elevate Summit in Washington. The interior was designed in conjunction with Safran Cabin and is intended to be the standard for Uber's eVTOLs. The Mission Driven Cabin (MDC), which seats four passengers, is modifiable for different eVTOL vehicle developers; built for manufacturability; and designed with certification requirements in mind, it says.



Safran's in-house Design and Innovation Studio in California, working with the Uber Elevate team, designed and developed six full-scale mock-ups of the interior, with multiple iterations in each one involving seats, liners and window positioning.

Safran says it used its experience in large passenger aircraft cabin design and small business jet design to produce an integrated cabin interior. Glen Noda, Director of Industrial Design at Safran Cabin, says three areas of focus were important in such a new design challenge – optimising the vehicle/cabin sizing for maximum value, the operational demands of the cabin and the user experience.

The cabin has the space to seat four adult passengers comfortably, plus a pilot, as well as their carry-on luggage. "The interior is a

highly integrated package of aerospace grade technologies, focused both on passenger comfort, accessibility, storage and most importantly safety," says Noda.

The result is a "truly unique interior that has very different requirements from traditional helicopters or ground vehicles," says Noda. He adds: "The ingress/egress, seat geometry and cabin density are all built around a high-volume turnaround time, loading four pooled passengers in and out within five minutes. Doing so in a dynamic environment with active rotors, overhead wings, seat assignments and variable climate conditions present human factor challenges you don't typically find in other transportation modes."

Cabin environmental control systems are being explored as the eVTOLs will operate in a wide variety of climates with a high degree of turnaround, with open doors and constantly changing environmental conditions. The need for onboard Wi-Fi is also being investigated, with Safran believing that cellular service may still be accessible and would suffice for five to 15-minute journeys. Safran is also using its expertise in acoustics and vibration to understand the interior noise and vibration levels it needs to meet, says Noda.

“From comfort and safety to technology and user experience, Bell is continuing to focus interior designs based on the passengers and their needs.”

Bell Nexus captures the long-sought-after vision of quick air travel with a unique in-flight experience, keeping passengers fully 'connected' and saving them valuable time.



Volocopter conducted a public test flight at Singapore's Marina Bay in October 2019, and has now achieved EASA Design Organisation Approval (DOA).

“Embarking and disembarking needs to be convenient, safe and comfortable for people of any age.”

Others are a little more reticent about what passengers can expect. Germany's Volocopter, for instance, is not currently releasing any details about its cabin design. The company revealed the latest design of its VoloCity air taxi in August 2019, the fourth-generation model. Volocopter conducted its first manned flight of an eVTOL in 2011, since when the company has performed a number of public flights, in Germany, Dubai, Singapore and the US.

The VoloCity air taxi will have a range of 35 km and an airspeed of 110 km/h, carrying two passengers on on-demand inner city air taxi routes.

Volocopter says that it has a “rigid commitment to the inner-city mission,” namely to transport passengers and luggage from point A to B within a defined urban metropolitan area at a price that is competitive with alternative transportation modes. As a result, the vehicle will be designed for usability. “Passengers will need to be able to embark, travel and disembark comfortably



and safely. This will entail design requirements for cabin noise levels, vibration, climatic conditioning and perceived safety,” it says.

In terms of usability, Volocopter says an eVTOL must be practical in its design. “In our view, nobody ordering an air taxi ride would expect to have to climb into the cockpit like a jet fighter pilot or step around rotors installed at knee height,” it says. Embarking and disembarking needs to be convenient, safe and comfortable for people of any age, it adds.

Furthermore, passengers inside the cabin must have sufficient space with comfortable seating, says Volocopter. Passengers should also be able to bring a reasonable amount of luggage, while air conditioning systems also need to be included, even though they consume large amounts of energy and are generally heavy.

STRAIGHT-UP GUYS

“We at Volocopter consider all these aspects to be key factors,” it says. “The Volocopter

specifically improves embarking and disembarking without interference by the rotor disc area. Rotors are mounted overhead to avoid direct contact. Boarding a Volocopter is similar to getting in and out of a car,” the company explains. Furthermore, the vehicle is designed with an integrated luggage compartment and an air conditioning system, while the vehicle's noise signature is intrinsically low.

UK company Vertical Aerospace recently completed the first flight of its latest eVTOL prototype, the Seraph, which is being used to test new technologies and systems that will be integrated into the company's passenger model, due to be unveiled this year. The vehicle can carry loads up to 250 kg – the equivalent of a pilot and two passengers – at a maximum speed of 80km/h.

Lilium Jet is aiming to deliver a “magical customer experience” on its larger, five-seat Lilium Jet eVTOL air taxi. The German start-up unveiled and flew a full-scale prototype of the vehicle for the first time in May. The Lilium Jet is powered by 36 all-electric jet engines, allowing it to take-off and land vertically, and has a top speed of 300 km/h and a range of 300 km.

Lilium hopes to be fully operational in various cities around the world with its on-demand air taxi service by 2025.

The design of the aircraft is based on simplicity while the interior design features panoramic windows and gull-wing doors. Lilium Jet says it is working hard on the interior aspects of the vehicle in the background, “but it's under wraps for now”. Customer experience is “absolutely central to what we want to offer,” it adds. ■

The Lilium Jet offers panoramic views from a spacious cabin and gull-wing doors.



THE DESTINATION FOR THE AIRCRAFT INTERIORS INDUSTRY.

Aircraft Interiors Expo 2020

31 March - 2 April 2020, Hamburg Messe, Germany

Aircraft Interiors Expo is the world's leading event where airlines and the supply chain can source the latest innovations, technologies and products for cabin interiors, inflight entertainment, connectivity and passenger comfort.

See how you can join us at
www.aircraftinteriorsexpo.com

REGISTER NOW

31 MARCH
2 APRIL
 2020



**600 INNOVATIVE
 EXHIBITORS**

**16,000 INDUSTRY
 ATTENDEES**

**245 AIRLINES
 REPRESENTED**

Co-located with:

**World Travel Catering
 & Onboard Services**
EXPO 31 Mar - 2 Apr 2020
 Hamburg Messe, Germany

**Passenger
 Experience**
CONFERENCE 31 MARCH 2020
 Hamburg Messe, Germany

Organised by:

Reed Exhibitions®

In co-operation with:

**Hamburg
 Messe**

Supported by:

apex
 airline passenger experience association



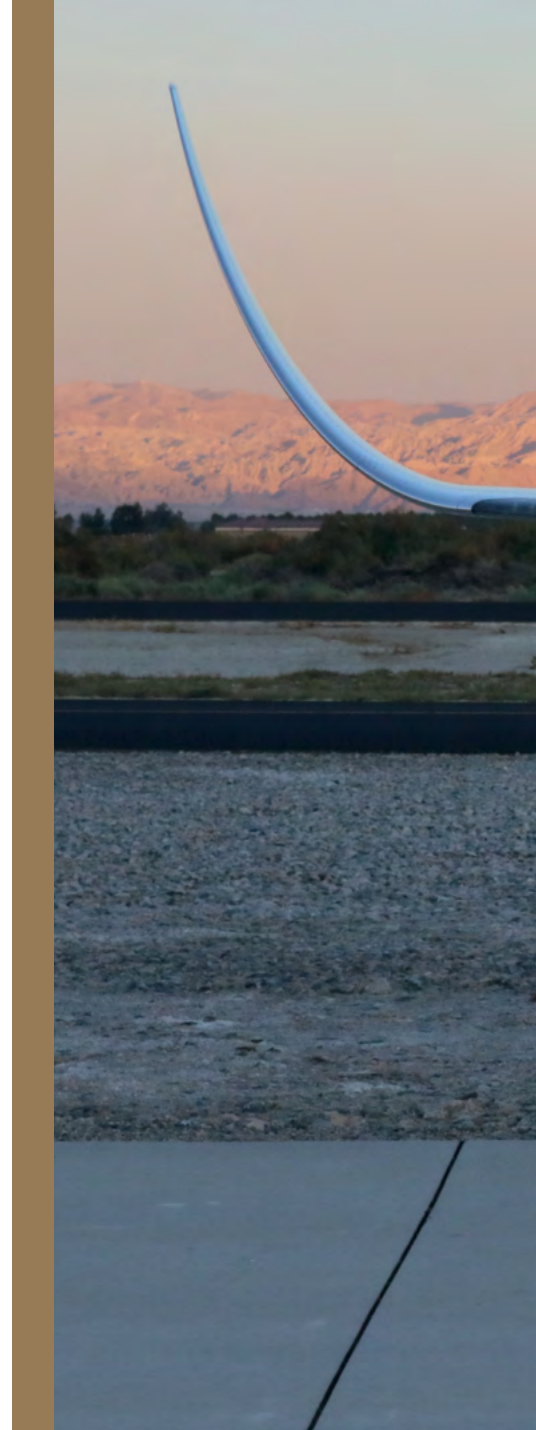
Desert Jet's recent acquisition, a Citation Bravo, joins a fleet mix of super mid, light and very light private jets based throughout Southern California.

Desert Fox

Jacqueline Cochran Regional Airport (KTRM) in Southern California has a new, modern look. Desert Jet Center is the newest full-service Fixed-Base Operator (FBO) facility on the field. Construction now complete, this brand new, cutting-edge terminal and hangar facility is now open for business, with a relatively new CEO at its controls. Jared Fox talks to Inflight's Tim Guest about how he is finding his new desert setting.

When 'Old Blood and Guts'

General George Patton took command of the newly established Thermal Army Air Field and Desert Training Center (now KTRM) in 1942, used as an air support command base as part of the wider Desert Training Center in the Mojave Desert, it was to prepare the US Army for the invasion of North Africa. But even with his renowned foresight, Patton would have been hard pressed to visualise how the airfield would look nearly 80 years later. Today, nothing of the military remains, but this now county-owned and public-use airport for general aviation (GA) operations





Wing Man: Fox's career in aviation has spanned a broad spectrum of industry-related roles, culminating at Desert Jet as its new CEO.

some 20 miles south-east of Palm Springs in the Coachella Valley, is thriving and boasts some of the latest and most sophisticated GA and FBO facilities, not to mention aircraft, operating from any such airfield in the region. And it's those very latest facilities, with another new commander, Jared Fox, that belong to Desert Jet.

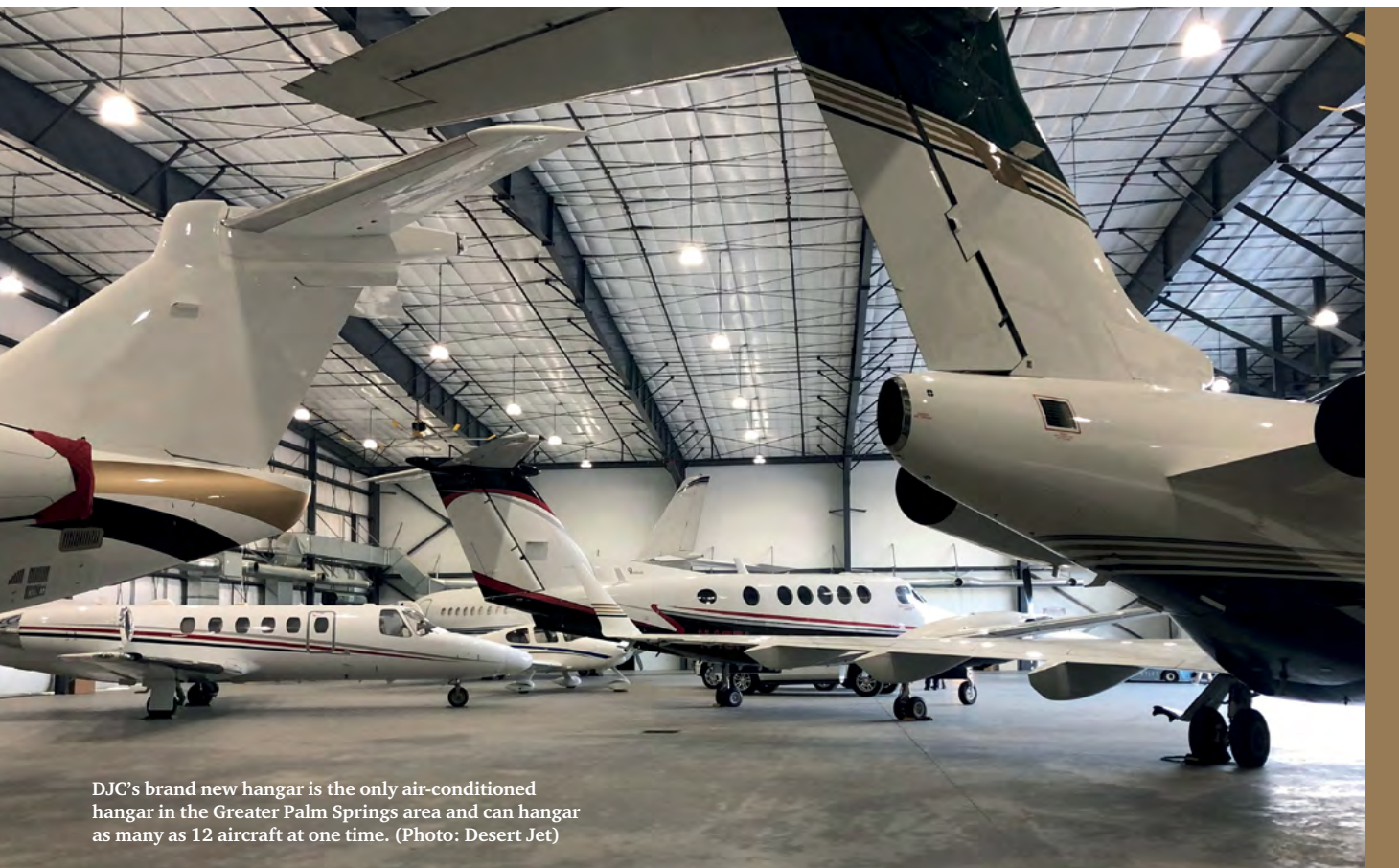
Inflight: You took over the CEO role in July. With 20 years in the industry, what path did you take on your way to eventually landing at Desert Jet?

Fox: Throughout my aviation career I've striven to always get experiences in every

area possible. Whether managing airports, running FBOs, flying or selling charter and aircraft, I want to learn as much as possible. I believe 'Jack of all trades, master of none' is a badge of honour for a leader. I don't need to be the person who knows everything. I'd rather surround myself with people who are experts in their field and that want to be a part of a successful team.

Inflight: Your appointment in July enabled company founder, Denise Wilson, to become Chairman of the Board across all Desert Jet companies. How closely are you working with her and with less than six months at the helm

“My short, medium- and long-term goals are all the same – to ensure Desert Jet delivers on its promises to our employees, customers and community.”



DJC's brand new hangar is the only air-conditioned hangar in the Greater Palm Springs area and can hangar as many as 12 aircraft at one time. (Photo: Desert Jet)

is it fair to ask what you have achieved so far? An end-October statement said with its 'new FBO facility and headquarters, Desert Jet will be focused on expanding its workforce and accelerating the growth of all its business entities'. Can you expand on this?

Fox: I work very closely with both owners of Desert Jet as well as our advisory Board. There is a wealth of knowledge and experience I can tap into and I'm never afraid to do so. Denise has been a wonderful resource for me and instrumental to the growth of the company.

As for what I've achieved so far, I believe it's always fair to ask a CEO what they've accomplished! I come to work every day with a goal of making a positive difference to our team and to our companies. To me, a day without improving [something] is a day wasted.

In the first 100 days of my being at Desert Jet we've opened our brand new, state-of-the-art FBO, charter headquarters and hangar. We've added one plane to our charter certificate with two more in the pipeline; we have increased the number of charter hours flown and we've just completed a successful

“Desert Jet is made up of Desert Jet Charter, Desert Jet Center – the FBO, Desert Jet Detailing and its Part 145 maintenance company, Desert Jet Maintenance.”

ARG/US audit, “renewing our platinum-rated status. We have also added a new Director of Safety to our 135 operations and we've created an Ambassador programme to ensure our employees and customers fully experience the Desert Jet 'Vision'. We will continue to add to our great team as needed and as we find 'A' players who want to be a part of something special. My short, medium- and long-term goals are all the same – to ensure Desert Jet delivers on its promises to

our employees, customers and community. I want the company always to be a place where people love to work and that customers flock to for the best service in the industry.

Inflight: How many companies make up the Desert Jet Group and what are your main activities? Is any one of these more important to the business than others, or are they all complementary necessities to Desert Jet's overall, full-service offering?

Fox: Desert Jet is made up of Desert Jet Charter, Desert Jet Center (DJC) – our FBO, Desert Jet Detailing and our Part 145 maintenance company, Desert Jet Maintenance. The group of Desert Jet companies are a full-service business and general aviation one-stop shop. We can assist with nearly all aviation needs including aircraft management, aircraft charter, maintenance, fuelling, detailing, and aircraft hangaring. I see all components of our businesses as essential to ensuring our customers' experience is an exemplary, anticipatory service. Much like the old adage that the Cessna 150 on your ramp today may be piloted by the pilot of the G650 landing at our airport tomorrow, Desert Jet understands

that we must treat every customer and every job as if it is the most important we will do today. There are no small tasks if you want to be successful.

Inflight: Tell us about your brand new state-of-the-art FBO facility, the plans for its grand opening and what this status means in real terms at KTRM and regionally?

Fox: We recently moved into our gorgeous new facility and are just getting settled in. We are enthralled by our new digs and have been receiving great feedback from our customers. As with any brand new construction, we have a few punch list items to finish up and then we will schedule a grand opening event in 2020. DJC's new facilities bring KTRM out of the 1980s and into the 21st century; it's the only FBO new construction in the Coachella Valley for many years and delivers an unparalleled experience for aircraft passengers and crews.

Inflight: How big is Desert Jet's own fleet of charter aircraft and what is its composition? Your latest aircraft acquisition was in August; what was that aircraft and do you have other fleet expansion plans in the pipeline?

Fox: Desert Jet's fleet is made up of Citation Bravos, Citation CJ3s and a gorgeous

“DJC's brand-new, state-of-the-art, 22,500-square-foot hangar has 28-foot hangar doors to easily accommodate the latest corporate jets, including aircraft as large as the Gulfstream G650 and Global 7500.”

Wi-Fi-enabled Challenger 300. Our entire fleet of CJ3 aircraft have been upgraded with the installation of the Gogo L3 AVANCE high-speed Wi-Fi. We expect the fleet to grow in 2020 as we introduce new management programmes and as I am able to share our vision with more aircraft owners.

Inflight: With your own fleet of aircraft are you focused purely on regional business or do your services extend nationwide across North America and also internationally and for what kinds of customers?

Fox: Desert Jet Charter assists customers with their trips throughout North America and worldwide. We stop at nothing to ensure customers receive the service they desire. We assist them wherever they are in the world. If we can't cover a flight in one of our aircraft,

we can work with one of the vetted operators we have relationships with, to provide a solution that meets our customer's needs. We see a wide range of customers on our aircraft from CEOs and their employees, families going on vacation, surgeons flying to do surgery, friends coming to the desert to enjoy all that's offered here, or Angel Flight West passengers [non-emergency air travel for children and adults with serious medical conditions]. For all of our passengers, we strive to ensure the best possible in-flight experience. Many of our customers have been using our services for over 10 years and often recommend us to their friends.

Inflight: How much hangar space does the new DJC have and how many aircraft can be housed and/or worked on at any one time?

DJC's new facilities bring KTRM out of the 1980s and into the 21st century; it's the only FBO new construction in the Coachella Valley for many years. (Photo: Desert Jet)



Entertainment • Connectivity • Interiors • Technology



Subscribe now:
www.inflight-online.com

The Inflight portfolio delivers industry-leading coverage of the end-to-end in-flight experience.

Publisher of:

LARA

Inflight

Regional 
GATEWAY

Join the conversation:



@inflightmag



inflightmagazine



“ I joined Desert Jet because it is a different kind of aviation company. As CEO I intend to continue, and hope to add, to the core values installed since day one. We’re not trying to become the largest aviation company in the industry. In fact, I’d prefer we remain a small giant. ”

Fox: DJC’s brand-new, state-of-the-art, 22,500-square-foot hangar has 28-foot hangar doors to easily accommodate the latest corporate jets, including aircraft as large as the Gulfstream G650 and Global 7500. The only air-conditioned hangar in the greater Palm Springs area, it offers a temperature-controlled environment for the crew and travellers when they embark, as well as providing a comfortable workspace for our onsite FAA Part 145 Certified Repair Station, Desert Jet Maintenance. We’re able to hangar as many as 12 aircraft at one time.

Inflight: What safety qualifications set Desert Jet Center apart from other FBOs in the region and what does this mean for your customers and attracting business?

Fox: Safety is paramount to our culture at DJC and our commitment to our customers and employees. DJC is the only FBO in Thermal, the greater Palm Springs area, Southern California and the overall desert southwest region, to hold both IS-BAH (International Standards for Business Aircraft Handling) registration and the NATA Safety 1st certification. Dedicated to continual improvement, DJC now maintains an IS-BAH Stage II designation.

Inflight: Desert Jet has some admirable core values that set it apart from much of the dog-eat-dog business world of today. Can you discuss these and explain how important these have been to the success of the business? In taking over the helm as CEO, will you ensure these values are maintained or even complemented?

Fox: I joined Desert Jet because it is a different kind of aviation company. As CEO I intend to continue, and hope to add, to the core values installed since day one. We’re not trying to become the largest aviation company in the industry. In fact, I’d prefer we remain a small giant. If we work to get a little better everyday then anything is possible. The team at Desert Jet is here because they all want to be at a place where they can make a difference and be proud to work. It truly is a team effort. We’ll succeed or fail based on our team members.

Inflight: In this age of environmental crisis and climate change, what are Desert Jet’s environmental policies vis a vis: carbon footprint, recycling, re-use, eliminating single-use plastics, etc?

Fox: Much like the entire industry, this is an important topic to me. I’d like to see Desert Jet become a leader in pushing our industry to improve our impact. We’re constantly looking for ways to be better stewards of our planet.

Inflight: As you alluded to earlier, you’ve recently introduced Gogo L3 AVANCE high-speed Wi-Fi onboard some aircraft. Are you intending to roll this in-flight connectivity solution out across your whole fleet?

Fox: Our Supermid aircraft, the Challenger 300, has had Wi-Fi for a few years and we’ve seen a great response to those capabilities. We’ve also now added Wi-Fi to our CJ3 fleet as well. Business aircraft users need to stay connected while in-flight, so upgrading more of our aircraft will ensure this is easier than ever. I’d like to see our entire fleet have Wi-Fi by the end of 2020.

Inflight: Finally, how does Desert Jet maintain your ‘small giant’ status and remain at the top of your game in terms of training?

Fox: We do not want to grow just for growth sake, we will be very conscious about how we grow in order to ensure we are providing our current customers and employees the best possible partnership. The Desert Jet team is just under 50 aviation professionals, all of whom receive regular training based on their positions. Pilots are in the simulator every six months, as well as receiving ongoing ground and classroom training. Desert Jet is proud of our commitment to training as shown by our ARG/US Platinum rating, Wyvern Wingman and IS-BAO Stage III certifications. ■

THE LAST WORD

Nino Judge, founder of flypop, asks how can we learn from Thomas Cook's mistakes?

The recent collapse of travel company Thomas Cook came as a surprise to most. Not least the 150,000 or so tourists who found out while on their holidays. However, those paying attention to the travel industry may not have been quite as shocked.

Thomas Cook, for all its 178-year history, was stuck in the past. It had legacy systems to deal with, partnerships to disentangle, and financial models built on current practices. Radically changing its approach to compete with new disruptors would have been a huge risk and required some funding. Yet, Thomas Cook was already servicing a lot of debt, meaning it was being pushed to make more money rather than take on more debt.

The company couldn't change, but it couldn't stay the same. Ultimately, time caught up with Thomas Cook.

Could Thomas Cook have been saved? At this point, I think it is unlikely. However, if the company had brought someone onboard who really understood the digital revolution, perhaps the company could have shifted its approach earlier and more gradually.

ANTICIPATE MARKET CHANGES

The first tip I can give you is to keep an ear to the ground of your industry and to keep your eyes open for changes in the wider market. Recognising potential disruptions and anticipating change is essential for any business to keep up with the market.

Just because an approach isn't financially successful yet, doesn't mean it won't be. These businesses often start out making a loss only to either a) reach a critical mass or b) find a commercial model that worked. As soon as one of those two things happens, they will outperform legacy companies which have failed to adapt.

FOCUS ON CUSTOMER EXPERIENCE (CX)

In the 1990s, Thomas Cook was seen as "the travel experts" and, in doing so, became the gatekeepers of great travel experiences. As the strapline said, "don't just book it, Thomas Cook it!"

But with the advent of the internet and smartphones, customers could easily research their destination, flights and hotels. What's more, small, independent hotels, tour operators, restaurants, and so on, could create and manage their own website and/or app, putting them in direct contact with their customers.

Suddenly, tour operators, like Thomas Cook, were being cut out of the picture.

Thomas Cook could have focused on providing more destination information on-demand for its customers, or improved its flight check-in process, or even offered customers more flexibility on its tours. Instead, it printed more brochures.

KEEP COSTS LOW AND USE DEBT WISELY

Debt is, in most cases, a necessary part of running a business, especially an airline. It takes millions to buy airplanes, secure routes across the world, get exclusive deals with local tour operators, and so on.



Nino Judge is an aeronautical engineer and founder of flypop – an innovative and disruptive, British low-cost long-haul airline, providing direct flights to second-tier cities in South Asia. flypop aims to be the first truly carbon-neutral international airline through carbon offsetting projects.

However, disruptors tend to start small, prove their model, and then scale rapidly. Building up gradually in this way also means you can keep costs low.

In keeping costs low and scaling sustainably, new businesses can raise as much debt as they need for the next stage of their growth, rather than taking on a massive chunk of debt. Servicing a large chunk of debt like that undermines your profitability and will, ultimately, have to be passed on to your customers in one form or another. And, since the budget is such an important part of planning a holiday, keeping costs as low as possible is essential.

To summarise, Thomas Cook failed because it was stuck in an outdated model that both undermined customer experience and was unsuccessful at creating enough profit to service its debt.

To avoid similar mistakes, focus on your customer experience and be prepared to change based on shifts in the market. If you are just starting out, focus on a small geographic area and create a business model that is both popular and profitable, keep costs as low as possible, and only take on as much debt as you need at the time. ■



SynQor®



SynQor's AC-DC Solutions for Avionics

► Power Factor Correction (PFC)

- ◆ Universal AC Input (1 ϕ or 3 ϕ)
- ◆ Isolated Output
- ◆ 325W and 750W Units
- ◆ PF > 0.99 / THD < 3% / Efficiency > 90%

► AC Line Filter

Specification Compliance

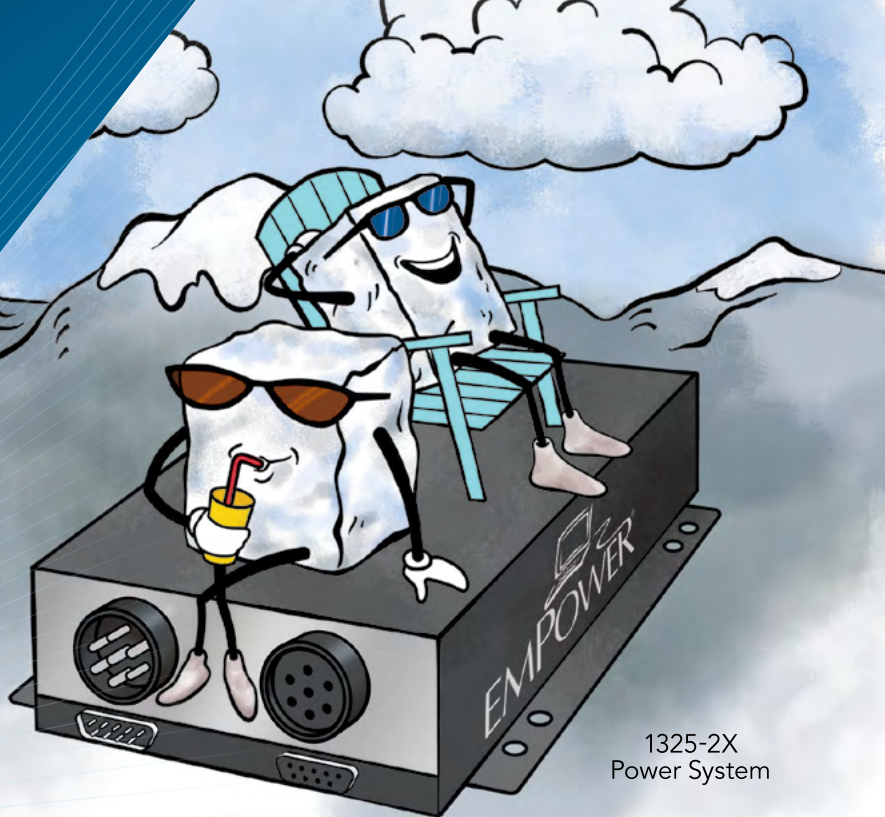
- | | | |
|----------------------|-------------------|-------------------|
| ► RTCA/DO-160 | ► Boeing 787B3 | ► Boeing D6-44588 |
| ► Airbus ADB0100.1.8 | ► Boeing D6-36440 | ► CE marked |



Made in
the USA

Visit SynQor @ AIX Hamburg
Stand : 2E65
www.SynQor.com

AeroQor 
Product Family



1325-2X
Power System

**50% More Efficient Power,
100% Cooler.**



Astronics AES EmPower® Cabin Power Systems

Introducing the new Astronics EmPower 1325-2X power supply, a breakthrough that actually lowers operating costs. • With an unprecedented 93% operating efficiency, the 285-watt 1325-2X system produces 50% less heat, to increase performance and reduce your aircraft's environmental system workload. • Revolutionary? Yes, and just what you expect from the experts at Astronics.

www.astronics.com
U.S. +1.425.881.1700
Europe +32.9.329.5576