

Inflight



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May/June 2022
Volume 13 / Issue 3

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Cover: the Hamburg Messe convention centre, in the heart of Germany's second largest city, will host the Aircraft Interiors Expo 2022 from June 14 to 16. Turn to page 27 for the start of *Inflight's* exclusive AIX event preview.

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viewpoint



Satu Dahl Editor

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Gearing up for summer

Welcome to the May/June issue of *Inflight*. Summer is nearly here and with demand for holidays returning, flights are getting booked up at a fast pace. Just one example of this was Heathrow Airport updating its 2022 passenger forecast from 45.5 million to 52.8 million.

With operators increasingly busy with the surge in bookings, aviation manufacturers and suppliers are working together behind the scenes to help carriers meet and exceed passenger expectations.

The European Business Aviation Convention & Exhibition (EBACE) taking place in Geneva in May gets industry leaders all together in one venue and showcases the latest business aircraft and new technologies, while the Aircraft Interiors Expo (AIX) happening in Hamburg in June will reveal many exciting new cabin concepts and innovations available in the market.

As one of the key media partners of both AIX and EBACE, *Inflight* has a special focus on these two major events in the aviation industry's calendar. At AIX, we are delighted to be running panel discussions on in-flight entertainment and connectivity at the CabinSpace Live Seminar Theatre on 15 June – please visit our booth (4UC15) for more information.

In this issue, we take a close look at the new products and developments that contribute to creating the best possible passenger experience, with topics including connectivity, in-seat power, in-flight entertainment, catering and materials.

Our exclusive interviews in this issue provide insight from Gulfstream, XO, Finnair Cargo and many other key players across commercial and business aviation sectors.

I hope you enjoy reading this issue!





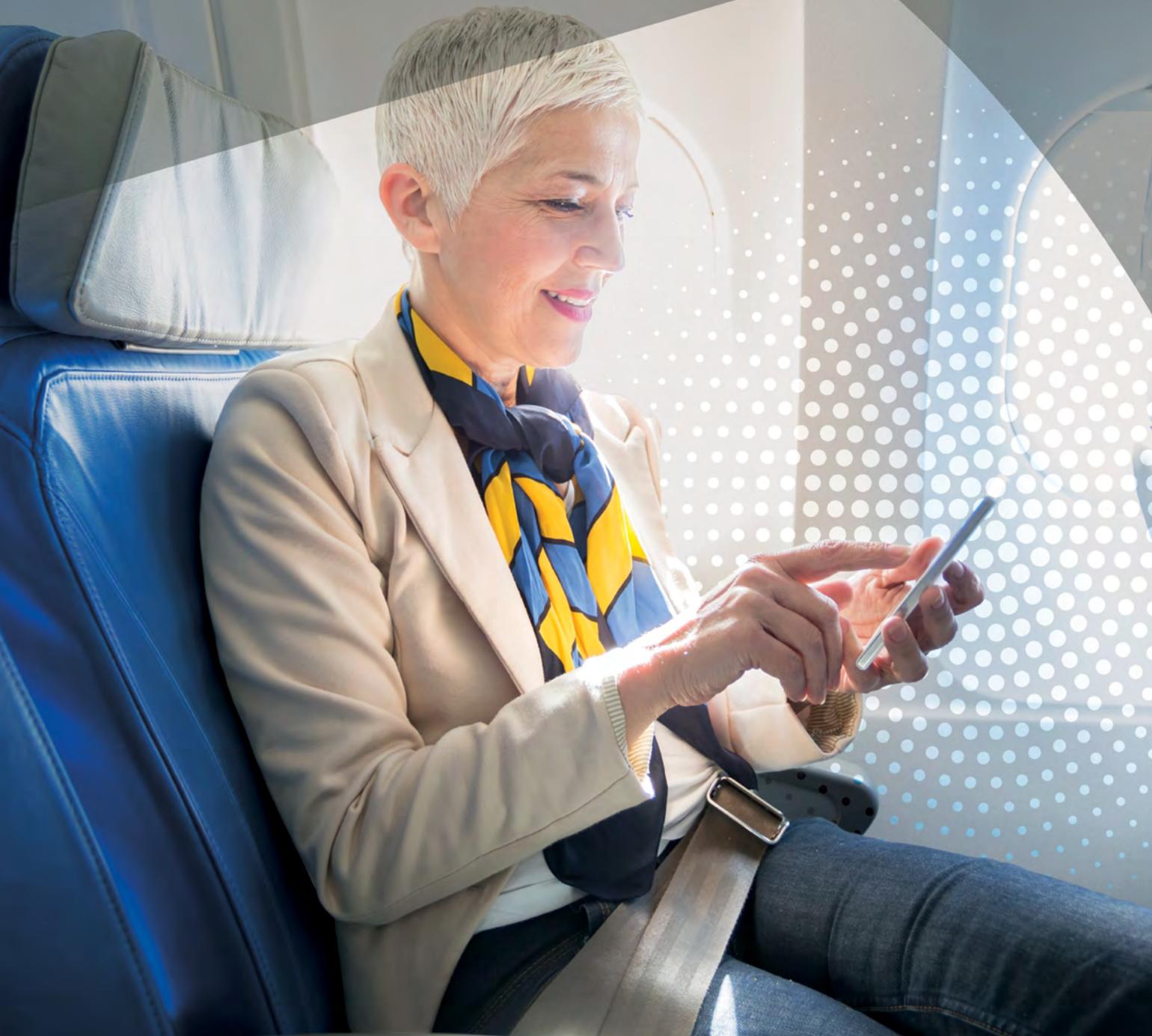
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World Travel Catering & Onboard Services Expo celebrates 10th anniversary

✎ The World Travel Catering & Onboard Services Expo (WTCE) is celebrating its 10th anniversary this year.

The show, which returns to Hamburg Messe on 14-16 June 2022, has a series of initiatives to mark the milestone and will focus on enabling the industry to accelerate its post-pandemic recovery and enhance the passenger travel experience.

The key themes this year include sustainability and wellness, passenger personalisation, boosting ancillary revenue and inspiring the next generation.

The event will feature more than 250 suppliers of onboard products and services – including over 75 companies that will be making their WTCE debut this year such as

GreenMouse, Cocktailmenot, SATS Catering and Landgarten.

WTCE has also announced that a new competition, Onboard Icons, will be launched at the event.

The competition will spotlight the industry's most influential people and recognise the outstanding contributions made by individuals in the sector over the last decade.

WTCE Event Director Polly Magraw said: "We're thrilled that we'll be reuniting back at the Hamburg Messe for WTCE once again after a three-year break – and I'm sure the industry is equally as keen to meet old contacts and create new relationships at the event.

"We are particularly excited to celebrate WTCE's 10th anniversary and share some of the industry's fantastic successes from the past

decade, while looking ahead to the next 10 years.

"Although it has been a tough couple of years for the aviation and travel industry, we're looking forward to celebrating and supporting our visitors and exhibitors with a programme

packed with opportunities to learn, discover and build sustainable businesses for the future."

Visitors and exhibitors are invited to a free-to-attend drinks and networking reception to mark WTCE's 10th anniversary on Wednesday 15 June.

Celebrating: WTCE is hosting a free-to-attend drinks reception sponsored by Heineken on Wednesday 15 June to celebrate the event's 10th anniversary.



Hawaiian to offer free high-speed Starlink internet on trans-Pacific fleet



Plugged in: Hawaiian Airlines is preparing to equip its aircraft with Starlink's satellite internet connectivity service from next year.

✎ Hawaiian Airlines has announced an agreement with Starlink to provide complimentary high-speed, low-latency broadband internet access on board flights to the continental US, Asia and Oceania.

The carrier says it will equip its Airbus A330 and A321neo aircraft as

well as its incoming fleet of Boeing 787-9s with Starlink's satellite internet connectivity service.

"When we launch with Starlink, we will have the best connectivity experience available in the air," said Hawaiian Airlines President and CEO Peter Ingram. "We waited until

technology caught up with our high standards for guest experience, but it will be worth the wait. Our guests can look forward to fast, seamless and free Wi-Fi to complement our award-winning onboard Hawaiian hospitality."

Jonathan Hofeller, SpaceX Vice President of Starlink Commercial Sales, said: "Hawaiian Airlines is ensuring its passengers will experience high-speed internet the way we expect it in the 21st century, making hassles like downloading movies before take-off a relic of the past.

"With Starlink, the in-flight experience is greatly simplified so that once passengers step on board the plane the internet works seamlessly throughout their flight. Soon, passengers will enjoy all the

benefits of having the world's best in-flight internet connectivity from the comfort of their seats."

Starlink's low-Earth orbit constellation of advanced satellites, the latest of which utilise a revolutionary laser mesh network, offers reliable, high-speed, low-latency connectivity on trans-Pacific flights.

Hawaiian says passengers will be able to stream content, play games live with friends on the ground, work and collaborate in real time and use social media.

Connecting to the internet will be seamless when guests walk on board, without registration pages or payment portals.

Hawaiian and Starlink expect to begin installing the product on select aircraft next year.

FACC announces partnership with Leki Aviation



Growth opportunities: FACC specialises in the modernisation, repair and maintenance of aircraft. Photo: FACC

✎ Aircraft modernisation, repair and maintenance company FACC has announced a partnership with international parts distributor and service provider Leki Aviation.

FACC's services range from high-tech lightweight components for space to service and repair

offerings for airlines and aircraft operators. Growth opportunities are very high according to the company, particularly in the aftermarket services segment.

Robert Machtlinger, CEO of FACC, said: "The market for maintenance, repair and overhaul in

civil aviation is making a noticeable recovery. Thanks to our innovative solutions, we have been able to establish an excellent position in this field in recent years, and are thus ideally equipped for the future."

The number of passenger aircraft worldwide – currently around 23,000

– is expected to double to 46,000 in the next 20 years, the company says, with demand for service and repair services growing rapidly.

By 2030, the global market volume is set to exceed US\$180 billion, compared with approximately \$70 billion at present. According to FACC, the Chinese growth market is particularly attractive.

Leki Aviation operates two branches in China and, thanks to its proximity to major Chinese airlines, occupies an outstanding position in the largest and most important growth market in the aircraft industry.

Whenever airlines need a spare part for one of their aircraft, they will in future rely on components produced by FACC.

Leki Aviation has a total of nine locations worldwide, including four distribution centres and two repair stations.

SD FlightDeck Freedom chosen as default datalink system for new Gulfstream aircraft

✎ Business aviation solutions provider Satcom Direct has announced that its FlightDeck Freedom (FDF) flight deck communications platform has been selected as the default datalink system for in-production Gulfstream G500, G600 and G650ER aircraft with initial line-fits already completed.

Gulfstream operators can now optimise the flexible FDF platform, which Satcom Direct says includes configurable features and monitoring of industry datalink compliance, to support secure and reliable datalink services between crew, air traffic control, and ground personnel.

John Kummer, Satcom Direct, VP Strategy and Programs, said:

"FlightDeck Freedom is much more than a datalink. As part of the SD connectivity ecosystem, it keeps the entire flight department and crew synced with the aircraft for more efficient flight operations.

"FDF provides critical data to support service monitoring and plays a significant part in communicating dynamic situational changes during flight.

"This augmented support for flight crew, ground personnel and passengers raises industry standards by improving safety and compliance levels through bolstered communications, and we are proud that Gulfstream has selected Satcom Direct for its flight deck service."



Finnair selects Panasonic Avionics to upgrade IFE systems

✎ Finnair has selected Panasonic Avionics to upgrade the in-flight entertainment systems across its widebody long-haul fleet.

Panasonic Avionics is installing its latest eX3 system in all cabins on Finnair's eight Airbus A330-300 aircraft.

Finnair's A350-900 aircraft, which already have eX3 installed, will see their premium cabins upgraded to the latest version. The project is part

of Finnair's cabin enhancements for its long-haul fleet, which feature the carrier's brand-new Premium Economy cabin.

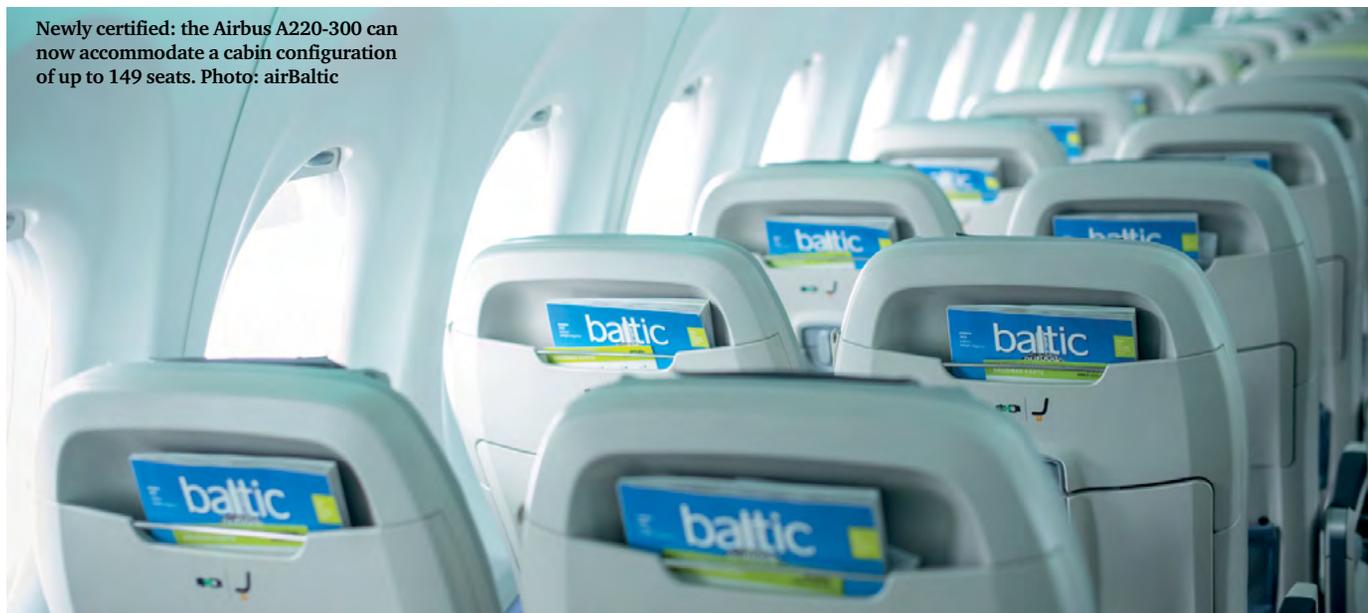
The first upgraded aircraft has already entered service.

The Panasonic Avionics eX3 system on board every cabin of Finnair's long-haul fleet includes HD screens with capacitive touch displays and handsets, as well as USB and laptop-charging facilities.



High definition: the Panasonic Avionics eX3 system on board Finnair's long-haul fleet includes HD screens with capacitive touch displays and handsets.

Newly certified: the Airbus A220-300 can now accommodate a cabin configuration of up to 149 seats. Photo: airBaltic



airBaltic increases seat count to 149 in its Airbus A220-300

✎ Latvian airline airBaltic has revealed its Airbus A220-300 fleet is undergoing a gradual change in cabin configuration to 149 seats, unblocking additional seating that couldn't previously be used.

Martin Gauss, Chief Executive Officer of airBaltic, said: "In late February we received our first airBaltic Airbus A220-300 aircraft, which is certified to operate up to

149 seats. Until now we could use 145 seats on the aircraft.

"However, going forward also, our existing fleet will be adjusted to use the additional capacity, which will further drive efficiency of our operations."

As of 5 April, the carrier has changed the cabin configuration for the first five of airBaltic's 33 Airbus A220-300 aircraft and

plans to unblock the additional seats on its entire fleet by the summer of 2023.

The first 20 aircraft will have 148 seats and the next 12 will have 149 seats in total.

All aircraft to be delivered between 2022 and early 2024 are planned to have 148 seats.

airBaltic has been operating all its flights with a single aircraft

type, the Airbus A220-300, since May 2020.

The carrier says this minimises complexity and provides additional efficiency and its Airbus A220-300 has performed beyond the company's expectations in terms of delivering better overall performance, fuel efficiency and convenience for both passengers and staff.

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Jamco America unveils new decorative branding panels

✦ Aircraft interior products supplier Jamco America has unveiled its new durable and aesthetically pleasing decorative branding panels.

The company says the panels offer airlines a cost-effective solution to update the forward

and mid-cabin areas in their aircraft. They also provide branding opportunities which include the use of colour and embossed logos in addition to other decorative features.

John Cornell, Director of Research and Development at

Jamco America, said: “The new Jamco decorative branding panels provide a perfect opportunity for airlines to refresh or rebrand the cabin interior.

“These new panels are not only beautifully finished but are extremely durable, which

translates into a long-lasting and cost-effective solution for airlines.”

The new decorative branding panels are thermoformed and are currently being provided for installation at the door one area and mid-cabin for narrowbody single-aisle aircraft.

News in brief



✦ Air Canada has announced that the carrier has flown more than 100,000 customers in a single day for the first time since early in the pandemic, as passengers continue returning to air travel. The carrier says the last time it carried more than 100,000 customers in one day was in March 2020. Passenger loads fell as low as 2,175 during the pandemic as global air traffic ground to a virtual halt.

3Gem Research & Insights

✦ Research and insight agency 3Gem has unveiled an interactive audience platform for airlines called CONNECT. According to the company, the technology will allow passengers to leave “in the moment” opinions and feedback on what they are watching. The platform is a result of more than two years of development and testing and acts as an overlay on the entertainment screen, serving passengers with one or any number of question-and-answer options. The platform offers various options such as encouraging passengers to rank what they are watching, complete customer satisfaction surveys, and opportunities for passengers to interact with advertisers.



✦ New charter airline Aeroflyer has selected Bluebox Aviation Systems to provide wireless streaming services across its Boeing 737 fleet. According to Bluebox, Aeroflyer will initially be deploying Bluebox’s digital platform on its first two aircraft using Bluebox’s battery-powered Bluebox Wow hardware and will then migrate to the aircraft-powered version of Bluebox Wow as the airline’s fleet grows.



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I D A I R

Designed for success



G500 and G600: Gulfstream is experiencing significant order activity across its in-service fleet.
Photo: Gulfstream

Business aviation has experienced great gains in recent years and iconic business jet manufacturer Gulfstream is a shining example of this growth. *Inflight* Editor Satu Dahl met up with Gulfstream's President Mark Burns and spoke with Scott Neal, Gulfstream's Senior Vice President of Worldwide Sales to learn all about Gulfstream's latest innovations.

Gulfstream's first purpose-built business aircraft, Gulfstream I, first flew in 1958. Since then, the business jet manufacturer's fleet has grown steadily, and the company now has more than 2,900 aircraft in service all around the world.

And it certainly isn't stopping there – in addition to last year announcing the development of two new next-generation aircraft, the large-cabin Gulfstream G400 and

ultralong-range Gulfstream G800, and progressing fast with its G700 which is currently in flight testing, the company has been opening up new service centres and facilities in strategic locations globally to support its growing number of customers.

Gulfstream's new service centre in Farnborough, UK, and the company's customer support facility in Palm Beach, Florida, both celebrated one-year

anniversaries in 2021, and the company has also announced that it is opening a customer support service centre facility in Fort Worth, Texas, later this year and an all-new sustainable service centre in Mesa, Arizona, is projected to open in 2023.

A PHILOSOPHY FOR DESIGN

Naturally, providing a superior cabin experience for customers is one of the key drivers for the company. Mark Burns, who was named President of Gulfstream Aerospace Corporation in July 2015 and has spent more than 35 years with Gulfstream, told *Inflight* in Farnborough in March that he considers lowering the cabin altitude one of Gulfstream's biggest innovations when it comes to the environment in the cabin and this is something the company has invested heavily in. "Changing cabin altitude and





G280: Gulfstream has added many new features to the aircraft in the past year, including an upgraded avionics system. Photo: Gulfstream

reducing noise levels is really a design philosophy. One of the things I talk about is our investment in manufacturing – the precision with which we can build airplanes today helps us lower cabin altitude and take the noise out of the airplane.”

Lower cabin altitude means less strain on the body, which leaves passengers even more relaxed and refreshed on arrival to their destination. “This is something we’re also really working on our G700 and G800, to get it as low as possible. It physically makes a difference on your body. So, I think that’s the biggest step forward. That ability to create an easier trip for the owners is something we have really focused on regarding cabin comfort.”

SETTING THE STANDARD

Gulfstream has indeed been investing in ongoing research and development, and the company says this, coupled with excellence in interior outfitting, has allowed it to reduce cabin altitude from 6,000 feet/1,829 metres to 4,800 ft/1,463 m at a 41,000-ft/12,497-m cruising altitude for its G280 aircraft.

“The G280 continues to set the standard for the super-midsized class, and we are seeing outstanding levels of interest from customers around the world,” Burns explains. “This past year marked a record sales year for the G280, validating that our continued investment has been well-received.”

In addition to lowering the cabin altitude, there are other new enhancements for the

G280 such as new exterior LED lights, and Gulfstream says the light upgrade bolsters aircraft safety through increased visibility in flight and during ground operations, in addition to reducing maintenance requirements and improving reliability.

Gulfstream has also added many other new G280 features in the past year. It is now possible to equip the aircraft with the manufacturer’s plasma ionisation clean air system that neutralises pathogens and allergens, and its Controller-Pilot Datalink Communication (CPDLC) is now FANS-E compliant.

Customers can now also choose the Gulfstream G280 avionics upgrade V3.6.1 which includes SiriusXM graphical weather



“ The G280 continues to set the standard for the super-midsized class, and we are seeing outstanding levels of interest from customers around the world. ”

Mark Burns, President, Gulfstream Aerospace Corporation



G700: currently in flight test, Gulfstream says its new aircraft will offer the most spacious, innovative and flexible cabin in the business jet industry.
Photo: Gulfstream

with real-time updates, dual electronic charts to help create a paperless flight deck and reduce pilot workload, a surface management system which provides aural and visual cues to alert pilots to unsafe ground and arrival operations and helps prevent runway incursions and access to vertical weather and predictive windshear information, allowing pilots ample time to avoid weather issues in flight.

The G280's cabin offers multiple floorplan options, seating up to 10 passengers with a four-place conference table, and features the manufacturer's exclusive cabin management and high-definition entertainment systems in addition to 19 large windows, access to baggage at high altitudes and multiple connectivity options including a high-speed Ka-band satellite system.

ROBUST DEMAND

Order activity for the Savannah, Georgia-based manufacturer has been at its strongest recently, and Scott Neal, Gulfstream's Senior Vice President of Worldwide Sales provides *Inflight* exclusive insight on customer demand.

"Gulfstream is experiencing significant order activity across our fleet, and our backlog is the strongest it has been in years," Neal explains. "We see demand for all our aircraft, including the in-production super-midsize G280 and the G500, G600 and G650ER, as well as the G700, which is in flight test, and the G400 and G800, which were announced last fall."



Gulfstream G700 Ultragalley and Passenger Lounge. Photo: Gulfstream



Gulfstream G700 Grand Suite Bathroom. Photo: Gulfstream



Gulfstream G700 Grand Suite. Photo: Gulfstream

One reason for this robust demand is Gulfstream's compelling mix of range and performance capabilities, advanced flight-deck technology and cabin comfort, Neal explains. "Our next-generation fleet, the G400, G500, G600, G700 and G800, feature the Gulfstream Symmetry Flight Deck with the industry's only electronically linked active control sidesticks, and the most extensive use of touchscreen technology. In the cabin, the Gulfstream Cabin Experience includes 100% fresh, purified air, some of the lowest cabin altitudes in the industry and whisper-quiet noise levels," he states.

And how about the key interior design features on board the G700? "The G700 offers the most spacious, innovative and flexible cabin in the business jet industry," Neal says. "When we developed the G700 interior, our focus was to give our customers the ability to seamlessly extend their life on the ground to their aircraft, and they can do so through up to five living areas."

Neal shares a few of the impressive details: "The G700 features the largest galley in the industry with its 10-foot (3.048-metre) countertop and optimised storage, including space for an extra-large refrigerator. Customers can choose a six-place dining table and a stateroom with fixed bed and shower. These are just a few of the many flexible configurations available on the G700."

"We also invested heavily in interior research and development to ensure the utmost in cabin comfort. The seating on the G700, for example, was developed by



Inside the first G600 to be outfitted at Gulfstream's Dallas facility. Photo: Gulfstream

Gulfstream and involved extensive comfort studies and innovative layers of cushioning to create organic, anatomical shaping that enhances comfort. As with all Gulfstream furnishings, the seats are finished by hand with the finest materials available.”

“Our production test aircraft is currently testing every aspect of the G700 interior – over thousands of test points – to ensure we deliver a mature, reliable product that exceeds our customers’ expectations,” Neal states.

PREPARING FOR THE FUTURE

To meet growing demand for the manufacturer’s G600 aircraft, Gulfstream has also expanded its completions operations to the company’s Dallas-based facility. This enhances Gulfstream’s interior outfitting capabilities and the first Gulfstream G600 to be outfitted at the Texas facility has now been delivered. To date, the manufacturer has made more than 70 G600 deliveries to customers globally.

“We are seeing tremendous demand for our next-generation aircraft,” Mark Burns explains. “Expanding G600 completions to Dallas is positioning us well for the future as we prepare for G700 entry into service, continued G500 and G600 in-service fleet growth and the interest we are seeing in the recently announced G400 and G800.”

Gulfstream says the addition of G600 completions to the Gulfstream Dallas facility is part of the company’s larger growth

strategy. Gulfstream also outfits large-cabin interiors in Savannah and Appleton, Wisconsin.

When it comes to configuring the G600, four living areas for up to 19 passengers or three living areas with a crew compartment for up to 13 passengers are possible, and customers can also choose from a forward or aft galley configuration. Burns says the company’s award-winning bespoke interiors and the individuals who create and install them are the best in the business. “In fact, we have received direct feedback from this newest G600 customer citing an ‘outstanding’ experience, and I’m excited for our customers to experience the unparalleled quality and excellence produced by the world-class team at our Dallas facility.”

TAILORED TO INDIVIDUAL NEEDS

Gulfstream has also recently made changes to its aircraft redesign programme – it announced in February that the redesign programme now offers multiple options to suit a wide range of owner needs and timelines. Any Gulfstream aircraft can be redesigned in as little as 30 business days. Derek Zimmerman, Gulfstream Customer Support President, explains more about the new offering: “From a refresh to a floorplan reconfiguration, our team can bring any vision to reality. An updated aircraft not only improves the customer’s overall comfort, it can increase the aircraft’s marketability.”

Customers can choose a refurbishment package that suits them the best. Different options offered include ‘Refresh’, with the aircraft receiving recovered seats as well as upper and lower sidewalls, fresh carpeting and exterior paint; ‘Premium’, which in addition to the Refresh offering includes outfitting of new veneers and countertops; and ‘Custom’, where aircraft are reimagined with a new floorplan in addition to including all the perks of the Premium package.

Customers who opt for one of the packages are assigned a dedicated Gulfstream interior design team member, who works with them from planning to completion. And there is an additional benefit too: “To further reflect the convenience and benefit of choosing Gulfstream, aircraft redesigns can be accomplished when the aircraft is already undergoing other maintenance services,” Zimmerman explains.

In an interesting development for the company regarding the maintenance and conservation of technical records, Gulfstream

“

Gulfstream is experiencing significant order activity across our fleet, and our backlog is the strongest it has been in years.

Scott Neal, Senior Vice President of Worldwide Sales, Gulfstream

”

“

To further reflect the convenience and benefit of choosing Gulfstream, aircraft redesigns can be accomplished when the aircraft is already undergoing other maintenance services.

Derek Zimmerman, Customer Support President, Gulfstream

”

has revealed that its team in charge of preserving the engineering documents at the company's headquarters in Savannah has designed a new database tool to make the records easy to access and to ensure every detail is kept preserved for the future.

The company's engineering vault, which is carefully maintained by a team of engineering archivists and data analysts, contains nearly seven decades of Gulfstream's critical engineering documents which include thousands of tightly rolled tubes of hand-drawn blueprints of parts, cabin designs, aircraft drawings and more.

Sheryl Bunton, Senior Vice President and Chief Information Officer at Gulfstream,

reveals more about this fascinating site:

“There are hundreds of thousands of documents, including many of the original drawings from the very early days of Grumman and Gulfstream.

“We have incredibly detailed records, but none of them were easily searchable,” Bunton continues. “We launched a new project to convert all of the records with associated CAD files along with many documents to machine readable PDFs, creating a searchable database called the Aircraft Information Retrieval (AIR) system. This new system will save our engineering, manufacturing and customer support professionals thousands of working hours.”

The goal of the project according to Bunton was to not only improve data quality by digitising and preserving the valuable documents, but also to improve usability and consistency. “We are always looking for ways to improve how we become more efficient. AIR not only digitises hundreds of thousands of records, but ensures we preserve this valuable history of our company and all of the incredibly talented people who spent decades designing and building these amazing aircraft.”

RECOGNISING EXCELLENCE

Gulfstream has close partnerships with its suppliers and promotes this as part of the manufacturer's collaborative approach. The company celebrates its top suppliers annually at its Supplier of the Year awards. This year, 24 recipients were presented with the award, with winners including ACT Aerospace, Globe Engineering, AMI Metals Inc, Aviation Communication & Surveillance Systems, Birk Aerosystems Corporation, Galley Support Innovations and many more.

“Gulfstream works collaboratively with suppliers who put our customers first, and we look forward to their continued success,” explains Dennis Stuligross, Gulfstream's Senior Vice President, Program Management, Quality and Supply Chain. “Our close partnership with suppliers enables us to continue to exceed our customers' expectations for quality and excellence.” ■



Showcase: the aesthetics display in Gulfstream's Manhattan Sales and Design Center. Right, the G400 showroom experience. Photo: Gulfstream



Making connections: Finnair Cargo's extensive network connects 19 cities in Asia and eight cities in North America with more than 100 destinations in Europe.
Photo: Finnair

In high demand

Inflight Editor Satu Dahl met up with Finnair Cargo's Vice President Fredrik Wildtgrube at the Nordic Air Cargo Symposium in Copenhagen in April and spoke with Lufthansa Cargo to get an exclusive insight into the fast-growing air cargo market.



In addition to air cargo operators facilitating global trade and delivering critical supplies to the regions around the world where they are most urgently needed, the air freight sector has been meeting the increasing transport needs of the expanding e-commerce sector. As operators are creating more capacity to meet growing demand, new and exciting innovations are being launched to optimise and simplify processes, ultimately resulting in a stronger and more agile air freight industry.

Digital transformation is always at the forefront when it comes to key innovations for the sector, and the agenda at this year's Nordic Air Cargo Symposium was no exception – the topic featured prominently at this year's event. Several key players shared their views on the topic, including Emirates Cargo's Henrik Ambak and Finnair Cargo's Vice President Fredrik Wildtgrube. "Digitalisation and new technology provide better efficiency, customer and employee experience as well as environmental sustainability," Wildtgrube

explains, highlighting the importance of air cargo operators ensuring they continue to adopt new technologies.

And Finnair Cargo is doing just that. "Digitalisation is a very central part of Finnair Cargo's strategy. Our first A350 extra-widebody aircraft was part of our transition to digital," Wildtgrube tells *Inflight* in Copenhagen. "In 2015, we were still operating from our old cargo facility in Helsinki airport. However, we knew then we'd be acquiring our new A350 aircraft and



“

Sustainability lives in our DNA. But we have to do more as an industry, and digitalisation is part of this.

Fredrik Wildtgrube, Vice President, Finnair Cargo

”



Airbus A350: Finnair Cargo vaunts the sustainability benefits of its A350 fleet. Photo: Finnair

with the capacity increase that was coming to us with those new aircraft, we knew we wouldn't be able to cater for those aircraft in that facility.”

Wildtgrube explains that Finnair Cargo didn't want to “copy and paste” the processes from its perfectly functional but outdated logistics facility, so it decided to go ahead with a complete makeover. “We started this by updating our cargo management system in 2016 and this moved Finnair into the digitised operations.”

Finnair Cargo opened its new COOL cargo terminal in 2018 and really started to see the positive results of digitalisation then, Wildtgrube says. “Our new facility is now four years old but it is still as fresh and current as it was four years ago. The facility is fully paperless and everything works on tablets.

“In our view, what we wanted to create was the best mixture of automation, robotics and processes and people systems, and it has all worked out really well. We still call our COOL cargo terminal Europe's most modern cargo facility.”

The airline also launched its new online cargo booking service six months ago. The service features an all-inclusive platform where a customer can book all types of cargo with instant booking confirmation. “It also gives customers real-time access to our capacity and rates as well as functionality to track shipments. We previously envisaged that digital is an additional tool for our cargo operations but we now believe that with digitalisation, we have the possibility to promote productivity, customer experience



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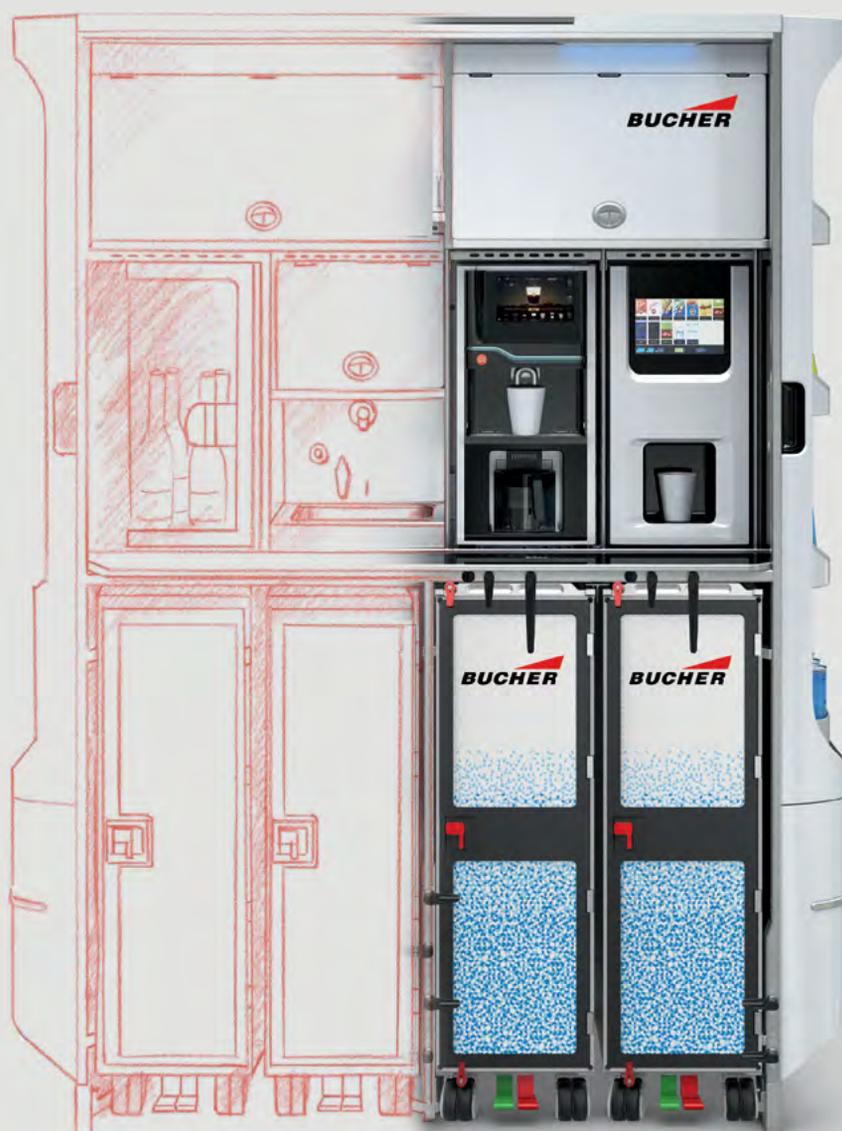


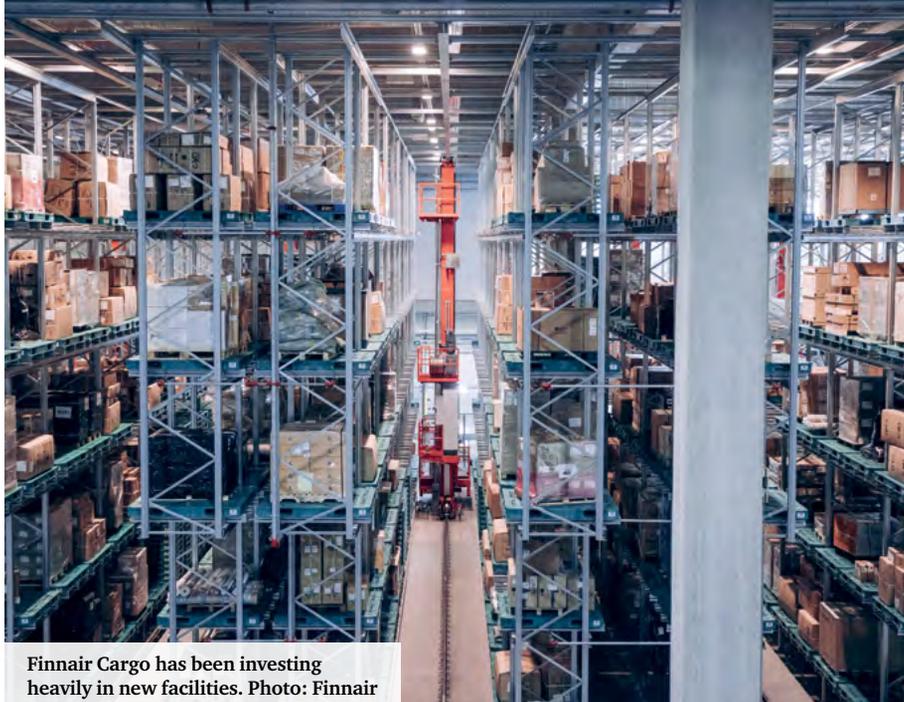
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Finnair Cargo has been investing heavily in new facilities. Photo: Finnair

and also sustainability which too often gets ignored,” Wildtgrube states.

MAINTAINING MOMENTUM

Regarding market demand for Finnair Cargo at the moment, Wildtgrube says that, for many years, the carrier has had a very strong market in Northern Asia. “As operations have been heavily disrupted by the pandemic over the past two years, and of course due to the new airspace closure over Russia, this has impacted everyone either directly or indirectly. However, at Finnair Cargo, we have utilised our cargo stations in Asia and also our circular southern and northern routes to minimise disruption. Finnair Cargo also has a strong footprint in northern American stations,” Wildtgrube explains.

“Given the strength of our location, advanced infrastructure, route network and available facilities, we’re an excellent air freight service provider for perishable products, and even despite the fact that some of the flight routes might take a few hours longer currently, we have received positive feedback from our customers who say their service has not been impacted significantly.”

GOING GREEN

Finnair Cargo is also working hard behind the scenes to minimise carbon emissions and promote sustainability. Wildtgrube explains that Finnair, as a group, has a wider emissions target – and considers sustainability in all of its operations. “We are set to be carbon neutral by the end of 2045 and we will cut our net emissions by 50% from the 2019 level by



Finnair Cargo has launched a new online booking service to make the process fast and easy. Photo: Finnair

2025. There is a combination of measures we are using to achieve those goals – these include utilising various new innovative solutions such as sustainable aviation fuel, fuel efficient flight planning and multimodal ground transportation.

“But there’s no ‘one magic pill’ to achieve full sustainability as we consider it from a social, economic and environmental perspective – all of these areas have to work together in harmony,” Wildtgrube states, continuing that Finnair made a major investment in the sustainable future of aviation when it acquired its A350 fleet. The fuel burn and emissions per seat for A350 aircraft is approximately 25% less than their predecessors. “So, we are operating with a



What we wanted to create was the best mixture of automation, robotics and processes and people systems, and it has all worked out really well.

**Fredrik Wildtgrube, Vice President,
Finnair Cargo**



modern fleet which is already a significant step in the right direction but there are other steps we can take too.” As an example, Wildtgrube reveals Finnair Cargo has 1,200 solar panels in the roof of its COOL air cargo terminal, which produces 10% of the total energy it consumes.

“We were also the first air cargo facility in the world that was ‘green certified,’” he says. “Sustainability lives in our DNA. But we have to do more as an industry, and digitalisation is part of this,” Wildtgrube explains.

In April this year, the Finnish carrier signed a letter of intent for a commitment to cooperate with the Science Based Targets initiative (SBTi) to bring its CO₂ emissions reduction targets in line with the UN Paris Climate Agreement. The UN Paris Climate Agreement aims to limit global warming to well below 2°C above pre-industrial levels to combat the effects of climate change.

Regarding the challenges the industry has faced over the past two years due to the pandemic, Wildtgrube says that, obviously, the whole airline industry has been significantly affected by the pressures of the past two years. “I’d really like to praise the resilience of our industry and all the support and dedication we’ve had throughout, working together with our customers and stakeholders.

“The collaboration that’s been happening between all the parties internally and externally has ensured we’ve practically been operational throughout the whole pandemic and even scaled upwards every single month. It is also worth adding that, without our



A321: with a payload of 28 metric tons and a range of 3,500 kilometres, the versatile A321 is making its mark. Photo: Lufthansa Cargo



The addition of the medium-haul network is an important step in further opening our company to attractive business segments such as the fast-growing e-commerce sector.

Dorothea von Boxberg, Chairperson of the Executive Board and CEO, Lufthansa Cargo

heavy investment into our technological advancements and new facilities and processes, we wouldn't have been as agile, and the pandemic response could have looked very different. So, as an airline, we were prepared," Wildtgrube sums up.

LUFTHANSA CARGO: PROVIDING MUCH-NEEDED CAPACITY

Another key European air freight carrier, Lufthansa Cargo, also shared its latest new developments with *Inflight*, with the airline's spokesperson revealing that the most important goal for the carrier is and remains to offer customers sufficient capacity on the routes that are most important to them. "We will continue to work on this in 2022. Since March, we have also been supplementing our intercontinental network with a medium-haul network. We serve these routes with smaller A321F freighters operated by Lufthansa Cityline, a subsidiary of Deutsche Lufthansa AG.

"By entering the market, we are responding to the continued growth in demand from the e-commerce industry, enabling us to offer our customers even more capacity and additional fast connections."

The cargo carrier's A321 freighter operated its first commercial flight from Frankfurt to Dublin, with an onward flight to Manchester, in March this year. The freighter, christened "Hello Europe," was loaded with express freight and general cargo on its maiden flight. Dorothea von Boxberg, Chairperson of the Executive Board and CEO of Lufthansa Cargo, underscores the importance of the new freighter for the carrier's business model: "The addition of the medium-haul

network is an important step in further opening our company to attractive business segments such as the fast-growing e-commerce sector. Lufthansa Cargo can now offer its customers same-day and ecommerce solutions within Europe and to selected medium-haul destinations.

"The new aircraft will serve a wide range of customers and routes, both scheduled and charter. We look forward to providing much-needed capacity in the European market and further strengthening our position as the leading airfreight carrier in Europe."

To date, Lufthansa Cargo has operated a freighter fleet of 15 of its own B777F aircraft. The second A321 medium-haul freighter is expected to enter service in late summer. Both aircraft will be operated under a wet lease agreement by Lufthansa CityLine, each under Lufthansa Cargo's flight number. The

Airbus A321s, which have been converted to freighters, offer a payload of 28 metric tons with a range of 3,500 kilometres. According to Lufthansa Cargo, the conversion allows the use of standardised cargo pallets on the main deck as well, and the twin-engine Airbus A321 is one of the most versatile aircraft in its class, having the ability to transport containers on the main deck and offering fast loading and unloading, together with enabling highly efficient flight operations.

MOVING MARKET

Regarding where Lufthansa Cargo sees the most market opportunities at the moment, the spokesperson says the carrier is still working under pandemic conditions. "At Chinese airports, for example, very strict Corona [virus] rules still apply, which make

AeroSHARK: Lufthansa Cargo is deploying the fuel-saving drag reduction solution on its aircraft.
Photo: Oliver Rösler



“ We are very pleased that we will be able to offer our customers a more efficient booking process and an improved customer experience in the future.

Ashwin Bhat, Chief Commercial Officer at Lufthansa Cargo



777: Lufthansa Cargo considers the twin-engine Boeing 777F the most efficient, modern freighter in its class. Photo: Lufthansa Cargo

work much more difficult. In this respect, our first goal is to be able to reliably offer our capacity to our customers again this year despite Corona conditions.”

In the medium term, the carrier’s ambitions clearly go beyond this. “We want to become the most customer-focused, most digital and most sustainable cargo airline. To this end, we are rethinking our processes and revising them along the customer journey and from the customer’s perspective. At many points, we can offer our customers even better service through more digital offerings, for example by digitising the documents and information that accompany freight. And I have already mentioned sustainability,” the spokesperson shares. “In this way, we are aiming to further expand our position as the leading air freight company in Europe.”

Regarding digitalisation, in March, Lufthansa Cargo announced its customers

will now benefit from an optimised booking process on the cargo.one platform. Shippers can have the air waybill number required for booking assigned to them digitally and fully automatically, eliminating the need for time-consuming manual management of air waybill inventories and numbers.

According to the carrier, Lufthansa Cargo is the exclusive launch partner for this new, digital and free feature at cargo.one, which is available for all Lufthansa Cargo capacities that can be booked through the platform. The airline plans to offer automated air waybill number assignment for customer bookings on its own website too in the second quarter of 2022.

“We are very pleased that we will be able to offer our customers a more efficient booking process and an improved customer experience in the future,” says Ashwin Bhat, Chief Commercial Officer at Lufthansa Cargo.

“The fact that we are the first air freight airline to jointly launch the process of automated air waybill number assignment with cargo.one shows once again that Lufthansa Cargo is playing a pioneering role in the digitalisation of the entire industry. Excellent customer orientation and modern digital distribution are our top priorities.”

Naturally, like other cargo carriers, Lufthansa Cargo is also working to minimise its carbon emissions. Lufthansa Cargo’s spokesperson explains sustainability plays a major role for the Lufthansa Group. “We work very consistently to reduce our carbon footprint. For us, the vast majority of CO₂ is generated by flying. The biggest factor here is the use of modern, fuel-efficient aircraft.”

Lufthansa Cargo says its Boeing B777Fs are currently the freighters with the best environmental balance sheet. “Operationally, we are working on many issues to further reduce CO₂ emissions, for example by using lightweight containers or efficient approach procedures. This year, we will be the first airline to deploy an innovative sharkskin-mimicking film, AeroSHARK, which reduces the frictional drag of aircraft in the air, thus reducing fuel consumption.”

The spokesperson explains the carrier offers all of its customers the opportunity to reduce their remaining carbon footprint even before the flight through the use of sustainable aviation fuel or through offsetting, i.e., projects outside the airline sector.

“We have set ourselves very ambitious targets to halve our carbon footprint by 2030 and bring it to net zero by 2050. That is what we are working towards.” ■

Light works: Lufthansa Cargo’s reduced-weight LD3 containers are cutting emissions.
Photo: Lufthansa Cargo





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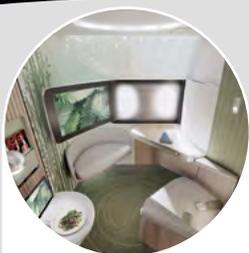
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Unveiling excellence

The Aircraft Interiors Expo (AIX) will once again be providing the centre stage in Hamburg for many new innovations designed for the aircraft cabin market. In this issue, we interview several suppliers showcasing their new products at the show and provide detailed insight on the many key markets that contribute to creating the best possible in-flight experience.



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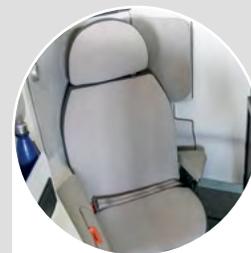
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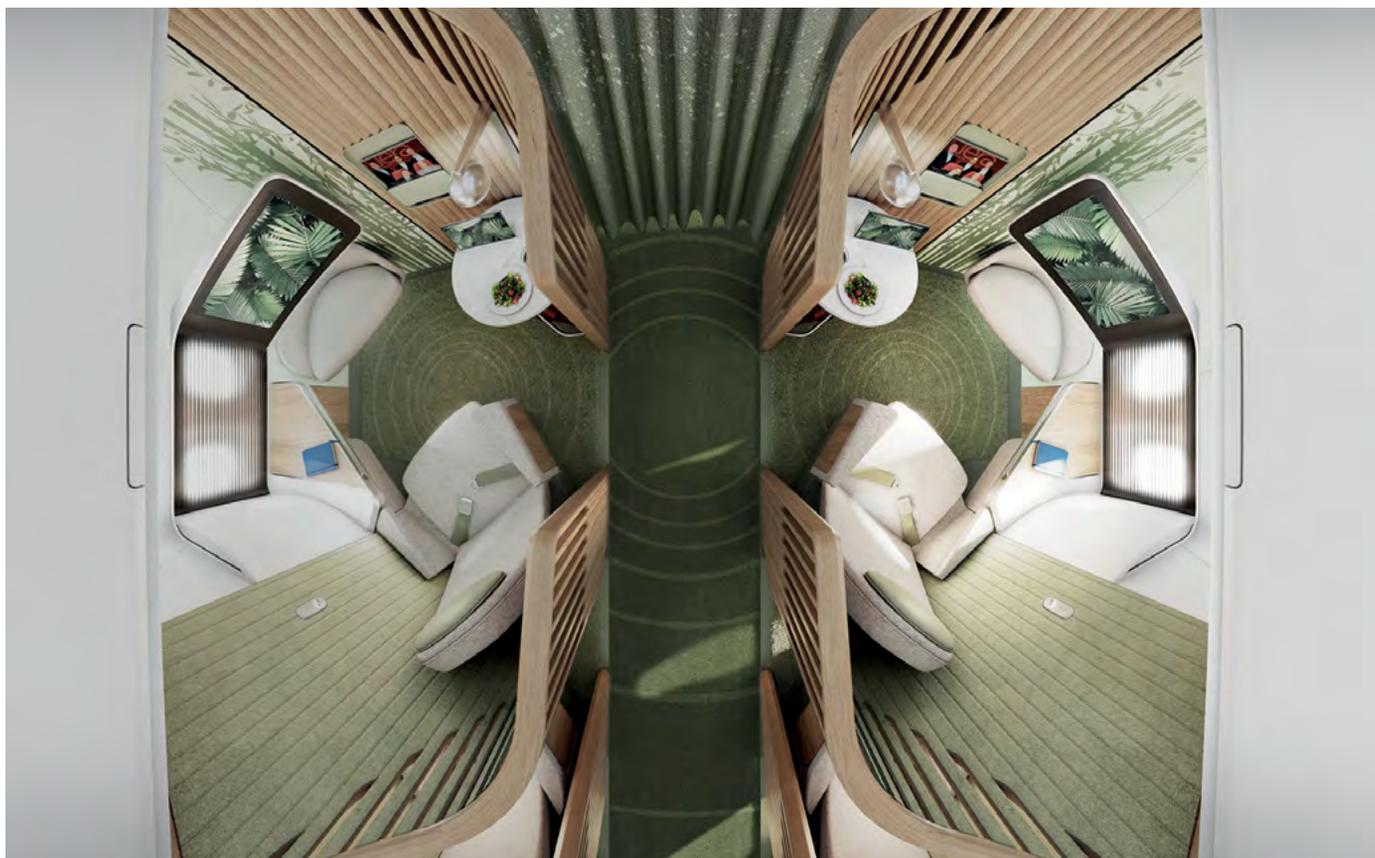
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Home from home

Teague and NORDAM unveiled a new ‘home-like’ aircraft cabin concept in March. *Inflight* spoke with Raegen Siegfried, NORDAM’s VP of HushWorks, and Anthony Harcup, Teague’s Senior Director of Airline Experience, to learn more about this exciting product.

The Elevate concept,

launched by design and innovation company Teague and aerospace company NORDAM, is the world’s first single-aisle aircraft cabin that uses floating furniture to reimagine the in-flight passenger experience.

According to the two companies, Elevate, which will be showcased at the Aircraft Interiors Expo, offers passengers more personal space, privacy and comfort in a home-like interior without compromising on existing passenger numbers.

Elevate implements sidewall attachment points that enable the creation of a lighter

and more efficient suite environment. By utilising mounted fixtures in the sidewall that eliminate restrictive structures around the monitor, side-furniture and ottoman, the concept increases the bed size, living space and stowage capacity for every passenger.

In the front row and business class, the suite environment wraps around the whole living space, creating a more exclusive and private zone that moves away from the typical tubular environment.

Instead, passengers are invited to enjoy a more luxurious residential atmosphere, with customised entrance lighting and overhead

bins delivering a wow factor for all who enter the cabin.

Raegen Siegfried, VP of HushWorks at NORDAM, explains that the floating furniture concept came about organically, through a series of layered innovations originating both from NORDAM and its design partner, Teague.

“We were looking for ways to support unique commercial cabin spaces, recognising business class seating composite technology is heavy, inefficient, and inhibits true design freedom,” he says.

“NORDAM’s heritage is in composite engineering, so we developed a next-generation seat attachment technology to solve those issues, and our patent-pending solution Nbrace was conceived.

“We engaged Teague to envision a cabin interior concept drawing on the benefits of our new component. They understood how to leverage our new technology by attaching key



Higher ground: Elevate is a single-aisle aircraft cabin that uses floating furniture to reimagine the in-flight passenger experience. Above, the suite environment wraps around the whole living space. Right, the design helps create a luxurious residential atmosphere. Left, the Nbrace composite seat attachment underpins the Elevate concept.



furniture elements and full-height partitions to suite walls – something that wasn't possible before Nbrace."

Anthony Harcup, Senior Director of Airline Experience at Teague, says that having played a foundational role in the recent development of premium seating for single-aisle aircraft, Teague's senior design team knew these smaller, architecturally-constrained cabins posed new challenges to the passenger experience that were not being addressed – one of which being the reduced sense of space.

He says: "As we began to outline our vision of the ultimate narrowbody passenger experience, NORDAM approached us with Nbrace – a technology capable of unlocking a completely new approach to the design of these spaces.

"Nbrace enabled us to leverage the closer proximity of the cabin architecture to our advantage, creating an expansive and immersive living space with a sense of ownership that extends far beyond the seat."

Asked what kind of innovative cabin materials were used to create Elevate, Siegfried says: "We had existing technology around moulded carbon fibre products, a

material system that holds some unique mechanical properties, so we were looking for places this could be useful.

"Nbrace is made from this in-service composite, providing the strength, rigidity and lightweight characteristics needed for Elevate."

Harcup notes that within the wider cabin, the seat and suite furniture are made from standard aviation materials.

"And that was important as it enabled us to demonstrate that this transformational experience does not rely on the use of exotic materials or technologies," he says. "It is achievable using existing industry manufacturing principles."

SMOOTH SAILING

For Elevate to become reality, Harcup explains that the concept came together surprisingly quickly – taking seven weeks from the first sketch on paper to completion.

"The fact Teague and NORDAM were completely aligned on the vision from the outset, and remained lockstep throughout, was a key factor in why the concept development process was so fast," he says.

According to Harcup, the challenges involved to create Elevate were minimal.

"Having led many blue-sky aircraft interior programmes it is not often we get to say this, but the execution was surprisingly smooth. The foundations of the project were so solid that it felt as though the concept was designing itself at times.

"The objectives of the project were simple and clear, both the teams at NORDAM and Teague consisted of highly experienced designers and engineers – all aligned on the vision for the interior – and given that this was a concept, we were free from the commercial constraints often inherent in major aviation programmes.

"The end result is that Elevate came out just the way we intended."

Harcup says the most challenging aspect has been understanding how best to communicate Elevate to the world.

"Whilst it is an entirely feasible cabin concept, it is at the same time an ecosystem of innovations built upon a groundbreaking technology. We have had to work hard to concisely communicate its value without selling it short in the process."



IFEC innovation

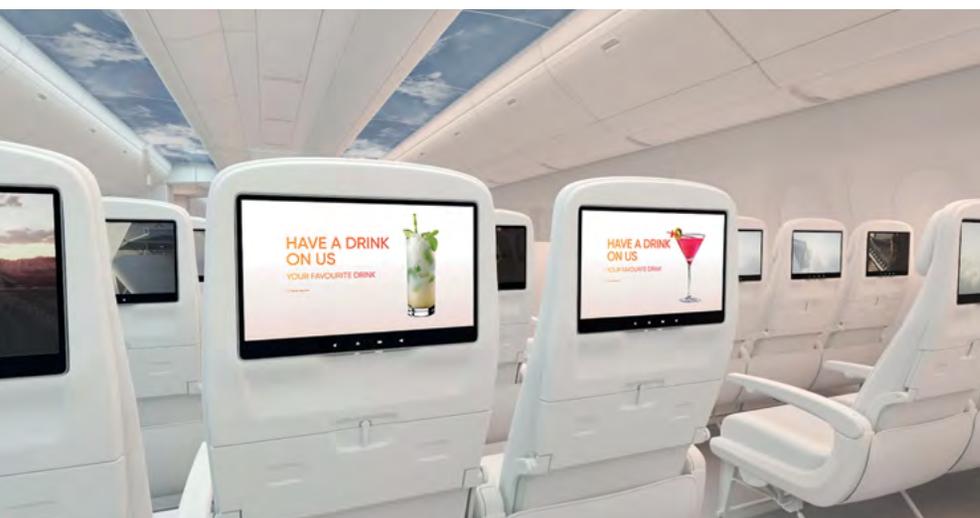
Tim Guest explores some of the latest in-flight entertainment and connectivity solutions on display at the Aircraft Interiors Expo this year and speaks with the companies that have developed them to get a closer look.

One of the companies making its first in-person attendance at the Aircraft Interiors Expo (AIX) is AERQ, which will showcase its AERENA platform for digital engagement, empowerment and intelligence.

Cloud-based AERENA is a modular, open-IT platform that facilitates greater passenger engagement on board a flight, leading to a deeper understanding of passengers' in-flight behaviours and needs, thereby opening new revenue opportunities for airlines and selected partners.

The platform comprises onboard touchpoints such as an in-seat system and cabin digital signage. The in-seat system provides passengers with an exceptional IFE experience, including 4K monitors and a PED-friendly environment.

At AIX, the company's booth experience will demonstrate how AERENA will create empowerment, savings and growth, so that airlines can play their best digital game and create something unique for their passengers and stakeholders.



Engaging: AERQ's AERENA in-seat system provides passengers with an exceptional IFE experience, including 4K monitors and a PED-friendly environment.



Astronics will be introducing its new EmPower UltraLite G2 USB In-Seat Power System at AIX.

POWERING THE SYSTEMS

Introducing its new EmPower UltraLite G2 USB In-Seat Power System at AIX will be Astronics, a leading provider of intelligent power systems and equipment for IFE suppliers, as well as stand-alone in-seat passenger power systems.

The EmPower UltraLite G2 USB In-Seat Power System is capable of delivering up to 60W of USB Type-C power to every passenger on a commercial aircraft, ensuring passengers can have the best possible uninterrupted experience from onboard IFE and personal devices.

The full range of EmPower systems are integrated with the aviation industry's leading IFE suppliers and systems and are widely installed in line-fit and retrofit programmes globally.

With EmPower UltraLite, Astronics introduced the highly efficient "zonal" in-seat power system, eliminating the traditional need for a power supply installed in each seat group in favour of remote-mounted zonal power supplies that simplify the installation process, reduce weight and lower costs. (You can find a detailed interview with Astronics on page 54.)

A solution that gives airlines the flexibility to mix and match seatback, wireless or overhead IFE systems, with or without in-seat power, is Burrana's RISE platform.

With a common 48VDC backbone, the system suits narrowbody and widebody aircraft, line-fit and retrofit. Whether an airline needs power plus IFE, or power as a standalone solution to pair with a wireless

system already installed, Burrana will have various products at AIX for a wide range of IFE-related applications.

The company's RISE Power features include 15W USB-A and easy upgrades to 60W, as well as rich usage data and reporting. Also on show will be RISE Wireless and 4K Overhead IFE solutions. (Burrana's Dave Pook provides more insight on the company's systems on page 52.)

STAYING CONNECTED

Promising a new era in in-flight connectivity is OneWeb, which continues to launch its network of LEO satellites. The company will be at AIX to discuss how it is building a network of strong and established industry



A wide range of IFE solutions and related systems will be some of the stars AIX 2022 in Hamburg in June. (Pictured: Burrana's RISE 4K Overhead solution).

partners to offer competitively priced, fully scaleable, and global broadband to the aviation market.

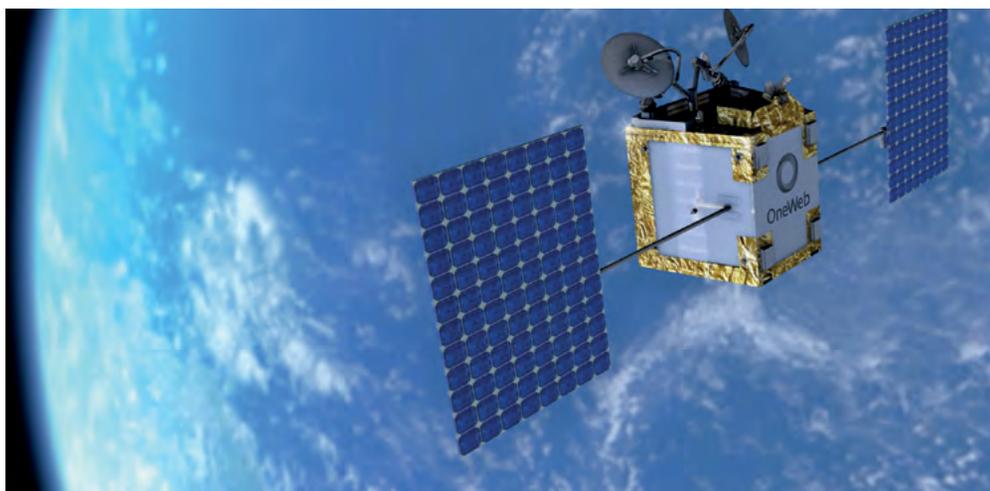
OneWeb's aviation team will be on hand to discuss hardware developments, partner integrations and distribution strategies.

From an operational perspective, OneWeb will unveil real-time airline applications, facilitated by globally consistent and affordable data transfer that will enable the delivery of increasingly sophisticated in-flight experiences.

OneWeb's aviation services, such as lag-free gaming and video streaming, seamless use of cloud applications, proactive IFE with enhanced personalisation and secure onboard retailing can be experienced at AIX.

Without some essential peripherals, many

OneWeb's aviation services, such as lag-free gaming and video streaming, seamless use of cloud applications, proactive IFE with enhanced personalisation, and secure onboard retailing can be experienced at AIX.



IFE systems will have trouble delivering. One such IFE-related product at AIX will be a Bluetooth audio jack from IFPL, which offers freedom of movement for passengers choosing to use wireless headsets to access their IFE. (You can find an interview with IFPL on page 49.)

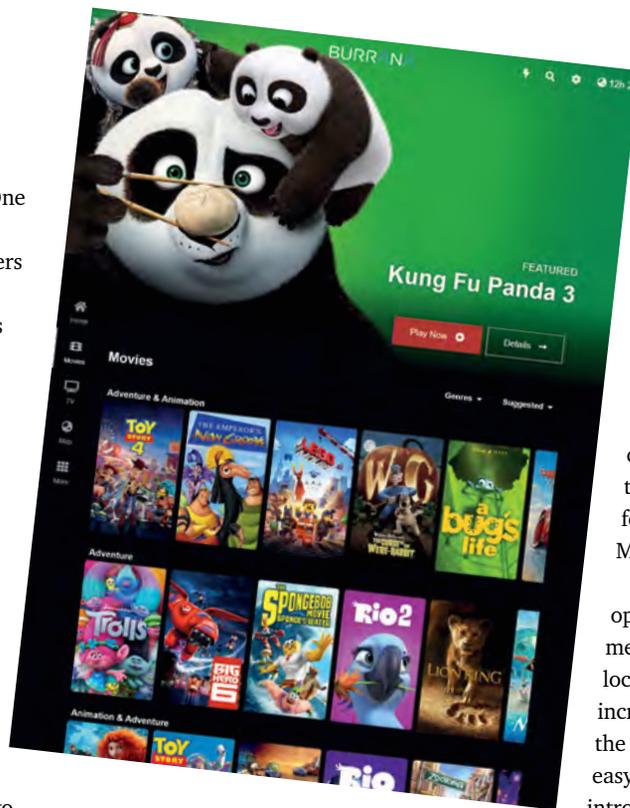
Leading portable IFE and onboard retail technology provider, AirFi, will be at AIX celebrating its 10th anniversary and highlighting its in-seat ordering partnership with Corendon Dutch Airlines, as well as successful in-flight testing programmes for its LEO in-flight connectivity service.

The company says LEO connectivity can be installed in a day and is an alternative to costly in-flight broadband options allowing airlines to drive cost-effective connectivity, offering passengers the ability to communicate with the ground to receive live sport, news, destination, connecting flight and weather updates in flight.

Real-time payment validation lifts the spending caps associated with offline payments and opens the door for in-flight e-commerce opportunities that require live inventory checks.

With its open infrastructure and easy API integration, AirFi is able to connect the dots between IFE, LEO connectivity, in-seat shopping and payments, partners and applications, and connected crew functionality – bringing the Mall in the Sky to life. (We take a closer look at the Mall in the Sky on pages 34 and 35.)

Telesat Lightspeed, which will be a focus for Telesat at AIX, is the company’s LEO satellite



Burrana’s RISE Wireless will be just one of various products at AIX for a wide range of IFE-related applications.

network, designed to meet the rigorous requirements for in-flight connectivity.

The 298 satellites in the LEO network will deliver high-speed, fibre-quality connectivity to meet passengers’ gate-to-gate demands for a superior connectivity experience: improved video streaming, low-latency gaming, encrypted webpage access, VPN, online shopping and more.

With pole-to-pole coverage and multiple Tbps of capacity in the network, Telesat says Telesat Lightspeed will offer a reliable and resilient level of connectivity that will allow airline passengers to stay connected even when travelling through northern latitudes.

SEAMLESS ACCESS

IdeaNova Technologies will be at AIX highlighting several solutions, including its Inplay Captive Portal (ICP) – a feature for its Inplay product that allows passengers to quickly launch IFE.

The ICP allows passengers to discover the IFE portal with ease, thanks to its click of a button feature, and supports Windows, Mac OS, Android, iOS and iPad.

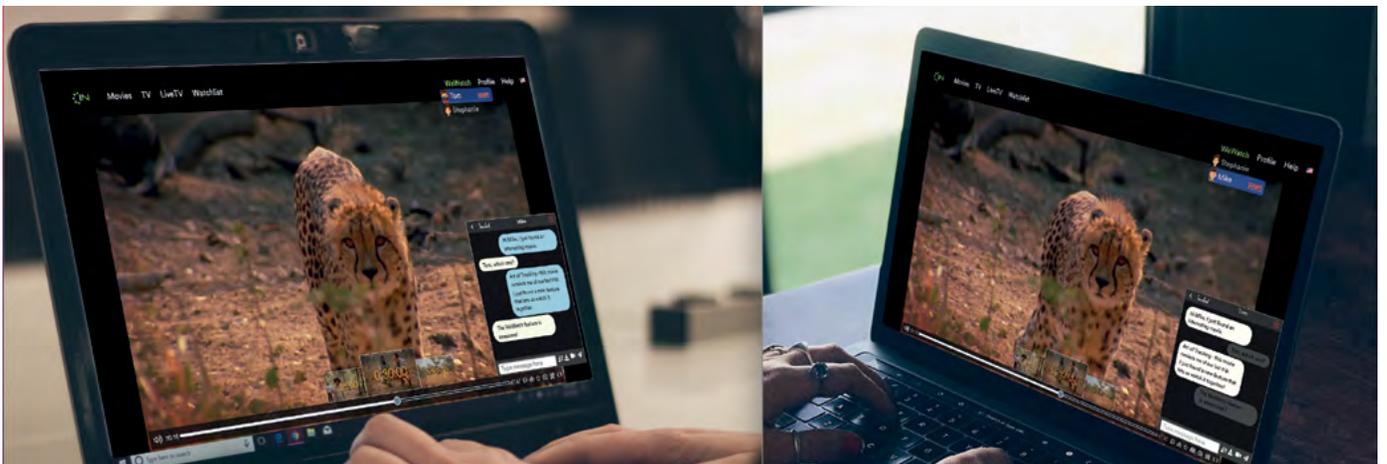
For airlines, it allows an opportunity to insert important messaging, direct users to a desired location and, most importantly, increases passenger engagement with the portal. ICP is modular, making it easy for airlines or IFE vendors to introduce it as a component to their existing IFE platform.

IdeaNova will also be showing its new Inplay payment feature that allows passengers to easily purchase merchandise and paid IFE content using offline credit card transactions.

The Inplay payment system allows the company to expand beyond its traditional video-streaming offering into the revenue-generation space and is easy to integrate into any IFE environment.

Also at AIX will be its Inplay Bash, a new bundle of social features where passengers can seamlessly transition between text chat, video chat, WeWatch (synchronised viewing) and even a web conference. WeWatch is the most recent addition to IdeaNova’s Inplay portfolio, to help passengers stay connected in-flight even if they are not sitting together. ■

Switched on: IdeaNova’s WeWatch helps passengers stay connected in-flight even if they are not sitting together.



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The sky's the limit

Inflight speaks exclusively with Job Heimerikx, AirFi's CEO, to learn more about the company's versatile solution that allows each airline to build their own "Mall in the Sky" experience on board.

What are the main principles behind AirFi's Mall in the Sky and what kind of products are available to buy on board?

The Mall in the Sky is the outcome of AirFi's core solutions combined and infused with an airline's creativity.

When I say our core solutions, I'm referring to AirFi's market-leading portable IFE content streaming technology, our Connected Crew solution (featuring in-seat ordering), our PCI-certified payment solution, our overnight-installed LEO connectivity solution and, most importantly, the open architecture of our backend system, which makes full customisation and integration with any third-party partners incredibly easy.

There is really no limit to the potential "products" that an airline could offer through their own Mall in the Sky.

While the Mall in the Sky concept is designed largely around boosting ancillary revenues from in-flight sales, this digital "Mall" isn't just about shopping. If you look at a really good mall on the ground, you'll find that entertainment, retailing, innovative engagement and even self-servicing, customisation and payment technologies, immersive and social experiences, games, leisure activities and of course dining are all rolled into the package – and it's all becoming more digitised with the introduction of QR codes, self-service kiosks, tablets, AR/VR and e-wallets.

The point is not only about catering to the widest possible range of tastes and experiences,

but to also allow consumers to "consume" on their own terms. That is, at a time and place of their own choosing.

Using the core solutions mentioned above, AirFi provides airlines with the complete infrastructure and flexibility they need to build a digital Mall in the Sky – and the perfect blend of retail and entertainment that makes the world's best malls so successful.

The principles behind Mall in the Sky are entertainment, experience (for passengers), customer engagement, efficiency of operations and enhanced revenue for airlines.

What is AirFi's role in the creation and operation of the Mall in the Sky? How much of it is up to the airline?

We are the technology platform provider and consultant for any questions that an airline could have. We would probably be the "facilities management" company if we were talking about a real-world shopping mall.

With Mall in the Sky, the aircraft is the mall building and the airline is the owner. As the building owner, the airline's commercial, catering and passenger experience teams decide which restaurants, shops, IFE content and attractions are going to be present.

As the facilitators, AirFi gives airlines all the technological tools they need to bring the mall to life. We make it easy for the different shops to integrate with the mall and welcome customers, we equip the salespeople (crew



1. Digital and hybrid experiences are already a major part of the sales office for items that will be delivered to the customer.
3. Just like passengers on the aircraft, shoppers on the ground are quite happy to order and pay for goods using digital in-

members) with information and sales tools, we facilitate a variety of transaction types in any currency and we can provide the (LEO) connectivity that enables real-time payment verification, communication and live inventory checks.

We provide space for advertisers inside the mall and also track passenger behaviour (or "footfall"), collecting anonymised user data so that the mall and the experience can be optimised continually. We even have the technology to allow passengers to fill their shopping basket from different "shops" and check out all at once when they're ready, something you still can't do in a physical mall.

On the entertainment side, our relationships with all the CSPs in the world – including our own content as well – allows airlines to really create the "Cinema in the Sky" they typically like to have.



of the in-person mall shopping experience. 2. Shopping malls are increasingly being used as a showcase and later on (such as cars). With a connected Mall in the Sky, airlines could work with partners to do the same. 3. Passengers would need charged devices to stay connected. 4. AirFi's low-cost LEO connectivity solution enables inventory sale of items to be delivered to or even collected by the passenger following the flight. 5. Modern consumers expect seamless digital experiences.

How does implementing Mall in the Sky benefit airlines?

The main benefits of creating a Mall in the Sky are an enhanced in-flight experience for passengers (which contributes heavily towards higher customer satisfaction and NPS ratings) and amplified in-flight sales revenues.

Third-party partnerships are becoming more commonplace in the airline commercial ecosystem and the Mall in the Sky enables easier third-party integration thanks to our open platform.

By working with their preferred partners (or by choosing some from our partner portfolio), airlines can offer a richer in-flight shopping and entertainment experience and provide services that truly add value, such as local business offers, ground transportation through the likes of an Uber, live hotel bookings, or even goods for worldwide delivery. On a more

sophisticated level, our IoT stacks and platform capabilities enable airlines to capture the data created during a flight – via passengers' choices, browsing habits and transactional behaviour, for example – to be used to further optimise the experience and even make merchandising decisions.

From an environmental perspective, the digitalisation of retail and entertainment services moves airlines towards a paperless cabin, resulting in more intuitive and efficient crew operations as well as lighter aircraft that cause lower fuel burn.

What kind of impact does the solution have on operations when it comes to onboard crew?

The creation of a Mall in the Sky is an outcome facilitated by AirFi's robust suite of products and solutions, including the AirFi

Box/IFE streaming, our LEO connectivity solution, and our Connected Crew application (with mPOS and PCI-certified payments), which was inspired by a desire to make the lives of crew easier.

With Connected Crew, cabin crew can have an up-to-date display of onboard inventory that is synchronised across multiple carts simultaneously, while repetitive and high-effort tasks like counting or reporting are also automated. They can complete transactions touch-free or even be relieved from completing purchase transactions entirely thanks to passenger self-service purchasing and payments.

Which airlines have adopted AirFi's solutions to date?

AirFi has worked with more than 80 airlines and rail companies since launch in 2011. The latest implementations – that we are allowed to announce publicly! – are of course Scoot and Corendon Dutch airlines. Stay tuned in the very near future for a couple of exciting new announcements.

What future innovations do you have planned for in-flight shopping?

A shopping mall is forever evolving as consumer expectations and preferences change, while new technologies are continuously identified, developed and put to the test.

Mall in the Sky from AirFi is no different. We are always thinking “outside of the trolley” and integrating new retail and passenger engagement strategies into our solution-set.

We are concurrently developing our next-generation AirFi hardware – the “Mars” box – which is even more powerful than our current market-leading product, Venus.

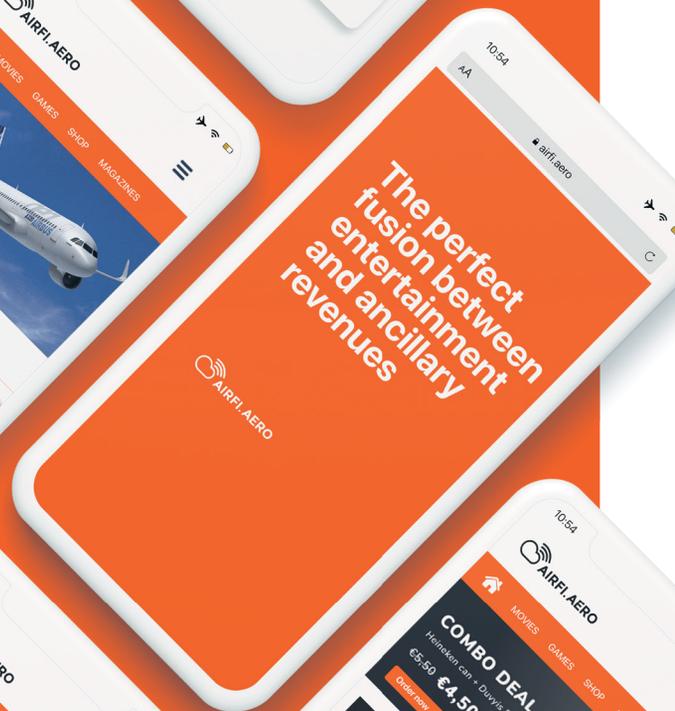
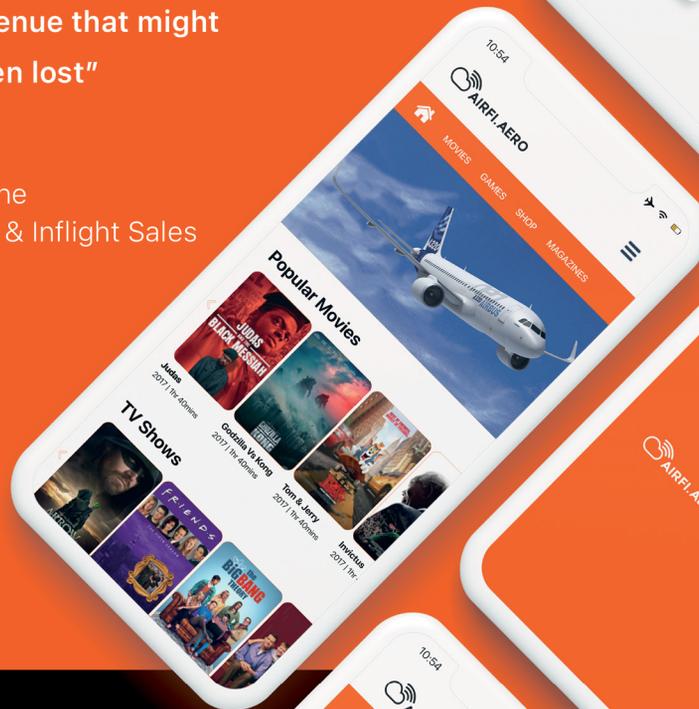
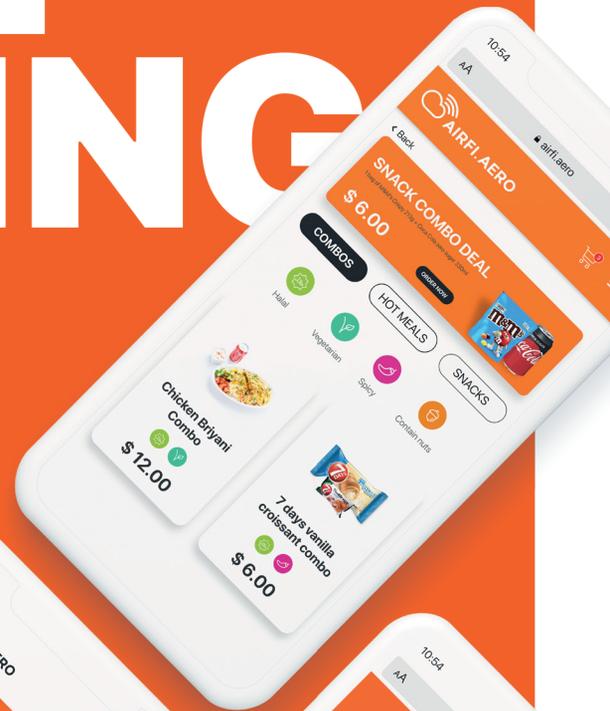
We are also redesigning our already-tiny LEO antenna and receiver to be even smaller and easier to install, whilst improving throughput and bandwidth to the aircraft so as to make the benefits of connectivity available to as many passengers as possible.

On the roadmap in the not-too-distant future, the real magic happens at the confluence of all of these things together – the hardware, platform, services and connectivity – for the benefit of a flying population that has come to expect nothing less than digital excellence, even in-flight. ■

MALL IN THE SKY IN-SEAT ORDERING

"With AirFi's in-seat ordering, we provide a more discreet way for our guests to request what they want, when they want it... as an airline we earn additional revenue that might have otherwise been lost"

-
Gert-Jan de Vries
Corendon Dutch Airline
Manager Cabin Crew & Inflight Sales



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Scan to see how
In-seat Ordering works





AVANT Up is Thales's latest evolution of industry-leading in-flight entertainment (IFE) solutions. The system features a new line of displays, power supply solutions, personalisation and airline revenue generation capabilities. Photo: Thales

Something for everyone

Many onboard services come together to deliver airline and business jet passengers the kind of great flying experiences that will keep them loyal to a particular carrier or operator. Of these, in-flight entertainment is now one of the most important in the customer experience and loyalty stakes, as Tim Guest reports.

In-flight entertainment (IFE) has come a long way in recent years. Today, digitally savvy and super-connected land dwellers taking to the skies expect their virtual, streamed, influencer and always-on terrestrial lives to continue at 38,000 feet.

As a result, major IFE sector players, as well as those providing enabling technologies and connectivity and peripherals, have maintained levels of innovation in new products and services to keep everyone happy in today's demanding world. After all, without good onboard connectivity, there would be no sophisticated IFE.

Valour Consultancy and Thales InFlyt Experience are two leaders when it comes to IFE insights. Valour's research and consultancy

primarily focuses on mobility markets. In business aviation, it covers in-flight connectivity and has expanded its expertise in IFE and cabin management systems.

Due to be published in Q2 of 2022, one of its latest reports, *The Market for IFEC and CMS Systems on VVIP and Business Aircraft – 2022* (3rd edition), will show, amongst other things, that the use of in-flight entertainment and connectivity (IFEC) in business aviation is on the increase, despite impacts caused by the recent pandemic.

In the commercial aviation sector, Valour's portfolio has expanded to cover topics such as cockpit/cabin applications, flat panel antennas, payment solutions and in-seat power – all relevant to IFE. Two of Valour's

recent commercial aviation reports covering last year are *The Future of In-Flight Entertainment – 2021* and *The Future of IFE Content – 2021*.

The experts at Thales InFlyt Experience have, for several years now, focused on delivering seamless and secure connected IFE so passengers experience best-in-class digital services from a large portfolio of IFE systems throughout any journey.

Thales provides global customer services supporting airlines and operators using their IFE and connectivity solutions and the company has also brought Thales Group's expertise in cybersecurity to bear on its in-flight solutions, making them more secure as IFE and connectivity systems continue to become more digitised and open.

The resulting expertise at Thales InFlyt Experience, mastering this entire onboard, digital ecosystem, now delivers sustainable value to Thales's airline customers and passengers through an experience that's one of the most qualified in the industry.

With such IFE-related pedigrees in mind, *Inflight* spoke with Valour's Senior Research Analyst, David Whelan, and Tudy Bedou, Chief Technology Officer, Thales InFlyt Experience.

Highlighting the latest and most significant developments in the IFE sector, Whelan says: "The major trend driving change is the transition from in-flight entertainment to in-flight engagement.

"Where previously airlines provided traditional TV/movies and perhaps a moving



“ Now more than ever the IFE should contribute in helping airlines achieve their objectives. ”

Tudy Bedou, Chief Technology Officer, Thales InFlyt Experience

map to keep passengers occupied, many carriers are now looking to provide holistic, multi-purpose platforms which can create a richer, more varied experience for travellers.”

Tudy Bedou says passengers are less and less willing to compromise on experience when travelling, expecting the latest advances in consumer technology in the air.

He says: “Thales is closing the gap between technology on the aircraft and on the ground with IFE products such as our Optiq 4K QLED HDR screens and Pulse power supply with patented dynamic power management.

“These major innovations deliver a viewing experience that many airline personnel refer to as ‘better than what I have at home’ while ensuring that all passengers can charge their personal devices to have a multi-screen experience on the flight.”

Bedou says the IFE sector has seen a massive evolution towards digital services to enrich the travel experience while at the same time providing opportunities for airlines to differentiate their brand, drive additional ancillary revenue and to create efficiencies.

“As the world emerges from the pandemic, many airlines are running lean,” he says. “Now more than ever the IFE should contribute in helping airlines achieve their objectives.

“To address this demand, Thales has launched several enhanced digital services through our InFlyt360 platform, including our eShopping solution in partnership with Airfree flying on Singapore Airlines.”

At the Aircraft Interiors Expo taking place in Hamburg in June, Thales will also be talking to airlines about a variety of other

digital services. So how have two years of COVID-related constraints impacted IFE tech developments, where were those developments headed pre-COVID, and how has that roadmap changed, if at all?

THE MOST COST-EFFECTIVE SOLUTION

David Whelan thinks airlines have prioritised wireless IFE as the strongest option in the current climate.

“This is largely due to the cost-effectiveness of solutions on the market when compared to seatback systems, as well as the ease/speed of installation,” he says.

“A development on the software side, which has been accelerated by COVID, has been the emergence of wellness applications.”

Bedou notes that Thales has invested heavily to create value for airlines. He says: “The pandemic had a huge impact on the

aviation market. Through all of it, Thales has continued to invest heavily in IFEC products, services, digitalisation and innovations that create industry-leading value for airlines.

“As the situation is constantly changing, some of the major trends we see include the increased need for communication with passengers through update messaging using multiple communications channels.

“Our Thales Ready to Fly suite of services enables airlines to provide health and safety communications through the IFE system instead of using traditional seatback information cards. This reduces touchpoints on the aircraft and is efficiently updateable.

“There has also been an increased use of personal electronic devices in conjunction with the IFE system. Passengers are using their devices to interact seamlessly with the IFE system. This trend has also reduced the demand for passenger control units (PCUs) as an extension of the IFE system.”

How have customer expectations changed during this time and do they want more on-the-ground experience in the air?

Whelan says that airlines needed to ensure they were addressing customer concerns around cleanliness and provide confidence that the onboard environment is safe.

“Part of this roadmap has been to transition items like the in-flight magazine and onboard menu on to digital platforms to at least provide passengers with the option of a touchless environment. I think airlines have largely succeeded in restoring passenger confidence.”

Bedou says his company has witnessed an inordinate demand for new content, adding: “This situation has created some scarcity of

Bright and beautiful: the new line of Thales displays (4K high dynamic range HDR) has been enhanced with Samsung QLED technology to provide unrivalled picture quality plus a 50% increase in reliability and a 30% decrease in weight. Photo: Thales





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Connectivity opens up a whole new world for the IFE space and means airlines can create an experience much similar to what passengers would get on the ground.

David Whelan, Senior Research Analyst, Valour Consultancy



‘traditional’ media. Passengers expect to have access to their favourite streaming platforms in addition to top blockbuster movies.

“This will continue to increase the demand for high-bandwidth, aero-connectivity capabilities.

“This new entertainment demand is not exclusive to video – it translates to games as well. With limited video content to consumable hours, gaming has seen a surge and the demand for more advanced gaming is surfacing.

“Thales’s new Optiq screens have an upgraded CPU to handle the graphics requirements of new games with no compromise on gaming responsiveness.

“Passengers can still play Solitaire, but the system can support those who want to race in the Grand Prix during their flight.

“In addition, the Thales Application Portal features hundreds of games that are readily available with a simple content update.”

Regarding how the airline industry has addressed IFE for current orders, whether they are ordering expensive installations or reducing/dumbing down their IFE requirements to save money, Whelan says the seatback market has been hit pretty hard in the last couple of years, largely due to its reliance on widebody deliveries.

“It is beginning to show signs of recovery, but it will likely be the second half of the decade before we see pre-COVID levels of installations,” he says. “A consequence of this is that vendors are currently having to offer very competitive prices for line-fit roll-outs.”

Bedou says the demand for reduced Total Cost of Ownership (TCO) of an IFE system is not new to the industry.

“Today, the value of the IFE system is measured in a more holistic way – from TCO to generating ancillary revenue, to increasing brand loyalty and providing access to data analytics. We are seeing airlines bringing back

in-seat systems onboard. This demand for IFE is the opposite of ‘dumbing them down’.

“Airlines are looking for smarter systems to gain passenger insights and alleviate work from the crew with services like in-screen meal ordering and keeping passengers engaged through curated recommendations and personalisation before, during and after the flight.”

A WHOLE NEW WORLD OF CONNECTIVITY

Are there any other developments on the horizon that will impact IFE? Whelan definitely thinks so.

“Connectivity opens up a whole new world for the IFE space and means airlines can create an experience much similar to what passengers would get on the ground,” he says.

“Connectivity allows the full utilisation of e-commerce platforms and destination content. IFE and IFC are merging and the percentage of connected IFE platforms is set to grow rapidly in the next decade.

“I think greater personalisation is another key trend we can expect to see in the coming years. Currently the in-flight experience is still pretty generic for most passengers, but it’s

likely we will see more and more content targeted at specific demographics. This could be particularly important in keeping older and younger passengers happy as the IFE experience evolves.”

Bedou says that the need for high bandwidth and low-cost connectivity from gate to gate will become the standard for connectivity.

“With the emergence of a variety of solutions, it is important to build IFE systems that are connectivity-agnostic with the ability to integrate with different satellite constellations.

“We continue to see increased demand to protect against cyber threats and the ability to address new and increasingly rigid data privacy regulations.

“Thales is a leader in identity management and data protection technologies with more than 30,000 organisations relying on Thales solutions to verify the identities, grant access to digital services, analyse vast quantities of information and encrypt data.

“Airlines want to rely on an established and trusted partner when it comes to data security and information privacy.” ■

Entertaining and engaging: a passenger using IFE on board. Photo: Delta Air Lines



Soft touch: Ultrasuede is among a number of well-established brands produced by aircraft materials specialist Tapis.

Setting the standard

Materials used in aircraft interiors are evolving to create an even better experience for both customers and operators, as Satu Dahl discovers.

Improving the look and feel of the cabin is a key driver for aircraft materials suppliers, but companies are also working hard behind the scenes to create more value for airlines. *Inflight* got in touch with aircraft fabrics pioneer Tapis and cellular materials supplier Zotefoams to find out more.

VERSATILE FABRIC

High-performance aircraft fabrics supplier Tapis has always sought to innovate when it comes to the company's products, creating even better solutions for air carriers when it comes to important key considerations such as safety and sustainability.

“From sustainability to lightweight and microorganism control, the Tapis team is always working on the next generation of product solutions.”

Jason Estes, VP Global Sales and Marketing, Tapis

The firm's portfolio of products includes well-established brands such as Ultrafabrics, Ultrasuede and TapiSuede and it is continuously releasing more into the market.

Jason Estes, Tapis's VP Global Sales and Marketing, says: “The Tapis team continues to innovate through its R&D team which has achieved significant milestones with the recent release of the Atago, Namiki, and Promessa AV with its anti-microbial properties.”

The Tapis R&D team is a solution-based team, providing genuine solutions to the demands of tomorrow's aircraft interiors.

“From sustainability to lightweight and microorganism control, the Tapis team is always working on the next generation of product solutions,” says Estes.

The company's new Atago material is a three-way innovation between Tapis, Ultrafabrics brand and Franklin Products.

Setting out the benefits for airlines, Estes says: “Atago is a revolutionary new product that outperforms and outlasts all other seat covering solutions. Comfortable and enticing to the senses, this cost-saving and fire-resistant solution outmanoeuvres the compromises of the past, freeing innovative designers and manufacturers.”

In late 2021, Tapis announced that its new Promessa AV product, which the company says is the most durable and comfortable seat cover product in the aviation market today, had been selected by Breeze Airways for the

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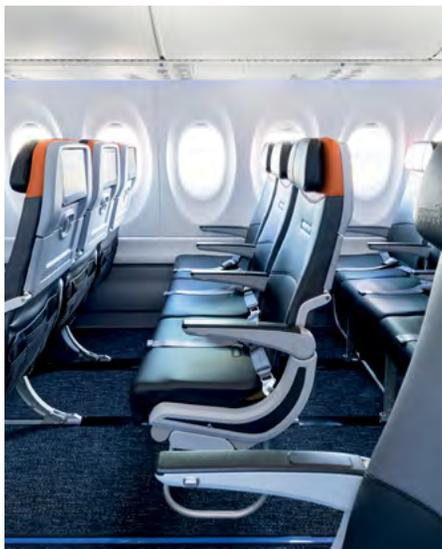
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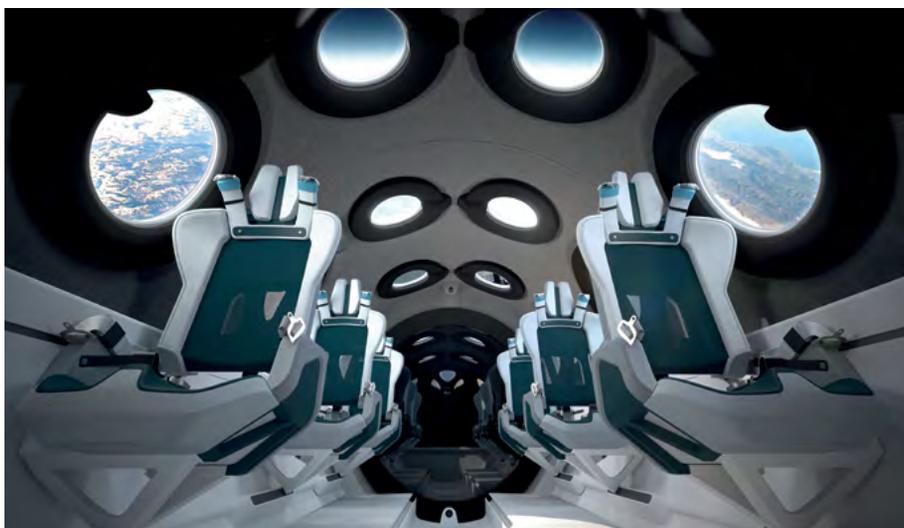
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Fresh approach: TapiSuede was launched alongside Tapis's Promessa AV grain as part of US low-fare carrier JetBlue Airways's acclaimed Mint 2.0 suite.



Cutting edge: TapiSuede was among the materials used in the interior of the rocket-powered Virgin Galactic craft that last year carried Sir Richard Branson to the edge of space.

carrier's new seats. "Breeze selected our Promessa AV product as the clear class leader in aircraft interior seating materials," says Estes. "The Promessa AV product has our hallmark softness and comfort combined with high performance throughout. It comes standard with anti-microbial technology embedded in the topcoat and has a wipe-clean surface."

The Tapis team worked with the Breeze team to customise the colours and textures to create their unique interior and complemented it with the company's advanced surface texture, known as Nitrotech.

Estes says that, throughout the pandemic, Tapis has worked closely with major airlines

in updating their interiors to create a wipe-clean, antimicrobial interior.

"In 2021, we saw the launch of Promessa AV within the new JetBlue A220 interior," he says. "Promessa AV also started flying with a broad array of new airlines including COPA Airlines, Allegiant and American Airlines on board their updated 787 interiors.

"Outside of the Americas, Flyadeal in the Middle East and ZipAir, the new low-cost carrier division of JAL, also successfully launched and became airborne.

"Our legacy Ultraleather original range also gained some new customers, with Iraqi Airways choosing it for their new A220 aircraft, and we saw its continued use on the

Azul fleet of aircraft." As Estes notes, TapiSuede was launched with Promessa AV to huge critical acclaim as part of the new Mint 2.0 suite with JetBlue.

He adds: "But perhaps TapiSuede's most high-profile use was as part of the first successful flight by Virgin Galactic, carrying Sir Richard Branson to the edge of space."

Estes says that on that flight the entire cabin interior was lined with TapiSuede flannel and continues to set the standard in spacecraft interiors.

WORKING TOWARDS 100% SUSTAINABILITY

Tapis has a 360-degree view of sustainability, and to demonstrate this Estes says the company's products are lightweight in comparison to other products.

"The weight-saving leads to a lower fuel burn rate and has a direct impact on the amount of CO₂ produced in flight," he says.

"We have been working on a sustainability roadmap with our partners for over 10 years as we work towards 100% renewable, biodegradable products that are made from renewable sources.

"Our products are fundamentally designed to have a long lifespan to reduce our consumption and impact on raw materials."

Estes adds that Tapis has recently introduced a new type of backcloth that includes Tencel fibres. Tencel uses a traceable form of cellulosic fibres that come from certified sustainable and renewable sources.

One of the original vegan products, the company's Ultrasuede fabric includes a



“

Zotefoams' products provide lightweight solutions that are easy to process and can be combined with standard fabrics and facings to offer great design flexibility while significantly reducing weight.

Dr Karl Hewson, Director of Technology and Development, Zotefoams

”

substantial quantity of plant-based resins and binders. Ultrasuede also utilises a unique recycling process that helps reuse raw materials within the manufacturing process.

When it comes to the company's TapiSuede Collection, which is also vegan, Estes explains that it is responsibly engineered using ultra-fine recycled polyester fibres.

“TapiSuede is made of 100% high purity recycled polyester, TapiSuede Flannel of 46% recycled polyester and TapiSuede Stretch of 88% recycled polyester,” he says.

Volar Bio by Ultrafabrics, the Tapis product which the company says is the first of a new breed of sustainable and responsibly engineered high-performance textiles, incorporates renewable plant-based materials into the multiple layers of its proprietary construction.

“Proudly touting a 29% Bio Preferred Program Label, Volar Bio was created with both functionality and sustainability in mind,” says Estes.

FANTASTIC FOAM

Zotefoams, which has foam manufacturing sites in the US, the UK and Poland, utilises a variety of unique manufacturing processes such as environmentally friendly nitrogen expansion for its lightweight AZOTE polyolefin and ZOTEK high-performance foams.

Dr Karl Hewson, Zotefoams' Director of Technology and Development, says the

company has recently added an XR (extra-rigid) grade to its ZOTEK F OSU range of high-performance foams for cabin interiors.

“This has been specifically developed as a disruptive technology to replace solid plastics in semi-structural applications,” he explains.

ZOTEK F OSU XR offers weight savings of up to 70% compared to traditional materials and is just 10% of the density of a typical polycarbonate equivalent.

XR is already in use in seat sidewall and head form applications; it can be bonded with other grades such as ZOTEK F OSU F (flexible) without the use of adhesives, creating a super-lightweight component with a mixture of surface finishes.”

Hewson says ZOTEK F OSU XR has already proven a huge success for aircraft cabin upholstery systems supplier MGR Foamtext, as it has been used in their advanced MGR SoftWall panel system – a unique vertical soft wall panel system designed to cocoon the passenger, increasing comfort and deadening sound.

“XR has been applied as an

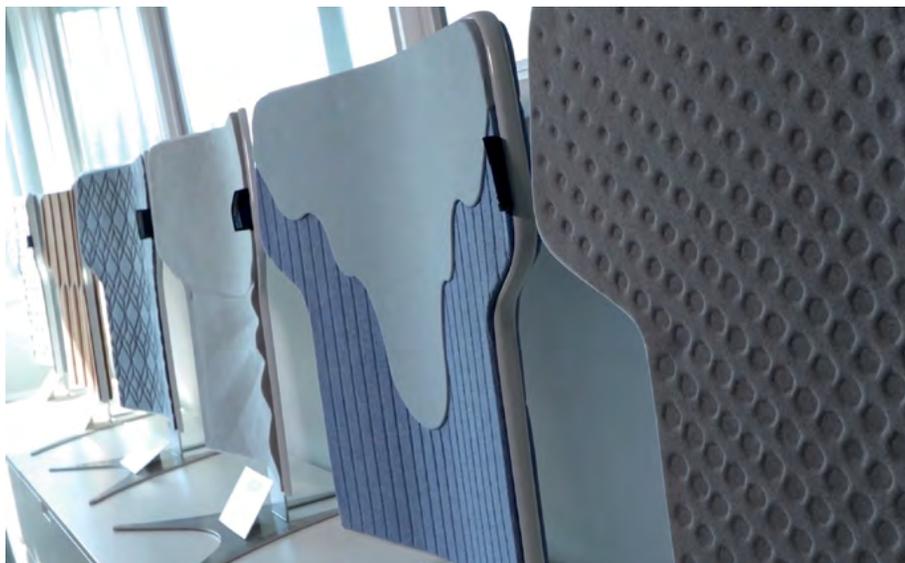
alternative to solid thermoplastics, offering comparable rigidity but 50% lighter,” says Hewson. “With aviation heavily focused on weight saving and greener flight, this is a very attractive proposition.”

It is clear that Zotefoams' products are helping airlines meet sustainability goals.

Hewson says: “Zotefoams' products provide lightweight solutions that are easy to process and can be combined with standard fabrics

Stiff competition: Zotefoams has recently added an extra-rigid grade to its ZOTEK F OSU range of high-performance foams for cabin interiors.





Weight saving: Zotefoams' XR range is 50% lighter than solid thermoplastics used in cabin interiors.

and facings to offer great design flexibility while significantly reducing weight.

“ZOTEK F is produced from a high grade polyvinylidene fluoride polymer, which is

inert and inherently lightweight.” Hewson adds that the addition of ZOTEK F XR, an extra-rigid closed cell foam with densities of 120 and 150 kg/m³, to the ZOTEK F OSU

range – which already incorporates rigid, semi-rigid and flexible grades – significantly, extends Zotefoams’ scope of applications, and hence weight savings, in aircraft interiors.

Developments in material performance are key for Zotefoams in aircraft interiors, particularly when it comes to more rigid grades of foam which provide a lightweight alternative to solid parts made of plastic or other materials.

Hewson says: “Additionally, as airlines compete to be the first choice for returning passengers following the COVID-19 pandemic, improved customer experience will be vital.

“Clean interiors, with comfort and individuality achieved through soft-touch elements are part of that experience and a natural home for aviation foams.

“With that in mind, Zotefoams will continue to work on foams which can be formed and finished in any number of ways and easily bonded to surface materials to create a luxurious lightweight finish.”



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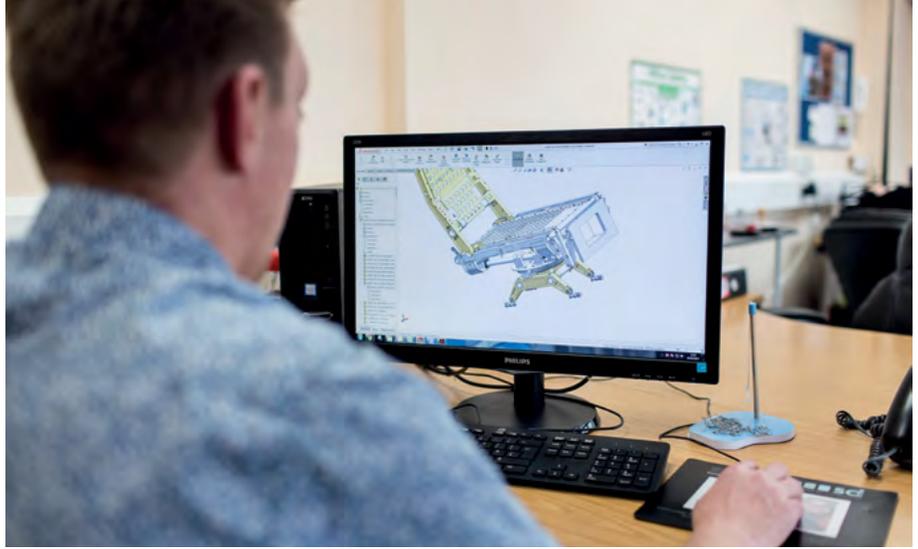
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Content Wireless Ancillary Design



Made to measure: Starling Aerospace specialises in manufacturing cabin interior solutions.



Solution-focused: based in Surrey, Starling Aerospace's in-house composite shop is able to fabricate a wide range of aircraft interior structures, from seat shrouds to stateroom bulkhead systems.

CREATIVE CRAFTSMANSHIP

Aircraft interior outfitting and refurbishment company Starling Aerospace provides solutions for the commercial, business and private aviation industry.

The company's aircraft interior design team works closely with clients to bring concepts to life at its 20,000 sq ft premises.

Inflight visited the facility located between two of the UK's biggest airports, Heathrow and Gatwick, to see the magic at first hand.

Co-owned by Coralie Wigg and Steve Swift, Starling Aerospace was founded in 2001 to provide total cabin interior solutions for the aerospace industry.

The company is a specialist in CAD design, engineering, fabrication, certification, rectification and refurbishment. Essentially, it is a one-stop shop for complete design and certification, upholstery and trim and paint and decorative trim including aqua transfer and real wood veneer panels.

Wigg explains that lead-in times for customer projects are generally very short due to availability of the aircraft, so the requirement to deliver a new aircraft interior within eight weeks is typical.

"To do this means we rely on sourcing a lot of materials from trusted UK suppliers, which helps improve the sustainability of our operations. Freight costs from places like the USA and China have trebled in recent months, so we are already looking closer to home to expand our supply chain for specialist composite products and others."

Starling Aerospace invested in a Five Axis CNC router a couple of years ago to revolutionise its in-house composite production. With the equipment in place, the company has the functionality to produce

three-dimensional shapes and larger scale composites. Its in-house composite shop can create a wide range of aircraft interior structures, from seat shrouds to complete stateroom bulkhead systems.

The router has a capacity of 125 cubic feet, meaning it can create large-scale composites to support compound curve assemblies.

This technology combines all the elements needed for trimming formed parts, patterns or moulds using five-axis simultaneous motions.

The Five Axis CNC router will link directly to design data for exact three-dimensional tooling and repeatable accuracy for multiple assemblies.

Wigg says: "Our business is designed so our in-house facilities dovetail each other and complement our EASA certification approvals for design, manufacturing and repair.

"The new Five Axis CNC router is a great investment and will enhance our offering of aircraft interior solutions which we design, build and certify."

The company says the composites can be made to specification and finished with high quality paint, Tedlars or leather using Starling Aerospace's in-house expertise.

ENSURING SAFETY

Starling Aerospace also has extensive experience in flammability testing and knowledge of the latest flame-retardant textiles, leathers and floor coverings which are suitable for aircraft interiors.

The company has an impressive heat- and humidity-controlled in-house burn testing chamber which tests materials in areas such as the length of the burn and drip, as well as smoke density and heat release and flame proofing for natural and synthetic materials.

Wigg says that while some materials might pass the flammability tests on their own, this might not be the case when they are tested together with other materials, so the company also performs combination burn tests for materials such as seat foams and covers.

"Having an EASA approved in-house flammability testing capability means that we can qualify and test every aspect of the cabin interior, including signage and wiring, as well as combinations of seat materials, flooring and furniture," she says. "We've also got significant experience in developing new products that need to meet the stringent smoke density and heat release regulations." ■

Quick turnaround: Starling Aerospace typically works to eight-week deadlines for aircraft interiors.





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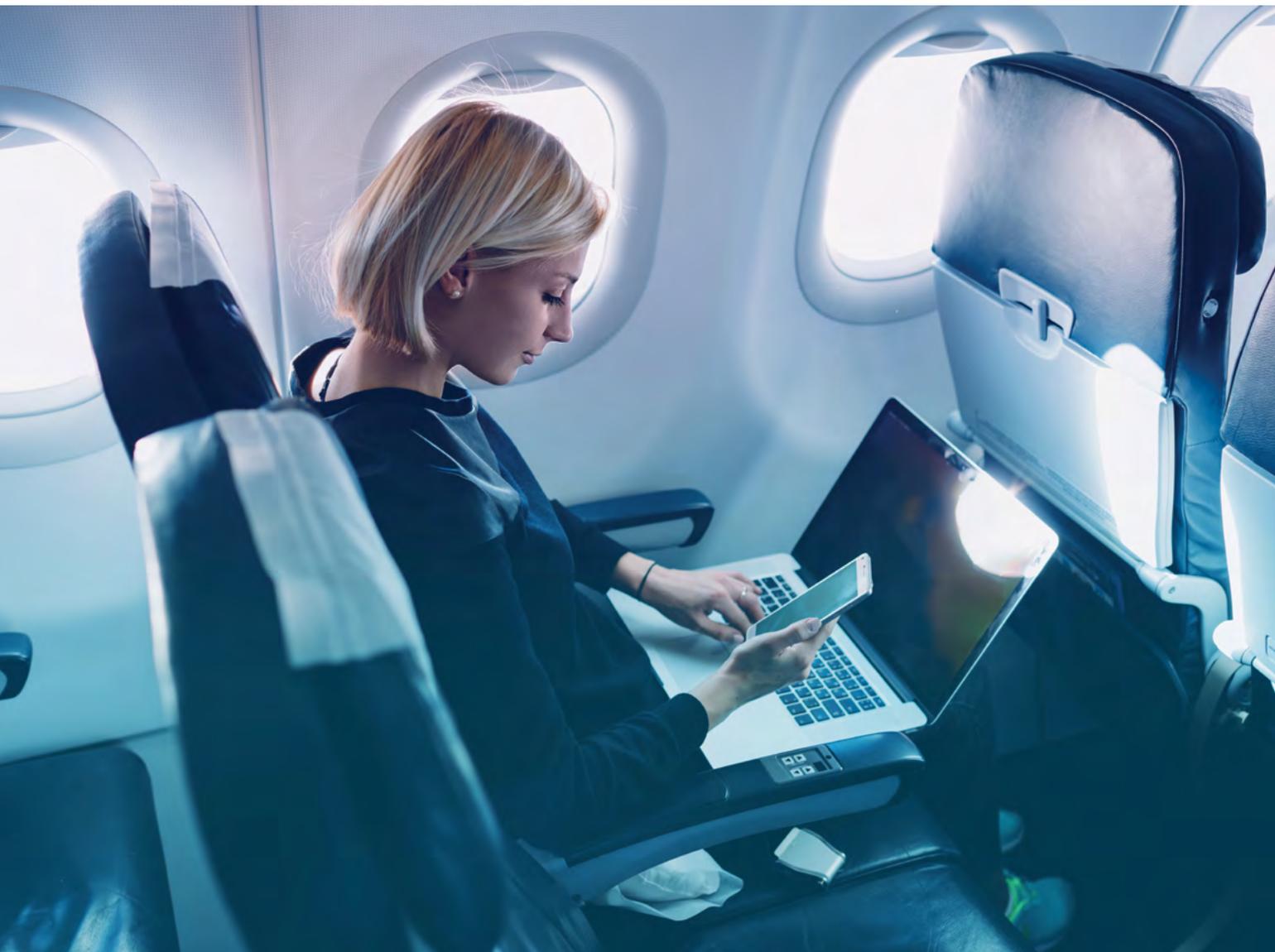
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The right fit

Talking to four leading lights of the in-seat power world, it is clear that business is good – with plenty of orders for both new and older aircraft that are being refreshed to re-enter service.

Michael Doran reports.

In-seat power companies are facing daily supply chain challenges and wild price fluctuations, but their products are being made and flowing out their doors.

And, like many of us, the companies are all excited about the prospect of seeing customers face to face again at events such

as the Aircraft Interiors Expo (AIX) in June to share their product news.

UK company IFPL supplies leading IFEC manufacturers, OEMs and airlines with a broad range of solutions, including in-seat power products. IFPL has battened down for the last two years, fine-tuning products and

keeping production going with heavily reduced volumes.

Mark Reed, the company's Business Development Director North America, says that changed late last year when the first signs of a comeback appeared.

"It's still lower than two years ago but compared to a year ago it's definitely an upswing," he tells *Inflight*.

Reed sees a shift in the way customers are buying products, which he believes is contributing to the spike in demand.

Historically, customers had purchased in-seat power modules in shipsets, so if they had five aircraft, the order would be for five shipsets.

"Now we're seeing round numbers of a product being bought, which tells me they are probably buying for stock to get



“ We’ve captured more than 100 different aircraft for in-seat power since around December and we’ve had a hard time keeping up with demand for the MAX Power. ”

Tom Genovese, Director of Commercial Transport and Defence, True Blue Power

programmes that had been paused up and running again,” says Reed.

The strongest demand is for IFPL’s USB-A and -C combination module, which is the product for airlines wanting to give passengers charging options.

“There are many legacy devices that still use USB-A or have a USB-C connector with USB-A on the other end. If you’re going to fit power, this is the way to future-proof it by covering both types of connections.”

One of IFPL’s customers, who wants to remain nameless for now, is taking all the IFE and screens off the seats, replacing them with onboard WiFi and fitting USB-A and USB-C power modules.

Full circle: True Blue Power is having a lot of success with its TA360 MAX unit. Photo: True Blue Power



“All the power and everything is already in the aircraft because it was feeding the IFE system,” says Reed. “Now it’s just feeding USB-A and USB-C modules, so it’s a much lower cost option.”

With personal devices becoming more power-hungry, it’s a bit of a surprise to learn that these modules supply only 15 watts of power.

But Reed says this is what airlines, particularly LCCs, want as a way to keep onboard power needs down.

“We’ve got literally thousands of USB modules going out into the market and many are still standalone USB-A and one per seat. It’s a low-cost option for the airlines and if everything were just USB-C, some passengers would miss out.”

IFPL will be on hand at the upcoming AIX with a fuselage mock-up showing off mood lighting from sister company Cobalt Aerospace. Also on show will be the USB

combination power module and the AdPower Smart USB module. In conjunction with an airline’s app, Adpower offers passengers the option to purchase USB power or receive the power for free in exchange for watching a short pop-up advert customisable by the airline.

DEMAND IS LITERALLY TAKING OFF

True Blue Power (TBP) specialises in aerospace power solutions, including USB charging ports and onboard voltage converters.

Since November, it has seen demand for in-seat power literally take off, particularly in North America.

“It seems like the domestic carriers here in the US are recovering faster than they are over in Europe,” says Tom Genovese, Director of Commercial Transport and Defence at TBP.

Some of the demand is coming from older regional jets – both from airlines and aircraft

Best of three: True Blue Power’s TWC15 wireless charging pads are available in different configurations. Photo: True Blue Power.



“ There are many legacy devices that still use USB-A or have a USB-C connector with USB-A on the other end. If you’re going to fit power, this is the way to future-proof it by covering both types of connections.

Mark Reed, Business Development Director North America, IFPL

Handy: IFPL’s ports can be removed from the front and the type of USB connector changed or repaired. Photo: IFPL



lessors preparing to get returned aircraft back in the air with new operators.

“We’re seeing retrofits for aircraft like the Bombardier CRJ700 and are doing a retrofit on a fleet of 757s,” Genovese tells *Inflight*.

“During COVID a lot of aircraft went back to lessors and now they have to upgrade them to get that aircraft back in somebody else’s hands.”

TBP offer single and dual USB-C and USB-A outlets, with 15 or 60 watts output. The top model is the TA360 MAX Power which delivers 60 watts and is in demand for both legacy and current-generation aircraft.

“We’ve captured more than 100 different aircraft for in-seat power since around December and we’ve had a hard time keeping

up with demand for the MAX Power,” says Genovese. “Even for some newer aircraft like the 737 MAX, we have added them when they add new aircraft to their fleet.”

With 60 watt outlets, the issue of available power comes up, and TBP works with the engineering firms and electrical engineers to find a solution that will work with what they

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We see power as being a must-have now with the proliferation of devices, in-flight internet access and Wi-Fi streaming.

Dave Pook, VP Marketing and Sales Support, Burrana

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have available. After all the power systems, lights, galleys and so on are considered, it could be less than 100 amps of power that's left over for all the passenger seats.

“The TA360 might be a good solution for first and business and then in economy you go with a lower power unit that still gives each passenger enough to charge a device,” says Genovese. “We look at what power is available that we can output to the USB charger in each seat.”

TBP will be at AIX too, and Genovese says he is really looking forward to making up for the past two years where they haven't been able to meet people at shows like this.

He will be focusing on the TA360 MAX power outlets, wireless charging and a new

frequency converter. The wireless charger is the FAA-certified TWC15 series, which is gaining increasing interest from the VIP, business and commercial aviation markets. In those larger spaces, there is ample room where the wireless charger can be integrated.

ABILITY TO CHARGE IS A MUST-HAVE

Burrana has four groups of products that together make up its RISE platform, which delivers any combination of wireless, overhead and seatback entertainment, as well as in-seat power.

With the growth of personal electronic devices, it's not unusual to have a passenger with two or three platforms that need charging. For that reason, Burrana's VP

Marketing and Sales Support, Dave Pook, believes in-seat power is now essential.

“We see power as being a must-have now with the proliferation of devices, in-flight internet access and Wi-Fi streaming,” he tells *Inflight*. “People are expecting to use them before, during and after the flight.”

For in-seat power, Burrana has the full range of USB-A, USB-C, USB-A and -C and 110VAC outlets. This range means they are in a good place as the market shifts from 110 to USB-C 60 watt power that can charge laptops, tablets and phones.

“We have a number of customers that are a combination of line fit and retrofit because they want to have a common set of services in all their aircraft,” says Pook. “I think retrofits will be very strong for the next few years.”

Burrana's system is designed to offer flexibility, so that an airline can start with a single 10 watt outlet and move to a 60 watt module for extra power.

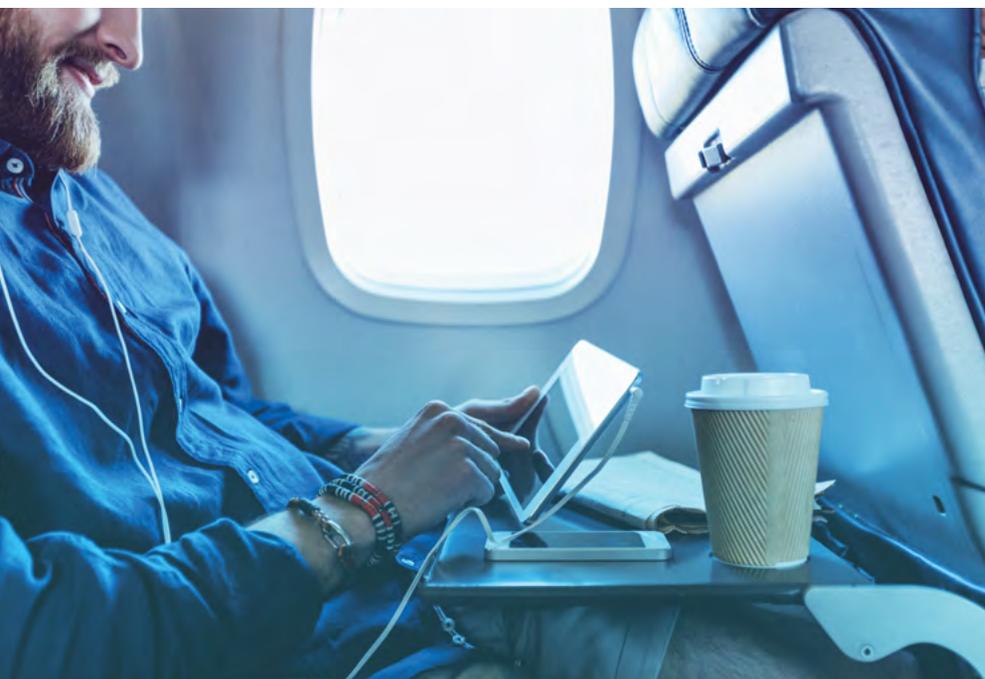
This allows an airline to start with a basic system, and when it needs changing Pook says they only need to swap the jack to upgrade to the 60 watt USB-C.

“We actually track, log and analyse every port so we know what type of devices are connected to the outlet, for how long and how much power it was drawing, so if passengers are not getting the power they need we can show the airline,” he says. “It's a potential game changer because we can tell them exactly what they need.”

For AIX, Pook and his team intend to showcase the Burrana in-seat power solutions and highlight some of the differences that make them stand out to airlines.

Airlines are always looking to save weight, and Burrana says its boxes are around 20% lighter than competitors for the same power

Built-in flexibility: Burrana's systems can be upgraded as power needs increase. Photo: Burrana



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If you're a carrier with new aircraft that have power, then people fly those aircraft and have a specific experience, so on your legacy aircraft they expect the same experience.

Dennis Markert, Director of Business Development, Astronics

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distribution. Pook highlights the upgradeability of going from 10 to 15 to 60 watt without having to change the system, but just changing the jacks out and the whole idea of collecting performance data.

“From a maintenance perspective, we can identify if a jack is not working so they can change it over quickly, without walking the plane and checking every seat to find it,” he says.

‘AMENITY HAS BECOME A STANDARD’

Last year, Astronics was launching an anti-microbial in-seat power unit and today the company is gearing up for another new product launch, this time at AIX.

Dennis Markert, the company's Director of Business Development, says demand is high, with plenty of airlines refreshing their interiors as aircraft come back into service.

“In-seat power is an amenity that's become a standard,” he says. “Like when you walk into a house, you expect to see an outlet on the wall. Passengers start looking for the outlet as soon as they sit down.”

Astronics is in a great place to know how the market is behaving, being a line-fit offerable supplier to OEMs and also engaged in the retrofit market.

“If you're a carrier with new aircraft that have power, then people fly those aircraft and have a specific experience, so on your legacy

aircraft they expect the same experience,” says Markert.

He adds that it is vital to have a solution for every carrier because not all carriers are the same. There are some that have a first class and business class, or those who have economy from front to back, so their needs are totally different.

“If they have a first or business class, they may want to give 110, USB and wireless charging to those passengers and maybe just USB in the back,” he says.

“Or if you look at carriers like JetBlue or Alaska, they have 110 and USB nose to tail.

“When we moved into Type C, our first outlet was an A and C, so that you can take care of the legacy and the early adopters.

“Within the next few years, as more of the notebooks and laptops become Type C enabled, people will come on board and be accustomed to it.”

Another mantra of Markert is promoting the total cost of ownership of Astronics' systems. For a phone, an outlet only needs to supply around 10 watts of power, but by providing a USB-C outlet that gives 60 watts – more than enough for a laptop – the system is future-proofed against the demands of new technology.

“When an airline leases an aircraft, they will keep it for around 10 years, and they don't want to refresh our system every few years,” he says. “We've done it so they can buy once and use it for that extended period of time before they turn the aircraft in.” ■

Plugged in: Astronics has in-seat power modules for all types of airlines. Photo: Astronics



Food, glorious food



Cultural exchange: airlines are increasingly offering food on board that is tailored to routes and destinations. Photo: dnata

Mirroring food developments on the ground, airlines and their catering suppliers are working hard to meet passengers' ever-increasing expectations on board. Emma Kelly reports.

Today's in-flight catering is a far cry from yesteryear, when a passenger's major concern was whether to choose the chicken or the beef dish.

Over the years, airlines have come to recognise the importance of in-flight catering as a product differentiator and an opportunity for them to strengthen their brand, establish loyalty and create memorable experiences for their customers across the journey.

In turn, passengers' expectations have increased and are set to continue to do so, corresponding with expectations on the ground in terms of food quality, trends, sourcing and sustainability.

The following are now becoming commonplace in the skies: food tailored to routes, destinations and events; increasing healthy and wellness food choices, such as

plant-based proteins; paddock-to-plate/farm-to-fork initiatives; and sustainable procurement, production and presentation.

According to Sunbul Dubuni, Director Customer Insight at global aviation services company LSG Group, which caters for almost every airline in the world and produced 131 million meals in the pandemic year of 2021, in-flight catering is a significant product differentiator for airlines.

She says: "It [catering] is an emotional and memorable part of the passenger journey and an important factor for the airline's identity. With tailor-made and appropriate catering, you can strengthen your brand.

"Considering the right selection of food – for example, according to the time of the day, the length of the flight as well as the handling of the food – is decisive to meet passengers' needs and therefore has an impact on

Premium airlines have a desire to be seen as akin to a restaurant in the sky, with modern menu offerings that give greater choice to their passengers.

Hiranjana Aloysius, CEO, Dnata Catering Australia

customers' satisfaction. More and more airlines decide that a specially tailored food concept supports their brand identity through specific storytelling."

Dnata Catering Australia CEO, Hiranjana Aloysius, agrees. "The onboard experience is



World of choice: in-flight catering has become a key brand differentiator for airlines. Gategroup, which provides catering for around 200 airlines, works closely with each of its clients to support this process.

one of the key product differentiators for airlines, with many airlines putting an increased emphasis on their onboard food and beverage offering,” he says.

“Whether the airline offers a fully catered service or a buy-onboard programme, product variety that caters to a range of dietary requirements and differing tastes is extremely important.

“Premium airlines have a desire to be seen as akin to a restaurant in the sky, with modern menu offerings that give greater choice to their passengers.”

SUPPORTING BRAND DIFFERENTIATION

As an example of this, Aloysius points to vegetarian and vegan meals which have become standard menu items rather than special meals that need to be pre-ordered, while dine-on-demand models allow passengers to eat when they want.

Dnata Australia caters for both types of offering, servicing approximately 50 international and domestic airlines.

Pre-COVID, the company was producing 64 million meals a year – a figure that is currently down to around 13.3 million, with Australia and the wider Asia-Pacific region slower than other regions of the world in their return to full operations.

Gategroup, which provides catering for approximately 200 airlines worldwide, works closely with each of its customers to support their brand differentiation.

“In-flight catering has become a key differentiator for airlines and serves as a brand channel,” says a spokesperson for Gategroup. “To support our customers’ differentiation and value proposition to their end consumers, we need to be able to support menu diversity for each of our customers, and that means very different things in different spaces.

“At Gategroup, we continuously seek to anticipate the needs of the hundreds of millions of guests who fly every year. We strive to understand and focus on the complete passenger journey using predictive

“ We are helping our airline customers use the home or destination’s heritage and unique flavours as meal inspiration on international flights, giving passengers the opportunity to begin celebrating the culture even before they’ve arrived.

Gategroup spokesperson

technology and data to achieve the optimal customer experience, enhance culinary creativity and reduce waste on board.”

Part of this immersive food journey has seen airlines offer food targeted specifically to certain routes and events or highlight food from the home or destination market.

“There is a desire for authentic, real, inspired food options in-flight, especially when travelling abroad. The trip begins at the airport as many [passengers] look to culturally-inspired foods to get them excited for all the destination has to offer,” explains the Gategroup spokesperson.

“We are helping our airline customers use the home or destination’s heritage and unique flavours as meal inspiration on international flights, giving passengers the opportunity to begin celebrating the culture even before they’ve arrived.”

For example, Gategroup has worked with Lufthansa on its Tasting Heimat concept for business class. Tasting Heimat, meaning the place they feel at home, takes passengers on

a culinary journey through Germany, expressing the essence of Munich, Frankfurt, Hamburg, Berlin, Dusseldorf and Leipzig in gastronomic form.

CAPTURING THE TASTE OF HOME

Dishes include a shrimp salad with a beetroot and potato terrine, inspired by Hamburg’s sea breeze; Frankfurter Grie Soß (green sauce) served with young kale, poached egg and Macaire potatoes; and Leipziger Allerlei interpreted as a chicken salad with celeriac, juniper and black walnuts.

Tasting Heimat is all about discovering the taste of Germany. But what does home actually taste like?

“It’s very diverse – at least in Germany it is,” says the spokesperson, with Michelin-starred chefs Julia Komp and Dennis Puchert involved in the creation of the dishes.

British Airways, meanwhile, has its Best of British menu developed with catering suppliers Do & Co and Newrest, which includes roast beef and Yorkshire pudding,



National dish: together with catering suppliers Do & Co and Newrest, British Airways has developed a ‘Best of British’ menu that includes roast beef and Yorkshire pudding, lamb hotpot and Welsh rarebit.

roast chicken with bread sauce and gravy, lamb hotpot and Welsh rarebit, while its short-haul flights include gourmet food from Michelin-starred British chef Tom Kerridge.

Emirates offers food relating to calendar events throughout the year, including Oktoberfest treats on flights to Germany

during September and October, Diwali-themed food on flights to India, and Thanksgiving food on US flights in late November.

“Food tailored to routes and destinations is a trend that has evolved into a permanent change,” says Dnata’s Aloysius. “From the



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Leaner and greener: ground-based food trends are increasingly influencing those in the air. Singapore Airlines has recently partnered with California-based retreat Golden Door to offer health-focused meals on its US services.

moment a passenger boards an international flight, they become immersed in the culture of their destination. As an in-flight caterer, our culinary creations play an important role in this immersive experience.”

Trends on the ground that are influencing food brands, chefs and restaurants are mirrored in-flight, including healthy foods, plant-based proteins, farm-to-fork initiatives and sustainability.

HIGH QUALITY, CHOICE AND FLEXIBILITY

Recent examples include Singapore Airlines partnering with California-based retreat Golden Door to offer health-focused meals on its US services, while Delta Air Lines has added plant-based food options from Impossible Foods and Black Sheep Foods, including the Impossible Burger (made from soy proteins) and plant-based lamb-style meatballs.

“Passengers don’t see any difference between the food served on the ground or in the air,” says Aloysius.

Rather, they expect the same high-quality food choices and flexibility that they would experience at a restaurant or café.

“They want healthy meals and snacks that contain high-quality ingredients, they want to know where their food comes from and they have an increasing interest in sustainably-sourced ingredients,” he adds.

The travelling consumer is becoming more conscious of where and how their food is sourced as well as its impact, according to the Gategroup spokesperson, who says: “This

“From the moment a passenger boards an international flight, they become immersed in the culture of their destination.

Hiranjan Aloysius, CEO, Dnata Catering Australia

trend is certainly being driven by customer and public demand, but it’s also good business.

“Food is increasingly a differentiator, and having an offering that is better in all dimensions – taste, quality, sustainability – is an important selling point for the airlines.”

As a result, Gategroup is working with many of its airline customers on incorporating locally sourced, sustainable foods, with this being a core part of the brand positioning.

“Passengers will opt for airlines that make conscious moves for the planet and steer clear of those that don’t,” adds the spokesperson.

The pandemic had an immediate impact on in-flight catering, with airlines and suppliers adjusting both the type of food and beverages and the way they were delivered to passengers – but it has also had an effect on passenger food choices, LSG’s Dubuni believes, including a move from functional and price-driven to emotional and purposeful decision-making.

“The pandemic triggered people [into] reflecting on their nutrition more,” says Dubuni. “The demand for healthier and immune-strengthening tasty food has increased.”

The Gategroup spokesperson agrees, saying: “Definitely things are changing. As the world resets, behind every journey there will be a heightened sense of purpose. Whether it’s for work, leisure or both, we will fly because we need to be there, because we want to be there.

“The food we serve, the rituals we share, the space we create for our guests says something powerful about ourselves. That is why the culinary and hospitality experiences we create for our airline customers have a unique ability to communicate their brand.

“Both customers and passengers demand a better food experience when they travel. Success now requires a careful mix of culinary creativity, technological innovation and operational excellence.”

In recent years, passengers have become increasingly interested in where their food is coming from and the whole production chain.

“Passengers want to have transparency about what they eat and drink – for example, where the food comes from and how it is produced,” says LSG’s Dubuni.

Dnata’s Aloysius agrees, saying: “At a time when consumers are more educated than ever before, they are now asking questions that wouldn’t have been a consideration five to 10 years ago. It is this level of keen interest from passengers, along with the passionate and talented culinary teams of in-flight caterers and the desire of airlines to exceed their customers’ expectations, that has driven the evolution of onboard menu offerings.”

“ Airlines are looking for quality meal concepts that reflect their desired perception and at the same time are appealing to their customers.

**Sunbul Dubuni, Director
Customer Insight, LSG Group**

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With its airline customers now returning to full operations, Dnata is working with them to take their menu offerings to the next level.

“Quality produce such as grass-fed beef and cage-free eggs continue to be a focus and environmental sustainability has become top of mind, with a focus on quality rather than quantity,” says Aloysius.

FOOD AS A NEW SOURCE OF REVENUE

According to Dubuni, the pandemic has resulted in more airlines switching from complementary catering to onboard retail on short-haul and even medium-haul flights.

She says: “Hybrid models become more interesting as carriers try to create a new source of revenue by selling food on board – and that is when new aspects of quality plus the narration about these features come into play. Airlines are looking for quality meal concepts that reflect their desired perception and at the same time are appealing to their customers.”

Gategroup has also seen an accelerated migration to retail onboard or hybrid models on short-haul flights, while on long-haul flights, pre-order and preselect capabilities are clear trends, allowing variation and choice at the same time as reducing waste.

“Passengers want the freedom to make their in-flight menu their own, whether it is to accommodate their dietary restrictions and preferences, cater to their children’s needs or simply to ensure they will have options and portions they will enjoy,” says the spokesperson.



Healthy eating: LSG Group, which caters for almost every airline in the world, produced 131 million meals last year and says the pandemic has made people more interested in food’s nutritional value.

In turn, this allows airlines to learn what passengers want and expect and supports optimised in-flight inventory.

Partnerships between airlines and chefs, restaurants and food brands are commonplace and will continue, suppliers believe.

“Chefs and airlines have always been a good match, for example for the development of in-flight menus, especially in Business and First Class,” says Dubuni.

“This is also valid for restaurants and brands. In general, partnerships will be increasingly important for the catering industry because you can learn from each other, inspire each other and strengthen each other’s brand.”

Aloysius adds: “With the rise of social media bringing a new level of consumer awareness and brand profile-building opportunities to the table, these partnerships offer a foray into previously untapped markets for all involved, whilst also adding credibility.”

Recent developments have seen Singapore-based in-flight catering and gateway services provider SATS collaborating with local hawkers, food and beverage brands and start-ups through its FoodFlix accelerator programme. SATS has worked with numerous Singapore-based brands to

adapt their signature dishes for the in-flight market.

Meanwhile, last year saw Lufthansa partner with German company dean&david, known for its fresh, high-quality and sustainable food options, and Munich-based delicatessen and coffee specialist Dallmayr, for its Onboard Delights catering concept for European flights, comprising high-quality and fresh meals, snacks and drinks available for purchase.

2021 also saw JetBlue team up with New York-based restaurant group Dig on its “build-your-own dining concept” for its transatlantic services.

Dig restaurants in the US are based on mindful sourcing, fresh ingredients and a customisable concept, which has been translated in-flight.

But even with all the innovation and choices that abound, some simple pleasures continue to have their place.

Dnata’s Aloysius says we should not underestimate the popularity of the humble cheese and crackers option, which he says continues to be a product favourite across both premium and buy-on-board catering models, on both domestic and international flights.

Long live in-flight cheese and crackers! ■

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Celebrating 10 years of live sports in-flight



Owned by IMG, one of the largest producers of sports programming in the world, Sport 24 launched in 2012 as the world's first and only live sports channel specifically for the airline and cruise line industries. Sport 24 broadcasts 24 hours a day, 365 days a year to passengers travelling internationally, with its sister channel Sport 24 Extra providing an additional 150 live hours a month.

Sport 24 is currently available on over 400 aircraft via Panasonic's market-leading live television service, which is broadcast via satellite.

Current airlines carrying the channel include ANA, Biman Bangladesh, JetBlue, Turkish Airlines, Emirates, Etihad Airways and Singapore Airlines.

The live sports channel is extremely popular with passengers, receiving more than 1.2 million monthly views in March 2022.

Inflight Editor Satu Dahl spoke with Richard Wise, SVP, Head of Content and Channels at IMG's media business and Dominic Green, Senior Director, Digital Product Management at Panasonic Avionics Corporation to reflect on the past decade of the channel and look to its future as the travel industry recovers post-pandemic.

Richard Wise, SVP, Head of Content and Channels at IMG's media business (right) and Dominic Green, Senior Director, Digital Product Management at Panasonic Avionics Corporation (left).

Sport 24 is celebrating its 10th anniversary this year. You created the channel back in 2012. Looking back, what are you most proud of?

Richard Wise: We are often told we have the best sports channel in the world, broadcasting over 60 premium events, tournaments and leagues. We consistently deliver blockbuster after blockbuster from across the sports world, throughout the year.

Even if you are not a sports fan, you will recognise many of the events we show live on board. No domestic broadcaster has the same breadth and variety of sports that we have. We offer, on average, over 15 hours of live content a day – 5,600 live hours a year across Sport 24 and Extra.

Sport 24 is a very specific, successful product created for the in-flight market with our partners, Panasonic Avionics.

As fans ourselves, we know that sport is best experienced live and as a passenger you want to stay connected to events as they happen on the ground – in real time.

As testimony to live sports, our events can achieve a 100% passenger audience during a flight, with every passenger watching the event. One example of this was the last FIFA World Cup and NFL's Super Bowl, which both got a 100% audience on board certain planes.

Dominic Green: We've actually seen higher than 100% viewership on some flights during particularly big events. That might seem odd, but we realised that some passengers were watching one event on Sport 24 and a second live event on Sport 24 Extra – one on the seatback screen and the other on their personal device.

Even after 10 years, Sport 24 still has a massive wow factor. We see this on social media, with airlines getting amazing feedback for our channel and customers being very happy and surprised they have the option to watch their favourite sports live during a flight.

Other companies have tried to provide the same service but haven't succeeded so we're very unique in this sense. We took a big leap of faith 10 years ago and envisaged this could become a reality.

DG: We're equally proud to have been part of the team that brought this amazing experience to the skies. As a sign of the growth and popularity of live sport, we worked with IMG to add a second live channel a few years ago. Sport 24 Extra helps us to keep up with demand when there are multiple, live events taking place at the same time, and it has become a mainstay of our live television offering for many airlines.

Which live sports events see the most demand on board flights?

DG: We see particularly strong demand for events that only come periodically, such as the Olympics and World Cup. Those are big draws for in-flight viewership, along with other major finals and championships throughout the year.

However, the beauty of a truly global offering from Sport 24 means that there is always something compelling taking place, whatever flight you are on or time zone you are in. Sport 24 is not limited to the live offering from a single region, so it's pretty much round the clock coverage.

Because of the wide coverage of any sporting events, the chances are your "home team" is being shown across a variety of sports, federations, and events.

But what's interesting about many international travellers is that they tend to be more open to new experiences of sports and teams that they might not be so familiar with at home. That breadth adds more excitement for the Sport 24 viewer.

New rights are being secured as our viewership grows, and that means more moments for airline passengers to tune in – and for our airline customers, more brand equity to gain as they are seen to bring those moments to their passengers.



How did Sport 24 adapt to the pandemic?

RW: One of our biggest achievements was surviving the pandemic. Our business was booming before COVID-19 with a growing customer base and passenger audiences watching the channel but, as you know, suddenly the pandemic hit and around 90% of air traffic just suddenly disappeared in a very short space of time.

The reason we survived is because of the partnership of two industry-leading companies: IMG, the global leader in sports programme distribution, and Panasonic Avionics, the leading provider of in-flight entertainment and communication systems on board.

Sport 24 is produced in London, UK, and many facilities and companies had to shut down during the pandemic, but we managed to stay open. Our channel never went dark.

Of course, we needed to get the necessary and appropriate approvals to continue to stay open, but with the support of both Panasonic Avionics and IMG, we managed to keep

going. Our long-term relationships with airlines were also crucial.

DG: Yes, the strength of the relationship between IMG and Panasonic was key to ensuring Sport 24 was maintained throughout the pandemic. We actually expanded and strengthened our agreement during this time as an indication of our continued belief in the importance of the live sports offering.

Several major airline customers maintained Sport 24 throughout the pandemic, even when they massively cut back on other forms of entertainment. Now we are seeing really strong growth, both from existing customers that continue to grow their fleets in response to the recovery, and from new customers that understand the incredible value that Sport 24 brings to the in-flight experience.





Which events will you be broadcasting this year?

RW: We have all the best sports on board appealing to a global fanbase of passengers travelling across multiple time zones. We broadcast all the big annual events, leagues and tournaments. Our philosophy is to cherry-pick the most popular sports from across the globe, so we start in Australia and then follow the sun to Asia and Europe before finishing off in America.

We've recently broadcast the Winter Olympics, Super Bowl and Masters' Golf. We show tennis's Grand Slams and golf's Majors plus the NBA, NHL and NFL. On the football front, we cover all the biggest leagues including Premier League, UEFA Champions League, UEFA Europa League, World Cup Qualifiers and more. We recently acquired AFC rights to appeal to a growing number of Asian carriers. Our biggest challenge is fitting it all in!

In addition, we have a couple of surprises in the form of two huge sports events coming up that we'll be announcing soon, so watch this space!

What does your partnership with Panasonic Avionics entail?

RW: This channel would not exist without the partnership between Sport 24 and Panasonic Avionics. We both had the vision over 10 years ago to provide this solution for airlines.

Our partnership with Panasonic Avionics is fantastic and, as companies, we really complement each other. Sport 24 is an expert in the field of sports and putting a broadcasting channel together – we know what people are watching around the world and adapt our content according to this.

Panasonic Avionics, on the other hand, is the expert in making the channel work in practice on board aircraft so that passengers can access and enjoy the best live sports in the world. This is all possible because of Panasonic Avionics' latest technology and forward-thinking attitude.

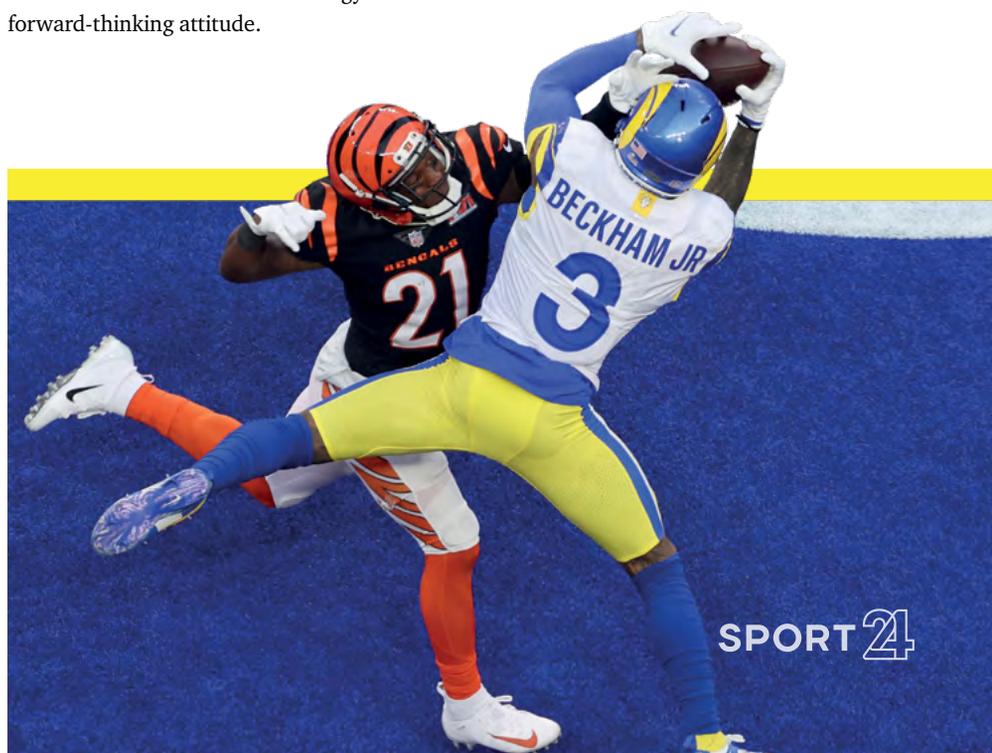
How can airlines sign up to offer Sport 24 broadcasting to their passengers?

RW: Panasonic Avionics is the "gatekeeper" of the channel, so any airline wanting to start broadcasting Sport 24 can get in touch with Panasonic Avionics to arrange a commercial agreement. Panasonic has enabled Sport 24 to be platform-agnostic for the good of the airlines and their passengers, so now connected aircraft can receive Sport 24, regardless of the IFE system onboard.

One example of this approach is JetBlue where Panasonic Avionics worked with Viasat to integrate Sport 24 into the Viasat network. So it is possible to offer Sport 24 to passengers through all airlines that have connectivity on board.

DG: That's right. We brought Sport 24 to JetBlue on Viasat-connected aircraft last year and are working closely with other key in-flight connectivity providers to enable more airline customers. As the exclusive provider of Sport 24 and Sport 24 Extra to in-flight customers, we are keen to ensure that the channels are available to any passenger using any IFE or IFC systems.

Our goal is to deliver a consistent and superior entertainment experience to all airline passengers around the globe, regardless of the underlying IFE or connectivity provider. Watch this space for exciting news about our activity in this area, including more airlines planning to join the Sport 24 family during the coming months. ■



SPORT 24

Getting together in Geneva

The European Business Aviation Convention & Exhibition (EBACE2022) is returning to Geneva on 23-25 May. The business jet sector is going from strength to strength and as one of the key media partners of this event focused entirely on the business aviation industry, *Inflight* will be highlighting this growth and featuring many exclusive interviews and news from the sector's key players in this issue.



Gulfstream:
12-17



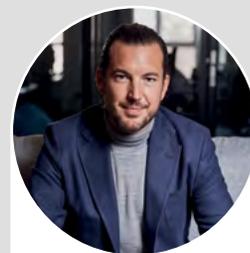
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“Bombardier’s design teams are true masters of their craft, and I am proud that their work on the Challenger 3500 jet was recognised by the Red Dot jury for belonging to the best in its category.”

Éric Martel, President and Chief Executive Officer, Bombardier



FLYING HIGHER

EBACE2022, this year’s European Business Aviation Convention & Exhibition, showcases the latest aircraft and new technologies – as well as getting together industry leaders, equipment manufacturers and suppliers all in one venue.

Inflight has partnered with EBACE2022 to report on all the latest news from this prestigious event, which is hosted by the European Business Aviation Association (EBAA) and the National Business Aviation Association (NBAA).

The aircraft display at Geneva International Airport will feature European manufacturers such as Airbus, Dassault Aviation and Pilatus, as well as international aircraft manufacturers such as Embraer, Gulfstream, Honda Aircraft Company and Textron Aviation.

“We are very excited to offer a must-see variety of business aircraft of all sizes and for all missions on display as attendees return to Geneva and to EBACE,” says Joe Hart, NBAA Director for Aircraft Displays. “No other venue in Europe provides this kind of opportunity for business aviation professionals and end-users to see and compare so many aircraft types and models side by side.”

GOING THE EXTRA MILE

There are many exciting new developments and initiatives happening for the industry right now. One example of this is the official

launch of an ambitious new programme called Standards & Training for Aviation Responsibility and Sustainability (S.T.A.R.S.) at EBACE.

The programme, initiated by young business aviation professionals in Europe, wants to take a holistic approach to sustainability, going beyond emissions reductions and extending the concept to social concerns such as workplace diversity and inclusion, says EBAA’s Communications Manager Róman Kok.

The pilot programme is now under way in Europe. “It’s very ambitious what these young people have done,” says Kok, adding that sustainability is the biggest challenge facing business aviation today.

Kok also says that key to the programme’s success will be the integration of the S.T.A.R.S. label into existing requirements for IS-BAO and IS-BAH, two sets of best practices produced by the International Business Aviation Council.

AWARDING INNOVATION

Aircraft manufacturers present at the event have been celebrating big achievements and milestones in recent months.

Canadian jet manufacturer Bombardier announced in April that its newest business jet, the Challenger 3500, was honoured with the distinction “Red Dot: Best of the Best” in the Red Dot Award: Product Design 2022 contest – an award that is one of the most

Acclaimed: Bombardier’s Challenger 3500 business jet is among the winners of this year’s sought-after Red Dot Award for product design.

sought-after international recognitions for design and innovation excellence.

“Bombardier’s design teams are true masters of their craft, and I am proud that their work on the Challenger 3500 jet was recognised by the Red Dot jury for belonging to the best in its category,” said Éric Martel, Bombardier’s President and Chief Executive Officer. “The Challenger aircraft platform has always delivered impressive performance, consistent reliability and a smooth ride, and I’m thrilled that the new interior design and technological features elevating the aircraft’s cabin experience have been acknowledged by this prestigious award.”

Bombardier says it conceived the next-generation Challenger 3500 business jet through a sustainable lens. The aircraft introduces a redesigned interior with intelligent and sustainably minded cabin features crafted to combine comfort with

function, with the manufacturer’s Nuage seat included in the aircraft’s standard configuration. Bombardier says this is the first time a seat of this calibre is available in the super mid-size segment.

According to Bombardier, the aircraft also introduces new and innovative technological features such as wireless chargers throughout the cabin, the only 24-inch and only 4K display in its class, as well as the industry’s first voice-controlled cabin to manage lighting, temperature and entertainment systems.

MEMORABLE MOMENTS

Dassault Aviation announced in March that its Falcon 6X had successfully passed yet another major milestone towards certification, with the aircraft completing cold weather trials. The test team consisting

Freezing point: Dassault’s Falcon 6X business jet has passed a series of rigorous cold weather trials. Photos: Dassault Aviation

of technicians and pilots from Dassault Aviation and engine manufacturer Pratt & Whitney Canada endured bone-chilling temperatures during the long trial runs in Iqaluit in Canada.

Dassault Aviation says that, as part of the ground test campaign, the aircraft was cold soaked for three successive nights and subjected to different start sequences each morning. It was then powered up and the test team conducted engine ground runs and high-speed taxi tests.

These tests were followed by a test flight, and Dassault says anti-icing systems and handling qualities were checked and the stability of fuel and hydraulic fluid temperatures verified during the flight while the aircraft remained in a holding pattern at 10,000 feet.

The certification for the aircraft is expected later this year. “The Falcon 6X continues to impress us with its performance and reliability as we move through the certification process,” said Carlos Brana, Dassault Aviation’s Executive Vice President of Civil Aircraft.

“The aircraft operated flawlessly at the extreme temperatures an aircraft can be subjected to in the severest climate conditions. That includes engines, systems and low-temperature maintainability requirements.”

The 6X endured a total of 50 hours of Arctic cold tests and has now accumulated some 650 flight hours and completed over 220 flights.

Dassault team members flew to Iqaluit on board the 6X from the company’s test centre in southern France, noting that the cabin was exceptionally quiet and comfortable with excellent connectivity.

The 6X has a unique skylight window installed at the top of the galley area which allowed the team members to witness spectacular views of the aurora borealis.

Engine manufacturer Pratt & Whitney Canada received type certification in December last year from Transport Canada Civil Aviation for the PW812D turbofan engine that will power the Dassault Falcon 6X business jet.

Eric Trappier, Chairman and CEO of Dassault Aviation said at the time of the certification: “We congratulate Pratt & Whitney Canada on receiving its type certification for the PW812D engine.

“It’s a major step forward in fuel efficiency, maintainability and performance, helping make the 6X an outstanding new Falcon.

“With this milestone and the aircraft’s test programme progressing smoothly, we are on track for a successful and timely entry into service of the Falcon 6X.”

Pratt & Whitney Canada says its PW812D engine has shown exceptional performance during testing, with more than 4,900 hours of engine testing that includes 1,150+ hours of flight testing and 20,000 hours on the engine core.



“ The Falcon 6X continues to impress us with its performance and reliability as we move through the certification process. **Carlos Brana, Executive Vice President of Civil Aircraft, Dassault Aviation** ”

THE HIGHEST STANDARDS

Brazilian aircraft manufacturer Embraer also announced a memorable milestone in February when it announced that the company’s Phenom 300 series had become the world’s best-selling light jet for the 10th consecutive year.

It was also the most delivered twinjet of 2021, according to numbers released by the General Aviation Manufacturers Association (GAMA). Embraer says it delivered 56 Phenom 300 series light jets in 2021 to achieve this distinction.

The Phenom 300 series entered the market in late 2009 and has had the largest annual delivery rate with 50+ jets being delivered on average since then. To date, the series has totalled to more than 640 deliveries.

“It has been a distinct honour for the Phenom 300 series to be named the world’s best-selling light jet over these past 10 years, achieving a decade of dominance is an extraordinary accomplishment for Embraer and solidifies our industry-leading position in

the market,” said Michael Amalfitano, President & CEO of Embraer Executive Jets.

Embraer says it is continuously investing in the attractiveness of the Phenom 300 series, announcing new enhancements to its performance, technology, comfort and operational efficiency.

The Phenom 300E is capable of reaching Mach 0.80 and features a quieter cabin, more legroom in the cockpit and a new premium ‘Bossa Nova’ interior option with carbon fibre

accents and Embraer’s exclusive Ipanema sew style. It is also the first of the Phenom 300 series to feature piano black surfaces.

The jet also benefits from 4G connectivity and an avionics upgrade featuring a runway overrun awareness and alerting system, predictive windshear, emergency descent mode, PERF, TOLD and FAA Datacom. ■

Executive precision: Embraer’s Phenom 300 series now enjoys 4G in-cabin connectivity. Right, the 300E’s new-look interior.



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Joining the dots

Faster, more plentiful, less expensive, easier to maintain in-flight connectivity is coming to business aircraft of all sizes and the precondition for many of these advances is the boom in satellite deployment. Henry Canaday reports.

Euroconsult predicts global capacity of high-throughput satellites (HTSs) will increase 45% annually over the next five years, reaching 60 terabits per second by 2026.

Nearly 90% of those terabits will be provided by HTSs that are not in high geostationary orbits (GEOs), thus dramatically lowering latency and expanding coverage across the poles.

SpaceX's Starlink constellation of low Earth orbit (LEO) satellites is well under way and the company will go after business aviation.

OneWeb and SES deployments are expected to enter service in 2022. But it's more than satellites. New antennas and other equipment are coming, promising easier installation and better exploitation of bits and bytes.

Smarter combinations of satellite and cell communications are due, while 5G cellular

technology promises to open up true broadband from the ground.

For their part, connectivity providers are eager to hook up business jets, which proved a much steadier market during the coronavirus pandemic.

Inmarsat's L-band connectivity for cockpits started in the 1990s, with SwiftBroadband for the cabin launched in 2008, and is now used by 4,000 aircraft. Launched in 2016, Jet

“

The new service introduces custom in-flight connectivity solutions and compelling connectivity plans that are tailored to match a business aircraft's specific operational profile.

Claudio D'Amico, Director for Business Aviation, Viasat

”

ConneX on Ka-band increased cabin connectivity and is used by 1,100 aircraft, making it the market leader in business aviation according to Commercial Strategy VP Melinda Janda.

Inmarsat has added its first I-6 satellite to increase both L- and Ka-band connectivity, and another I-6 will be launched next year. For Ka-band, five more satellites beyond I-6 have already been funded.

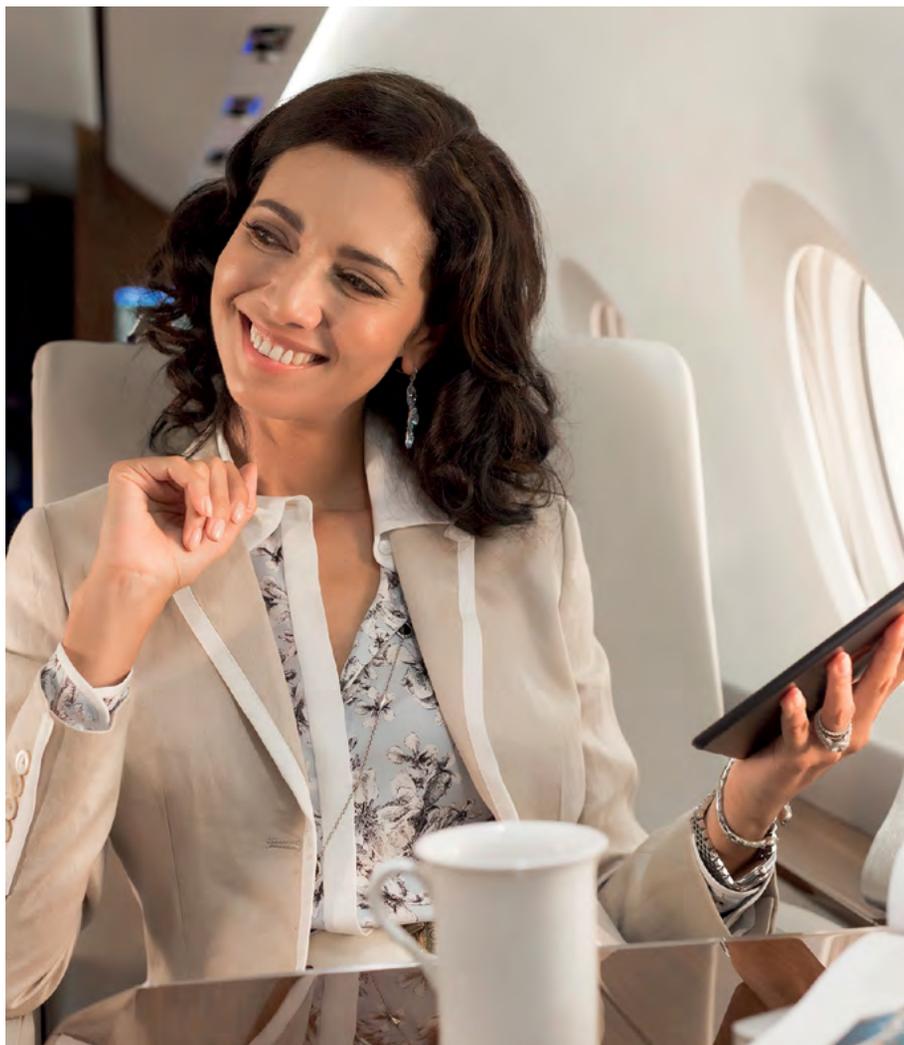
The new Ka-band satellites, GX 7, 8 and 9, will be reconfigurable and enable the company to reassign capacity where and when needed, in real time and by time of day.

GX 10A and 10B will be multi-beam HTSs in triple-apogee orbits, offering “the first polar coverage for commercial inflight connectivity”, according to Janda.

Inmarsat is also moving towards new terminals. It will use Satcom Direct's new Plane Simple antenna, which is very light with only two line-replaceable units and simplified wiring, to exploit its new Ka-band satellites.

Another new antenna, Orbit's AirTRX30, is also simplified into two line-replaceable units and should push per-tail capacity above 100 megabits per second (Mbps). Both new terminals are due in 2023.

The company will likely move to electronically steerable antennas (ESAs) for



Got it covered: Viasat's Ka-band network will provide fast, reliable connectivity to mid-cabin business jets, with speeds comparable to those which passengers enjoy on the ground. Photo: Gulfstream

business aviation when ESA size and heat generation have been reduced sufficiently.

Another innovation, Orchestra, will seamlessly integrate LEOs, GEOs and 5G cellular into a network supporting all mobile users, including business aviation.

Orchestra will provide the best combination of capacity, speed and latency available at each location.

According to Mark Rasmussen, SVP of Mobility, Intelsat is developing more throughput for its network and faster speeds per business jet over key regions such as North America and the North Atlantic by adding more HTSs to its network.

Intelsat's FlexExec service for business aircraft now provides data at speeds of up to 15 Mbps to the aircraft and 2 Mbps from the aircraft. The company plans to increase these rates to 20 Mbps to the aircraft and 3Mbps from the aircraft. Intelsat will also offer Plane

Simple antennas on Gulfstream types, Dassault aircraft and many Bombardier models.

Many user benefits are provided by Intelsat's multiple HTSs that afford layers of throughput where business aviation traffic is heaviest.

And Intelsat's FlexExec network is not shared with other services such as those supporting commercial aviation, consumer broadband or cruise lines.

This ensures that FlexExec will not degrade near large commercial hub airports, big cities or busy cruise regions.

FlexExec customers can choose from flexible rate plans that include payments by the hour and other customised options.

This flexibility enables customers to match their connectivity payments with how they budget and pay for aircraft.

Viasat recently announced Viasat Select, a novel direct-service model for business aviation Ka-band in-flight connectivity.

Cabin Air Quality Monitored on every flight

Teledyne ACES® environment monitoring system is a complete and autonomous solution to efficiently monitor and measure the air quality in the cabin and flight deck. The system provides comprehensive environmental data so aircraft operators can continuously verify the air quality in the airplane, identify potential emerging issues, and ultimately deliver the safe cabin environment that crew and passengers expect.



Established solution: Gogo's AVANCE L5 offers streaming speed, on-demand IFE, cockpit data and self-service tools.

Photo: Gogo

“The technology was specifically designed to support data-heavy services like video conferencing and Apple's video-telephony app FaceTime.”



“The new service introduces custom in-flight connectivity solutions and compelling connectivity plans that are tailored to match a business aircraft's specific operational profile,” says Claudio D'Amico, Director for Business Aviation.

Viasat Select service plans include global and regional unlimited plans that feature uncapped data combined with Viasat's popular no-speed-limit Ka-band connectivity.

In addition, Viasat Select provides operators with several tools to monitor and manage their connectivity in real time.

For example, Viasat Insights is a computer-based portal that allows a fleet operator or an individual aircraft operator to see the connectivity of its fleet or aircraft and even the performance on specific routes, while Viasat Crew Central is a mobile app for flight attendants and pilots that gives the status of in-flight connectivity so that crew can monitor passengers' connectivity and help them with any connectivity problems.

The end-to-end connectivity provider is also expanding its geographic coverage. In October 2021, Viasat announced coverage expansion for business aviation across Brazil, the world's third largest business aviation market. The company now covers more than 90% of the most-travelled business aviation flight paths. The new Brazilian coverage uses Viasat's Ka-band partner satellite, SGDC-1, owned by Brazil's telecommunications provider, Telebras.

Viasat Select Ka-band service enables business jets to access in-flight connectivity similar to that which customers have on the ground, typically with speeds greater than 20 Mbps.

“In fact, some operators with Viasat Ka-band connectivity have reported speeds greater than 80 Mbps,” says D'Amico.

That level of connectivity, enabled by the company's substantial satellite capacity, allows all passengers to enjoy in-flight applications such as video conferencing, streaming music, video, TV and corporate virtual private networks (VPNs) during all phases of flight, including taxi, take-off and landing.

USING THE BEST AVAILABLE NETWORK

Viasat has also launched a new router for its Select offer to business aviation.

The Viasat Select Router is a fully-featured cabin connectivity management device that integrates Viasat connectivity with other available cabin connectivity on business aircraft.

User traffic is routed automatically over the best available network. In the event of a service disruption, an alternate service is automatically selected to ensure continuous internet access.

Each of the new routers is equipped with an integral cellular modem that enables near-global 4G data service while aircraft are on the ground. The data service can be used by passengers or crew and can be remotely

accessed by Viasat technical support to assist with equipment configuration, software updates and other troubleshooting.

“The new router, coupled with Viasat's latest generation satellite terminal, delivers a fully managed internet connectivity network inside the cabin that promises to deliver maximum speed and capabilities,” says D'Amico.

Gogo 5G cellular is coming up soon from Gogo Business Aviation. It will enable more users to connect simultaneously with no noticeable degradation and near-zero latency, so customers can have real-time conversations and better video streaming and generally much faster speeds for better service across all activities.

In addition, Gogo will offer the only air-to-ground (ATG) network that meets 5G standards, according to Communications Director Dave Mellin.

The 5G ground network will be completed across the contiguous United States in the second half of 2022 and Mellin expects 5G to deliver about 25 Mbps per tail on average, with peak speeds of 75 to 80 Mbps.

The technology was specifically designed to support data-heavy services like video conferencing and Apple's video-telephony app FaceTime.

5G will be a big improvement on Gogo's current AVANCE L5 system, which provides only 2 to 7 Mbps. 5G will be able to support several connections in each plane, performing

“Low Earth orbit is air to ground in the sky. It’s global and has the same latency. Our electronically steered antenna will be available sooner than most.”

Steve Newell, Chief Operating Officer, NXT Communications



Light touch: Satcom Direct’s Plane Simple antenna system qualified on Intelsat’s FlexExec network. Photo: Satcom Direct

data-heavy activities simultaneously. Latency will be even lower than for L5.

Meanwhile, Duncan Aviation is developing the first supplemental type certification for Gogo 5G. Authorised dealers and OEM partners are pursuing STCs that will enable installation of the new 5G system on more than 30 business aircraft types.

Gogo’s 5G aircraft antennas have already received STCs, and production is underway. These are 13-inch blade antennas mounted on aircraft bellies, roughly the same size as antennas for Gogo’s current AVANCE L5 system. For 5G, the new antennas also need a 5G line-replaceable unit.

Gogo is planning to eventually provide a global broadband solution using LEOs to serve business aviation, but has announced no specifics or timing yet.

Another ATG provider, SmartSky Networks, focuses on business connectivity in the US, according to Company President Ryan Stone.

Its flagship shipset can now be installed on some of the most popular business aircraft, with more STCs due in 2022 and afterwards.

Later this year, SmartSky will introduce a LiTE shipset for smaller aircraft. The company’s data and services platform, Skytelligence, delivers applications for passengers, crew and operations.

“SmartSky’s primary focus in 2022 is on the continental United States,” says Stone.

“We anticipate expanding further in North America and globally in the years ahead.”

The company uses precise beamforming that provides one beam per plane, enabling high speeds both to the plane and from the plane.

This in turn supports multiple users streaming, cloud computing, running VPNs, editing large PowerPoints and simultaneously gaming.

“No other network offers that combination of performance and consistency,” says Stone.

BROADER ANTENNA CHOICES

Satcom Direct was expecting STCs for its Plane Simple Ku-band antenna system from FAA, EASA and Transport Canada by the end of April. The tail-mounted antenna, to be used by Inmarsat and Intelsat, is expected to enter commercial service in 2023’s third quarter.

The modem unit is installed in the unpressurised part of the cabin, releasing valuable cabin space. Meanwhile, the Plane Simple terminal can deploy on smaller jets, such as Challenger 300s – basically any aircraft that can accommodate a 12-inch tail-mounted antenna.

Satcom Direct is also developing an electronically steered antenna (ESA) with technology partner QEST and expect certification by 2025.

“LEO is ATG in the sky,” says Steve Newell, Chief Operating Officer of NXT Communications. “It’s global, and has the

same latency.” Newell’s company is developing electronically steerable antennas (ESAs) that he says will be ideal for business and other aircraft to tap LEOs or, where necessary, GEOs or satellites in any other orbit.

Right now, NXT is working with L3Harris Technologies to develop its ESAs for government and defence applications. But Newell says that once the core ESA technology is confirmed, NXT can quickly adapt it to many other mobile applications, including business jets.

The NXT ESA’s core technology is fragmented apertures designed on a computer with genetic algorithms. “That gives it higher efficiency than anyone else’s,” says Newell.

Achieving “upwards of 90% efficiency” means less power use and less heat to dissipate. It also means a light antenna with a small footprint that can fit on the tail of larger business jets and on the fuselage of smaller ones.

NXT is pacing its development of ESAs for civilian aviation to the timing of LEO constellations available to support mobile connectivity.

Newell expects this to happen around the end of 2022 but admits there is uncertainty about this date.

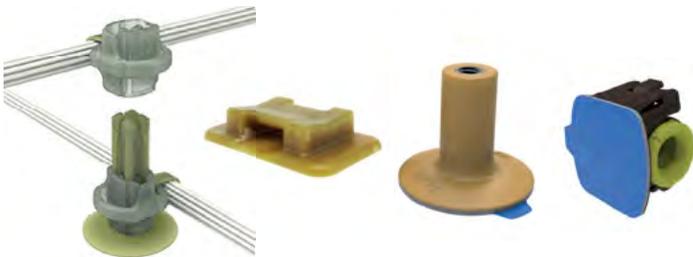
He says NXT’s advantages over competing ESAs is that it will be available “sooner than most, we think,” adding: “The current ones are twice the size and four times the weight.” ■

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Seamless service

Private jet company XO is going from strength to strength. *Inflight* Editor Satu Dahl spoke with XO's Executive Vice President Youssef Mouallem at the Corporate Jet Investor event in London in March to find out more about the sophisticated machine-learning technology at the heart of its operations.

Private jet company XO wants to revolutionise the private aviation industry.



XO, a unique private jet company which was created in the summer of 2019 by merging technology company JetSmarter and XOJET, one of the largest private aviation companies in North America, continues to expand its fleet as its membership numbers and global reach grow at an impressive pace.

The company has been growing its consumer base, especially that of first-time private air travellers – it experienced a more than 52% year-on-year increase in entry-level membership sales in 2021.

XO's Executive Vice President Youssef Mouallem says: "We've seen huge growth, especially within first-time business jet users. XO has different membership levels and the entry-level membership numbers have increased.

"Across the board, that growth translated into very healthy flight hours in total. Our parent company Vista had 64% growth last year in flight hours so we're doing extremely well."

XO is part of Vista Global Holding, a private aviation group that integrates a

portfolio of impressive brands such as global business aviation company VistaJet.

The group continues to invest in the US market, and Vista recently announced that it had acquired Jet Edge, an integrated charter, management and brokerage platform and provider of large cabin and super-midsize private jet charter and aircraft management services.

Following the completion of the transaction in Q2 of 2022, Vista says it expects its fleet availability to expand to approximately 350 aircraft.



“

We've seen huge growth, especially within first-time business jet users. XO has different membership levels and the entry-level membership numbers have increased.

Youssef Mouallem, Executive Vice President, XO

”

The Jet Edge announcement followed another large acquisition for the company in February when Vista acquired European private jet operator AIR HAMBURG.

Vista says it is balancing its fleet to respond to the significant demand it has experienced across the two large aviation markets.

FROM APP TO AIR

XO has an app that is central to the company's operations. The app gives its users unlimited access to XO's fleet of private aircraft and offers competitive pricing for private charter flights through the company's innovative technology.

It also provides the unique ability for users to buy individual seats on flights.

The digital platform, which also features a website, allows members to check pricing across a range of aircraft that are part of XO's fleet, such as the Citation Ultra, Citation Excel/XLS, Citation X, Bombardier Challenger 300 and more.

App users can then book flights instantly and also explore global route options.

XO is clearly very technology-driven as a company. It has clever systems which predict where demand for flights is going to be and XO then markets its services there. But what exactly does it take to make this kind of technology work?

Mouallem explains that XO has invested significantly in technology to disrupt and digitalise the industry.

He says: "This was something that was bound to happen in the business aviation

sector, and we have invested in technologies such as machine learning and artificial intelligence – solutions that educate our revenue engineers.

"These system set-ups scan demand for business jet flights globally, with the algorithms educating our teams where the demand is coming from on an ongoing basis and where we'll have our flights departing from.

"The technology allows us to move our floating fleet and capture that demand accordingly. Other players in the industry do this process manually, which does not give the same agility to act on it as what we have."

Mouallem confirms that the machine learning-enabled algorithms also educate the company regarding the pricing.

"Not only do they signal where the demand is, they also give us clues on [what] the right sort of price is for specific markets and this will then enable us to match the pricing to that demand," he says.

Mouallem explains that there has been significant investment in the past couple of years in these areas within XO as part of the company's continued effort to innovate.

"We are constantly recruiting data engineers, data scientists and software developers, along with sales and marketing employees and client services staff," he says.

"The last six months have seen a 30% increase in our employee base within our technology department and we expect another 34% increase in the next six to 12 months. So there is massive investment behind our technology."

A DIVERSIFIED OFFERING

According to XO, the company's account managers can tailor every travel experience



App and go: the XO app gives users unlimited access to the operator's fleet of private aircraft.



GO BEYOND

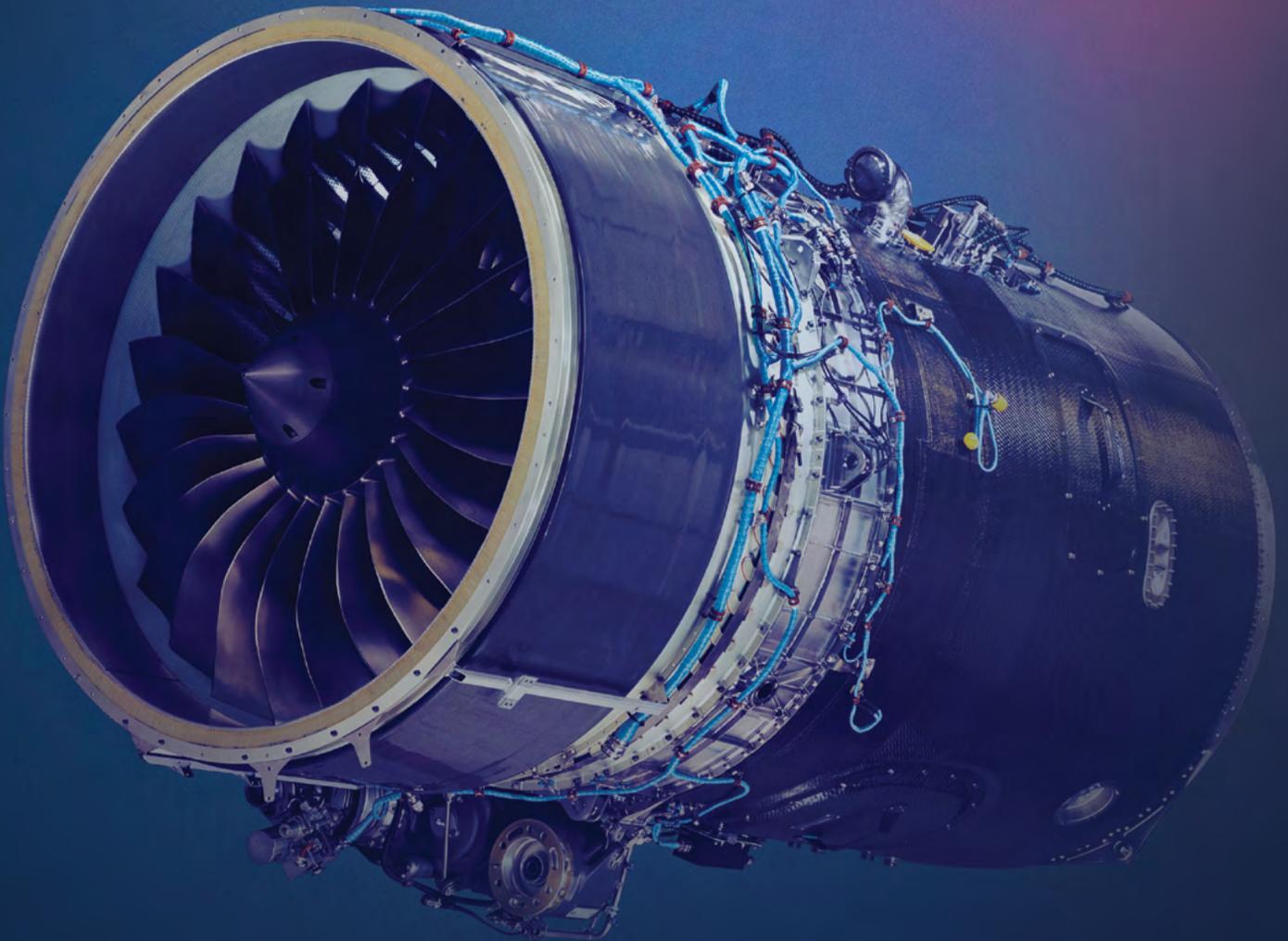
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“ XO is growing internationally, within Europe and Africa, and we are expanding our offering and are very optimistic about the private jet industry.”

Youssef Mouallem, Executive Vice President, XO



Challenger brand: XO is part of Vista Global Holding, with access to VistaJet’s impressive fleet of over 80 large-cabin Challenger and Global private jets.

to individual preferences, from arranging specific catering and providing ground transportation and concierge services.

Asked what trends are most in demand by customers at the moment, Mouallem says comfort and luxury are always important, together with a high-speed Wi-Fi connection.

“We all want to be connected and have access to high tech these days,” he says.

XO offers different levels of membership, varying from the basic “Buy as You Fly” to top-tier “Elite Access” which provides a wide range of benefits for the company’s frequent flyer customers.

Mouallem says: “As a company, we offer several different products for the market. You can get a full charter by booking through our app just by a click of a button, with plenty of choice of aircraft from our 200-plus XO-dedicated fleet. Or you can crowdfund a flight by initiating it through the app, and for this we have 2,100 safety- and compliance-vetted aircraft available.

“As an interesting fact, I can share that on average our charter flights have around

three passengers per flight but crowd-sourced flights have approximately 10, so the utilisation of these flights is much higher, which of course lowers the costs for those flights.”

When it comes to the process of booking a shared flight, Mouallem says it is a very straightforward task.

“When a client initiates a flight through our app, the process is that we then push that flight out through the app and social media channels to the XO community.

“The app is very easy to use and highlights each flight that has been approved to go ahead with a green tag – or with a yellow tag if more people need to get on board that particular crowd-sourced flight. If there is no tag relating to a flight, it means it can be initiated by a user. If a flight is not released due to not reaching [the] minimum economical threshold, it is still possible to charter or crowd-source that flight. Flights can also be cancelled up to 72 hours in advance, so it’s a flexible system in case a member decides not to go ahead with it.”

As one example of the possible routes available for members, XO operates shared charter flights weekly between South Florida and New York, with prices as low as \$2,050 per passenger.

The company has reconfigured its jet to deliver an “XO Class” experience.

“No middle seat to be seen,” it promises. “Just 16 spacious spaces to enjoy the ride, from an aisle or a window.”

OPTIMISTIC OUTLOOK

The company is keen to expand globally and is already working towards this.

“Our charter business is currently running in the US and also coming to Europe and the Middle East soon,” Mouallem says.

“XO’s technology is at the heart of our company and we want to revolutionise the private aviation industry – our app is constantly evolving.

“XO is growing internationally, within Europe and Africa, and we are expanding our offering and are very optimistic about the private jet industry.” ■

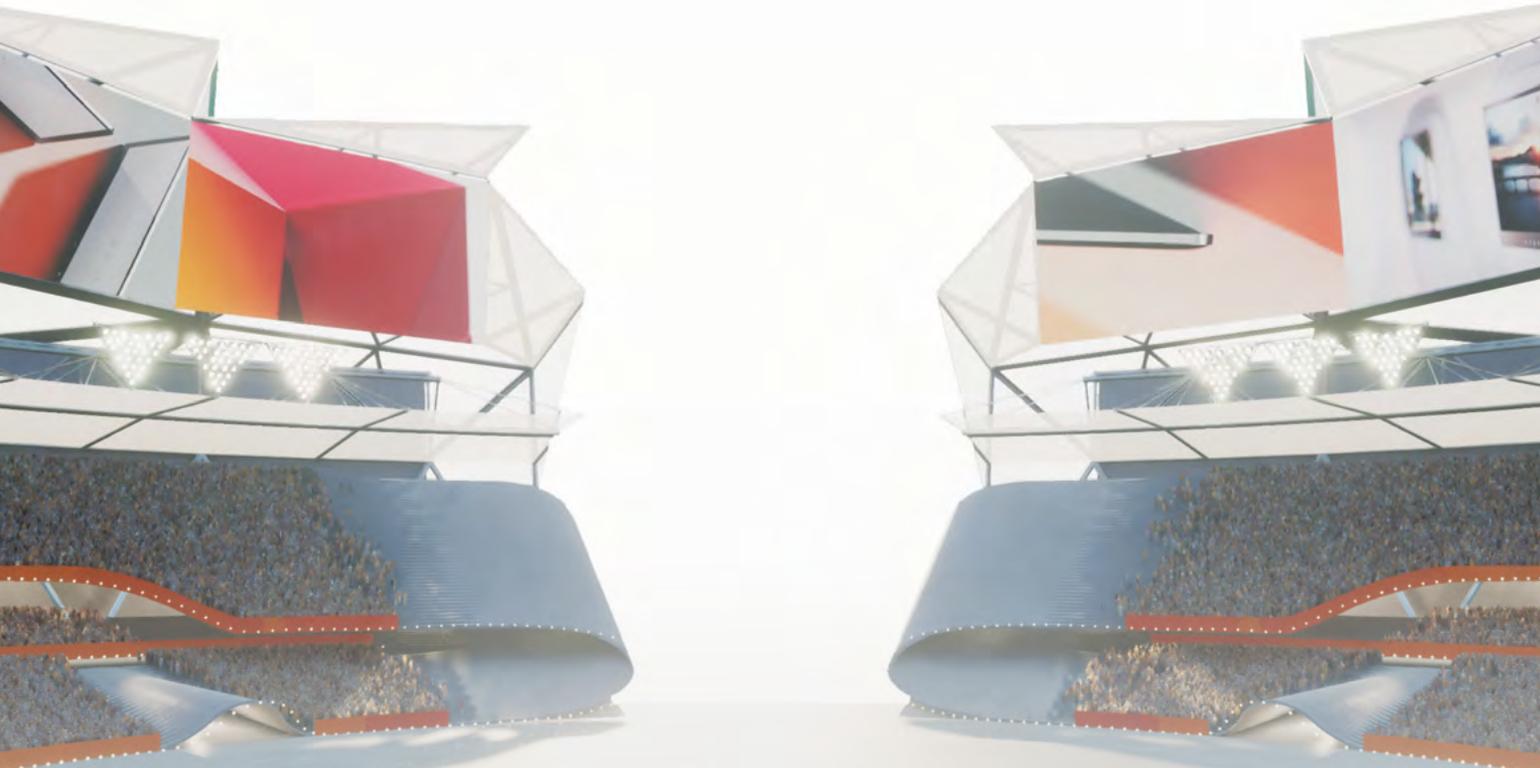
XO is growing internationally and is very optimistic about the outlook for the private aviation industry.



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Contributing to greener skies

SkyTender Solutions AG is announcing a comprehensive life cycle assessment of onboard beverage catering for a first public view at the World Travel Catering & Onboard Services Expo (WTCE).

Reliable figures based on a scientific study at last: the ecological footprint of beverage catering has now been measured for the first time.

The aviation industry's voluntary commitments to climate and environmental protection make it necessary to find innovative solutions to significantly improve the ecological footprint of flying.

Thus far, the focus has been on rather long-term projects, such as more efficient aircraft, electrical power or CO₂-free fuels.

All of these solutions still need years, if not decades, before scaleable market-readiness.

Is it possible to make a significant contribution to greater sustainability in aviation today? Wolfgang von Krogh, the CEO of SkyTender Solutions, has always been certain about this.

“Onboard post-mix based beverage solutions which use locally sourced tap water dramatically reduce waste and CO₂ emissions compared to incumbent beverage services based on plastic bottles and cans,” he says.

While this seems logical, there was a lack of reliable comparative figures – until now.

A recent scientific study by the UNESCO Chair in Life Cycle and Climate Change aims to provide some reliable comparative figures for in-flight cold beverages for the first time.

Study participant SkyTender Solutions AG plans to share the findings at the WTCE in Hamburg. The company could not share full facts or figures at the time of writing as the



study is in the final stage of being reviewed by an independent panel.

Preliminary findings reveal that the company's mobile beverage system has a carbon footprint that is 50% lower compared to other current solutions.

In addition, SkyTender says this will be the first time in the history of commercial aviation that reliable figures have been made available on the impact of beverage catering on the environment.

The full life cycle of all “material and energy contributions to environmental impact” was examined. Figures on waste generation, energy consumption and consumption of non-renewable resources were collected for the first time, and the CO₂ footprint, acidification potential and eutrophication potential were analysed.

OPTIMISING THE SUPPLY CHAIN

SkyTender sees the results as a confirmation of its idea that beverage systems can be developed that are both sustainable and commercially successful for airlines and caterers.

Wolfgang von Krogh notes: “In joint workshops with some of the largest airlines

worldwide, we have jointly determined that the use of the SkyTender System is not only self-financing but also generates a significant ROI next to contributing a large portion to the airlines' ESG goals.”

The SkyTender system relies on trolleys with integrated post-mix technology. To better deploy resources, SkyTender also provides full connectivity: all consumption data can be analysed to optimise the supply chain and provide detailed insights into the ecological footprint.

With SkyTender SPLASH, the company is driving the launch of its multi-beverage offering with leading traditional airlines to introduce a comprehensive solution for a more efficient and sustainable offering of soft drinks from leading brands from 2023.

Later this year, SkyTender will roll out its SkyBarista ONE coffee system to leading airline caterers and airlines. This will make it possible for the first time to prepare and serve coffee specialties such as espresso, cappuccino or flat white directly at the seat.

Initial tests show that both passengers and flying personnel are enthusiastic about the new solution. ■



Home from home: when extended into full flat-bed mode, the new Unum One business class seat allows even the tallest of passengers to stretch out and relax without constraints.

New seats mean business

There's a new kid on the block when it comes to business class seating, and it already has designs on setting new standards in the industry. Alexander Preston spoke to the team at Unum to find out more.

“We will set a new benchmark for inspiring design and effortless service with consistent on-time delivery; a reliable and responsible alternative, driven by people who share the passion and commitment of our customers to deliver comfort every day.”

An idealistic manifesto maybe, but when speaking to Unum's Executive Chairman Chris Brady, it becomes more than just words on the company's website.

Brady is enthused with a commitment to comfort and placing the passenger firmly in the centre. Indeed, enabling the individual to find comfort through moving around, rather than prescribing comfort runs through Brady's veins – from his time at British Airways and Virgin Atlantic through to founding Acro Seating and now his latest venture, Unum Aircraft Seating.

Launched in January this year, Unum's stated ambition is to “solve airlines’

longstanding dissatisfaction with business class seating supply”.

According to Brady, the company is looking at the risky elements of business class seating production and those that have caused problems in the real world – namely delivery delays and poor parts inventory.

“We tried to align this with what customers want – comfortable seats, delivered on time, and that work every day,” says Brady.

Although demand in business class bookings is slowly recovering, is now the right time to launch a new business class seat?

“We recognise that airlines need to succeed in business class to rebuild their finances post-COVID-19,” says Brady, pointing to the levels of investment in cabin interiors following the last three major shocks to the airline industry: the first Gulf War (1991), the September 11 attacks (2001) and the 2008-2009 banking crisis.



“ I wanted to create a new company for people by people, that is a good place to work, that is fulfilling and aims to grow. We just happen to be using aircraft seats as our clay.

Chris Brady, Executive Chairman, Unum (pictured)

It was apt, then, that Unum chose the backdrop of Brooklands in Surrey, the birthplace of British motorsport and aviation and the site of many engineering and technological achievements during the last century, to unveil its first business class seat, Unum One, to selected media.

The result of two years' development in association with London design agency Acumen, Unum One offers two lie-flat business class seating options for narrowbody



Ergonomic: comfort runs through the design and engineering veins of the Unum One.



Shaped to fit: the Unum One offers airline customers numerous customisation options whilst still delivering on efficiency and maintainability.

and widebody aircraft, providing a consistent passenger experience across both single- and twin-aisle aircraft.

“The remarkable thing about this seat is how it has surprised me,” says Brady. “Early on in the development process it looked great on paper, then the first cardboard space models were exciting, but now the real thing has blown me away.”

Unum One is not reinventing the wheel, however. As Alan McInnes, VP Business Development, says: “The industry does not need another designer of concepts.”

The seat sits at an angle of 44 degrees, in an outward-facing herringbone configuration with direct aisle access.

Passengers on single-aisle aircraft can relax on a seat width of 21 inches and a pitch up to 38 inches.

When in full flat-bed mode, the seat extends to a generous 80 inches (78 inches if on a widebody), so even the tallest of passengers can stretch out.

For widebody aircraft, Unum One offers two seat widths: 21 inches and a 19-inch variant (Unum OneHD) with a 34-inch pitch, which allows the addition of an extra row.

Because seats cannot be comfortable, only people can, passengers can enjoy an infinitely adjustable range of seat positions thanks to a unique scimitar-track recline, including the heightened comfort of a well-supported Zero Gravity position. According to the seat’s spec sheet, it emulates the comfort position

pioneered by Le Corbusier in the classic chaise longue, offering the passenger supreme support and relaxation.

Having tested the seat myself, it succeeds. The seat also includes a dropping armrest and heaps of width at the crucial hip area.

Additional features include an optional full-height US Department of Transportation-compliant privacy door and a large, single-piece table which slides and rotates, allowing ease of egress. A large IFE monitor, charging points, and well thought out storage options help complete the design.

FOCUSED ON PASSENGER COMFORT

But it’s the details which really set Unum One apart from its competitors.

“We have a big focus on passenger comfort,” says Brady, “which is about eliminating the things you don’t need. As Antoine de Saint-Exupéry said, ‘Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away,’ and that’s been a guiding principle at Acro and now here. So let’s try to just create as much space as we can because the most comfortable position is the next one.”

To this end, every inch of available space has been utilised, in particular the footwell area.

“There are consequences of geometry when you start to do herringbone – you’re into the concept of straight lines,” says Brady.

Unum One’s generous footwell is both tall and wide – and square – maximising space to

the fullest. Brady adds: “We set out to be reliably comfortable and sustainably made, which has driven the design of our entire business.

“For example, we see designing in maintainability as part of this promise. The seat needs to work like new every day, so we’ve made the replacement of all the moving parts [seat, table] and the high-wear areas straightforward and quick for on-wing replacement.”

Music to the ears of the engineering and maintenance teams, no doubt, while beyond the product is the company itself.

“An overarching theme that Unum taught me is that business is a social endeavour,” says Brady. “I wanted to create a new company for people by people, that is a good place to work, that is fulfilling and aims to grow. We just happen to be using aircraft seats as our clay.”

To support this, Unum has carefully considered its supply chain strategy, selecting Sabeti Wain Aerospace, SCHROTH Safety Products and Bühler Motor Aviation GmbH.

Brady hails them as “partners who share our values and want to do ‘good business’ with an open and honest company”.

He adds: “I have been lucky with a career where I’ve had lots of chance to express myself and be free and to do things new, which I think is a better outcome for passengers and customers too. So that’s the business plan.” ■



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last word

Accurate cost forecasting is vital to the success of any budget – and private jet ownership is no exception, says Christopher Marich, co-founder and Global Strategy Director of MySky.

Predicting and controlling private jet costs is not easy. Precise budgeting needs transparency and for too long now this is something some aircraft owners have been missing out on.

As a result, owners are often unaware of the true running costs of private aircraft. Each time a business jet is flown, there will often be 10 to 15 invoices to process and validate before costs are recovered.

From landing fees and crew to fuel costs and unexpected repairs, the bills can accumulate uncomfortably and surprisingly quickly. New owners, in particular, can often feel unsettled.

But although costs can accumulate quickly, the complexities of the fragmented payment system and further inherent inefficiencies in the private aviation sector mean that up to three months can pass between a flight taking place and the payment of invoices. Cash flow planning is difficult with so much uncertainty over such a long period of time. These problems must be resolved. Many new owners and charter passengers have been entering business aviation since the COVID-19 pandemic began, often attracted by the indisputable health and safety benefits of flying privately. We must ensure these new entrants, as well as long-established clients, retain their passion for private aviation and remain a part of our industry. Owners must not be driven out by management inefficiencies.

TRUST BRINGS LOYALTY

Aircraft owners should insist on a clear picture of total costs from their management companies, with the data delivered not only comprehensive but also of practical value. When nothing is hidden, owners grow in confidence, trust and loyalty.

To be as beneficial as possible, the picture should be customised to the specific aircraft type, whether new or pre-owned. Generic

information is not enough. A good budget is packed with operationally and regionally sensitive forecasts and analysis, based on proven industry data.

There should be no conflict here – good management companies and operators surely want to guarantee their owners financial security through efficient and transparent spend management and independent third-party verification of costs.

For example, a new buyer would need to recognise that beyond purchasing a Bombardier Challenger 604 for US\$8 million, they would have to spend approximately US\$2 million per year to maintain it. In this scenario, a new buyer needs to ask themselves whether they are well-positioned to spend \$20 million over a 10-year period of maintaining their aircraft.

Our industry owes it to aircraft buyers to provide the tools and support for understanding total ownership costs over a period of time rather than simply the cost of acquisition.

CENTRALISED, VERIFIED DATA

Fortunately, technology delivers the solutions the business aviation industry needs. Bringing comprehensive cost data to owners, in a digestible and transparent way, is an easily achievable task, especially when using artificial intelligence.

Integrating large quantities of current, verified data into a centralised digital platform allows stakeholders to make informed forecasts and see true costs over time.

Advanced aircraft spend management tools, such as MySky Budget, exist to give a clear and accurate picture of the annual running costs of any private jet.

Potential charter revenue enters the picture too. As an industry, we should help owners see the value in their aircraft assets, not just the costs. The right technology can be used to predict the extent to which charter income will help offset the owner's operating overheads and fixed costs. Simulated flight activity, and oversight of factors such as expected charter versus owner hours flown, are needed to work out margins.

Digitising and validating invoices and simplifying administrative processes through IT enables stakeholders to manage jets as efficiently as possible. Automated accounting minimises errors and time spent on back office tasks. Invoices can be automatically submitted immediately to owners, reducing unhelpful cash flow delays between services being provided and payments being made.

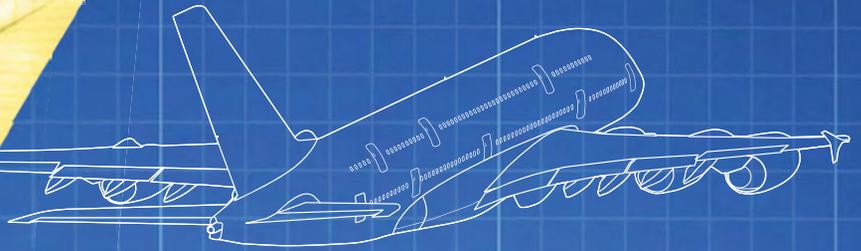
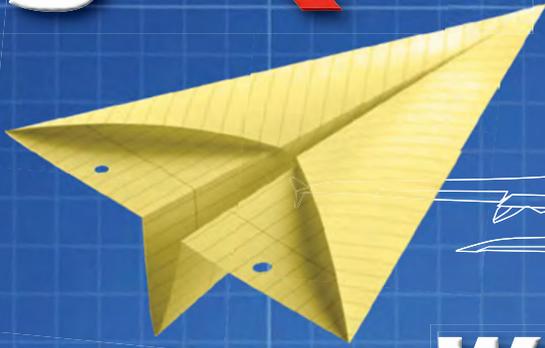
Business aviation's owners, operators and management companies all win when accurate budgets lead to well-informed, profitable decisions. Time is saved, costs are reduced and income is increased. ■

MySky: Agility in private aviation

In 2016, Christopher Marich and co-founder and CEO Kiril Kim launched MySky on a mission to bring value to all private aviation stakeholders by making the industry more agile and efficient. Now with operations around the world, it continues to offer a suite of innovative solutions and tools to further establish itself as the industry's most powerful spend management platform.

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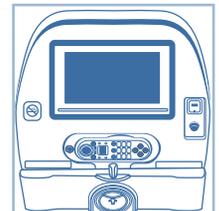
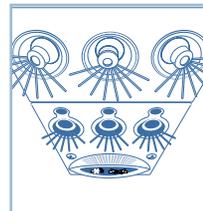
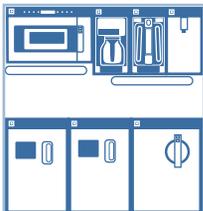
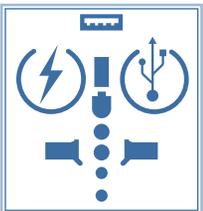
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