

FLIGHT

AIX DAILY NEWS

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Qatar's big screen deal

Kerry Reals

Qatar Airways Group chief executive Akbar Al Baker (pictured, right) visited AIX yesterday to sign an agreement to be the launch customer for Panasonic Avionics' new Astrova in-flight entertainment system on its incoming Boeing 777X passenger jets.

The Doha-based carrier

will install the system on its entire fleet of 777X aircraft.

Al Baker tells *Flight Daily News* that the airline chose Panasonic's Astrova product because it has "functions that no other IFE provider has invented".

Qatar Airways has orders for 40 777X passenger jets and will also be the launch customer for the 777X freighter. Boeing had intended to begin delivering the 777X in

2023 but has been forced by certification delays and supply chain issues to postpone this until 2025.

Al Baker says that while he is "not happy" with the delays to the aircraft programme, he has "confidence" in Boeing.

Panasonic unveiled Astrova at the show yesterday, describing it as a "seat-end" IFE system that will "redefine the role of seatback IFE". It features

"cinema-grade" 4K OLED high dynamic range (HDR) screens which, at 7mm thick, are described by Panasonic Avionics chief executive Ken Sain (left) as being "the thinnest on the market by far".

It is available in four screen sizes, ranging from 13in to 22in, and is available for installation on widebody, narrowbody and regional aircraft.

Continued on page 3



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TSI lightens the load

Bernie Baldwin

TSI Seats has brought two new products to Hamburg in the shape of the Royalux business class seat and a new economy class seat, the Milligram. The former was given a celebratory unveiling yesterday at the company's stand, while the latter - described as "a very competitive and unique product" by TSI's general manager, Suat Sağıroğlu - was kept behind closed doors for private viewing.

"For the last two years we have focused on the passenger experience, lightweight solutions and also sustainability. And with our two new products,

we believe that we achieved critical goals and passed critical milestones," Sağıroğlu says.

Phil Hall, the company's chief technology officer, adds: "We've focused all of our efforts on maximising the passenger space for a high density cabin. And a milestone for us at TSI is the introduction of composite materials into the seat, allowing us to reduce the weight and to sculpt the space for the passenger. It's been a very short development time, probably only seven months since the team started working on this."

The Milligram, weighs less than 7.5 kg and it has fewer than 70 parts across a three-seat unit.



TSI's head of sales Ahmet Ozyilmaz (left) and Sağıroğlu unveil the Royalux

Continued from page 1

Astrova provides 67W of USB-C power to each seat to allow passengers to charge their own devices, enabling "90% of laptops to fast charge on the aeroplane", says Panasonic Avionics vice-president product and portfolio management Andy Masson (pictured).

The system is connected to the IFE provider's in-flight connectivity service,

meaning that passengers can connect their own devices to the seat-back screen and access their personal content subscription services such as Netflix, Apple Music, Spotify and Disney+.

This enables passengers to recreate the "multi-screen, multi-

purpose environment which they are accustomed to at home", says Panasonic.

Whereas traditional embedded IFE systems are "difficult to upgrade" once they have been installed, Masson says Astrova's "revolutionary software" means that airlines can easily upgrade the system as their requirements evolve, instead of having to "rip it out" - which he says was previously a "long-term pain point" for IFE systems.

Panasonic is also keen to emphasise the weight savings offered by Astrova. Masson says the system is 30% lighter than competing IFE

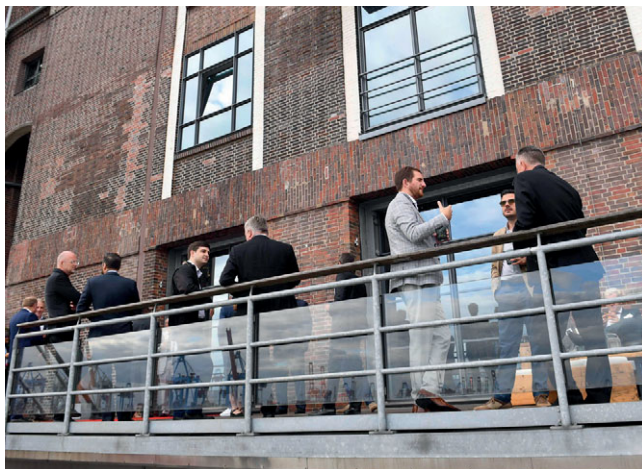
products, which "represents huge savings in fuel and CO2" for airlines.

Each screen features a removable peripheral bar underneath, which can be "upgraded and changed in two minutes", says Masson. The peripheral bar is where devices can be plugged in, including headphones, and "spatial 3D audio makes it like having surround sound in your seat". Low-cost headphones handed out by airlines "feel like world-class headphones" once they are connected, Masson claims.

Panasonic expects Astrova to be certified in time for first deliveries to begin in late 2024, with the system scheduled to launch with Qatar Airways in 2025.

In addition to Qatar, Masson says that Panasonic has signed up "multiple" other unnamed airline customers for the system.





Dozens of invited guests gathered last night to hear the winners of the prestigious trophies (pictured left) being announced in the first Crystal Cabin Awards to be held in person since 2019

Crystal champions

Kerry Reals

Eight lucky winners left Hamburg's Altonaer Kaispeicher event studio last night with Crystal Cabin Awards trophies in their hands, after judges had deliberated over the entries of 24 shortlisted finalists and announced their favourites.

This year's CCAs were awarded across eight different categories: Cabin Concepts; Cabin Systems; Health and Safety; Passenger Comfort; IFEC and Digital Services;

Material & Components; Sustainable Cabin; and University.

Teague and **NORDAM** took home the prize in the Cabin Concepts category for their Elevate floating furniture entry.

The trophy for Cabin Systems went to **Caeli Nova** for its Cordillera emergency oxygen system, which uses patented technology to increase the duration that aircraft are able to fly at high altitudes after a cabin decompression.

Safran Cabin won in the Health and Safety

category with its Fire Resistant Cargo Container, while **Collins Aerospace** took home the trophy in the Passenger Comfort category for its SpaceChiller personal refrigeration unit.

The winner for IFEC & Digital Services was **Anuvu** in co-operation with Southwest Airlines for its Dedicated Space system, which promises a five-fold increase in available personal bandwidth.

Thales Avionics won the Material & Components award for its Pulse

charging unit, which enables passengers to recharge their devices on-wing.

The trophy for the Sustainable Cabin category went to **Diab**, which pioneered a thermoplastics manufacturing process to produce 100% recyclable panels for cabin interiors.

Finally, **Ken Kirtland** from the **Georgia Institute of Technology** won the prize for best University entry with his Portal vision for a new type of zero-emission electric-powered aircraft to ferry passengers between local hubs.



Photography: Billy Pix

John Andrew, Safran (left), André Schneider, Airbus (centre) and William Huot-Marchand, Inmarsat



BILLYPIX

Airbus Links up

Pilar Wolfsteller

Airbus has unveiled Airspace Link, an open connected ecosystem that the manufacturer says promises more personalisation for passengers and flexibility for crews and airlines.

Speaking at a press briefing to unveil the initiative at AIX yesterday, vice-president of the manufacturer's cabin & cargo programme, André Schneider explained: "Airspace Link is a multi-layered and flexible approach, which starts with the intelligent core management platform – ICMIP... [a] digital backbone covering the

cabin management system as well as other layers."

The second "brick" of the ecosystem is the Internet of Things service that enables the system to connect the different elements within the cabin such as overhead bins, galleys, seats and life vests.

Flying smartphone

Airbus says this enables services for optimisation of ancillary revenues, passenger experience and operational efficiency.

"We will also have what we call simply the 'app store' that will host various applications for passengers as well as for airlines," Schneider adds.

He compares Airspace Link to "a flying smartphone". Schneider says: "It's about bringing the potential of the technology we use on the ground to the air. The flexible end-to-end system enables us to connect all the data and unleash all the potential that we see in the market, and generate efficiencies, ancillary revenues and a better passenger experience."

The system will enable passengers to personalise their journey – from ordering meals in advance, reserving overhead bin space, and applying their preferences to other aspects of their travel plans

– and will allow the airline and flight crew access to this data. As a result, the carrier can potentially make more-conscious decisions that could cut down on waste as well as CO₂ emissions, Airbus says.

Satellite connectivity

That system will connect with the ground. The air-to-ground solution will provide broadband connectivity using radio-telephony transmission to be tailored for regional operations. In addition, HBCplus or high-bandwidth satellite connectivity, "aims to become the one agnostic, supplier-furnished equipment (SFE) cross-programme connectivity platform, capable of hosting multiple satcom providers", Airbus says.

The HBCplus system's first managed service provider will be Inmarsat, while Safran Passenger Innovations will provide the equipment and lead the hardware integration.

"We are excited to offer airlines a new connectivity service solution that will provide improved speed and reliability for passenger experience and more flexibility," Schneider says. "HBCplus is as simple as it is revolutionary."

Entry into service of the Ka-band satellite communications solution is planned for 2024 while the Ku-band will be introduced at a later date, Airbus adds.

Explicat to make light work of Lilium eVOTL seating contract

French manufacturer Explicat is to design and build the pilot and passenger seats for the in-development Lilium electric vertical take-off and landing jet.

Explicat, which is exhibiting at AIX, specialises in lightweight

aircraft seating, using titanium and carbonfibre, and claims to produce the industry's lightest seat, the TiSeat. It is the latest in a series of partnership deals signed by German developer Lilium Air Mobility, which aims to have its six-seat aircraft in

service by 2024. It will have 135nm (249km) of range and cost about \$2.5 million.

Lilium has secured a number of commitments from high-profile customers, including US fractional ownership operator NetJets, which has secured purchase rights for 150 units.



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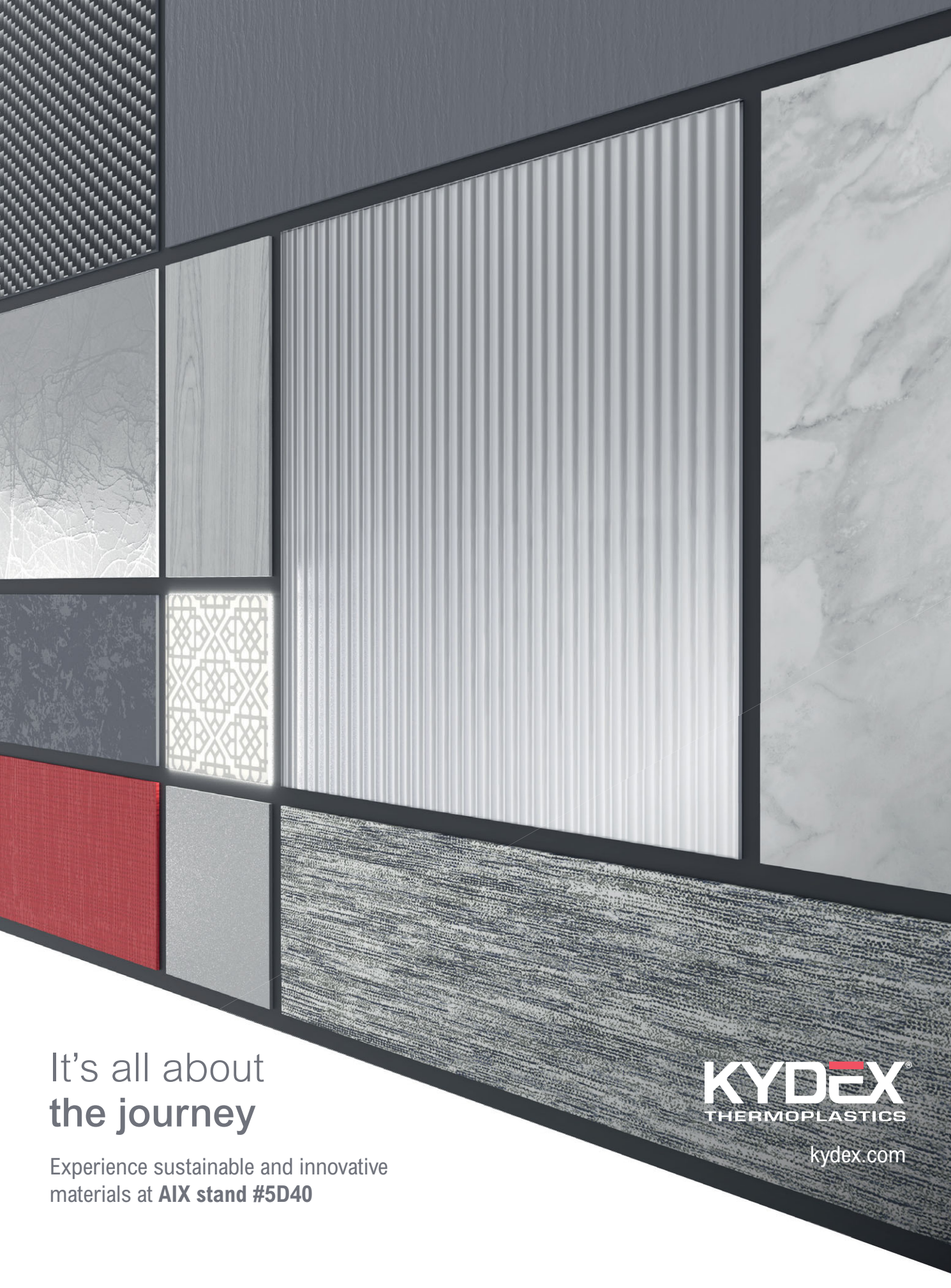
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Skies without limits

Murdo Morrison

Tennis professional Nico Langmann (pictured) jets all over the world to take part in tournaments. However, as a wheelchair user since a car accident as a child, his experience of flying has often been miserable.

Speaking at a talk staged by cabin systems manufacturer FACC yesterday, he recalled on one of his first trips as a 12-year-old aspiring competitor being carried off the aircraft by a mechanic as there was no procedure for dealing with disabled passengers.

He also recalled, more recently, flying with his doubles partner to the Tokyo Paralympics to represent Austria.

His partner, also a wheelchair user, did not drink water as he wanted to avoid using the toilet on the nine-hour flight from Vienna. He ended up dehydrated with a bladder infection.

The session, entitled Barrier Free Flying, also featured FACC chief executive Robert Machtlinger and aviation accessibility consultant Chris Wood, who said many people



BillyPix

with disabilities – including those with visual impairments or the elderly – refused to fly because they found it uncomfortable, difficult or degrading. Some worried about airlines damaging expensive power wheelchairs in the hold, he said.

However, he said many of the challenges could be solved if airlines consulted with the disabled community and took advice from experts.

Machtlinger expressed

hope that “innovative engineers” would help to drive change. Market pressures also meant airlines had an incentive to cater for a section of the population who had “a desire to travel”.

A “100% wheelchair accessible cabin” is part of an “interior of the future” the AVIC Cabin Systems subsidiary is presenting at AIX. As well as being more welcoming for those with disabilities, it also has sustainability and passenger

comfort at its core.

The concept also includes large screens and “intelligent surfaces to offer a multimedia experience”, with features such as a backrest transformed into a screen. Many surfaces incorporate lightweight materials derived from the likes of sugar cane.

An “air curtain” circulates air in smaller sections of the cabin, “making aviation even more resistant to viruses and bacteria”.

AJW solutions cover sustainability

AJW Technique Interiors has unveiled Air Serbia as launch customer for its SkyLeather range of seat coverings, which offer sustainable, man-made material delivering significant weight savings over natural leather.

The company says that the new material offers durability and its easy clean surface reduces an airline’s direct maintenance costs, while noting the lightweight construction also reduces fuel costs. SkyLeather, which is produced by AJW

Technique’s manufacturing partner Autostop Aviation, is a synthetic 100% polyurethane material and will be installed on Air Serbia’s fleet of Airbus A320s.

“We have worked closely with the AJW Technique Interiors design team over

the last 12 months,” says Air Serbia chief executive Jiří Marek.

“This innovative product will bring significant fuel savings and also contribute to Air Serbia’s commitment to using sustainable products.”

Collins has chills...thermoelectrifying

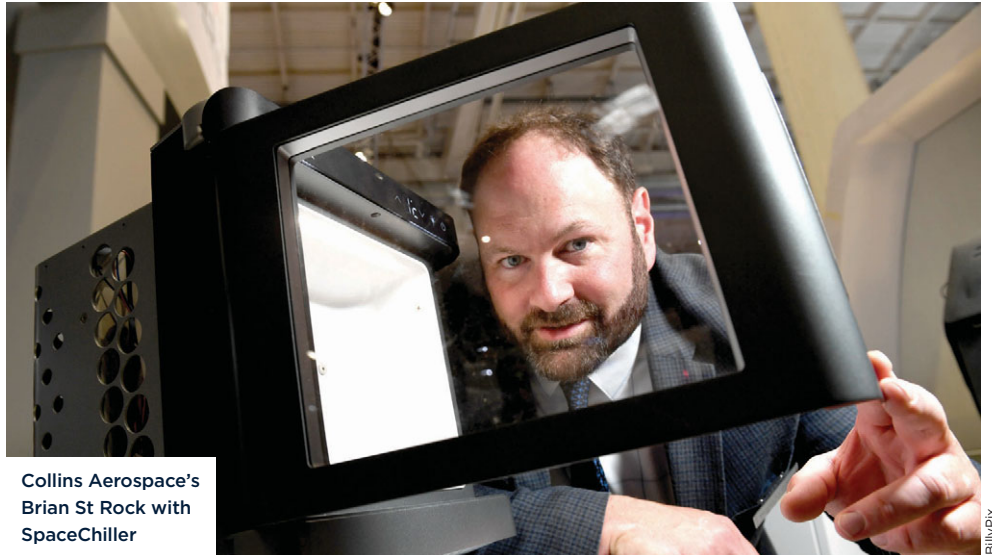
Murdo Morrison

Collins Aerospace's Crystal Cabin Award-winning SpaceChiller thermoelectric personal refrigeration unit is one of several innovations on show for the first time on the aerospace giant's stand at AIX.

The US company is also exhibiting its Hypergamut lighting system that "harmonises with human biology and circadian rhythms to minimise jet lag", as well as its range of seating, including AirLounge, the innovative contoured shell business class seat that has debuted with Finnair on its Airbus A350s. Also on display is Air Rest, a mid-haul, single-aisle business class seat that recently debuted on Cathay Pacific's A321neos.

Making its debut in production form is the M-Flex Duet cabin monument, which was unveiled in 2019 as a concept. Incorporating sections that swing at 90 degrees to provide a shelf, the unit turns a doorway into a self-serve social zone or cabin crew working area.

Since the previous



Collins Aerospace's Brian St Rock with SpaceChiller

AIX and the company's acquisition by Raytheon, Collins has rearranged internally, integrating the former B/E Aerospace business with some legacy Goodrich and Hamilton Sundstrand activities into a new interiors unit, headed by Edward Dryden.

He says that unit is now "working closer as one business to deliver an unrivaled customer experience".

Dryden admits to being pleasantly surprised at certain aspects of the industry revival.

While the long-haul widebody segment is still lagging short-haul single-aisle, the twin-aisle retrofit market has been strong, including on the Airbus A380, a product that risked becoming obsolete at the height of the pandemic.

Supply chain

"The A380 market is recovering faster than the A350, which is something I never foresaw," observes Dryden.


The supply chain remains a challenge. "We have seen 18 months of lost capacity,

which as an industry we need to recover," he says. "No one has been investing. We don't have the same investment limitations as some, so that means we are having to go sometimes four tiers below us to sustain the supply chain."

The major passenger trend, says Dryden, is that consumers want "integrated solutions" and to have similar experiences in terms of comfort and connectivity whether they are in their home, their car, the airport or on-board an aircraft.



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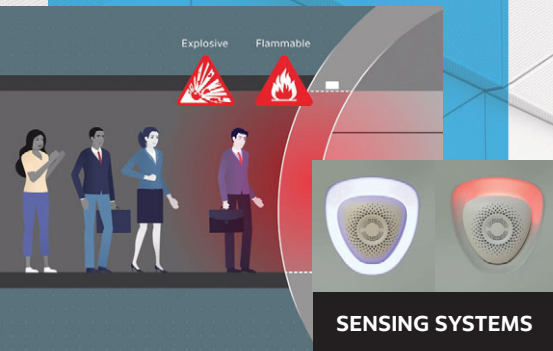
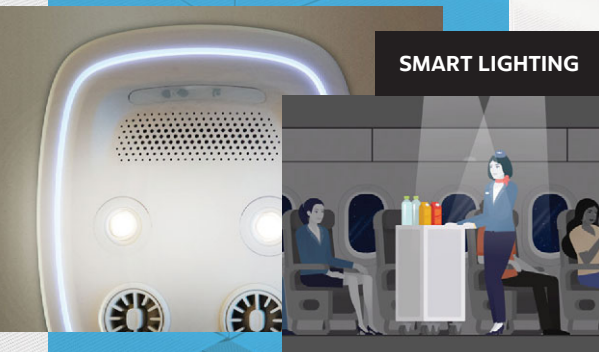
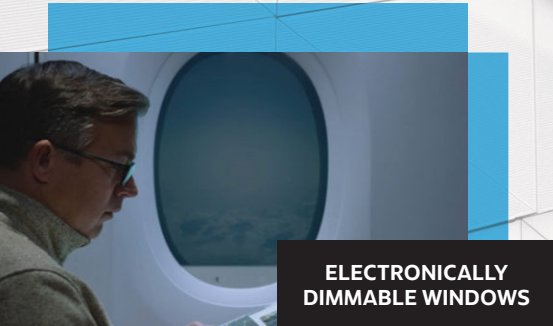
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Lighter panel Islander

New semi-flexible laminate panels from Causeway Aero Group are set to create lighter aircraft interiors for smaller passenger aircraft, military transport aircraft and helicopters,

Britten-Norman has signed up as the launch customer and Causeway is working to design and produce a new modern interior for the BN-2 Islander, including sidewalls, ceiling and cockpit.

Northern Ireland-based Causeway says the new panels offer improved thermal protection, meaning that bulky insulating blankets can be removed, creating weight savings of up to a 25%.

The panels have a vacuum-formed core with laminates on either side. The cabin side can be decorated to suit customer requirements and the whole interior installed during production or during a retrofit under a minor STC.



Britten-Norman

Safran secures new seat deals

Graham Dunn

Safran Seats has unveiled two premium seating concepts at AIX, pitched at the business class cabin on widebodies and narrowbodies respectively.

The French company has already secured two airline customers for both its Unity widebody seat and the VUE narrowbody product. Both are expected to enter commercial service in 2023.

The two Unity customers have taken the seat for Airbus A350s, though the seat has been designed so it can be deployed across different widebody types. The two VUE customers are for Airbus and Boeing narrowbodies respectively.

Safran Seats president Vincent Mascre (*pictured in the Unity seat*) says the new products show how the company continued to innovate even through the depths of the Covid crisis, during which the company had to restructure.

"During all that time we continued to mature new concepts and transform them into products. We had the concept of Unity three years ago. Now it is a product," he says.

Mascre highlights the



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modular design of the new products, enabling them to share commonality across different programmes to help reduce cost, but also to provide a framework from which airlines can customise the product.

"It is a modular platform meaning we can add on the same architecture different storage concepts, with or without doors. We can add different features, but keeping the same backbone," he explains.

"In the past we used a bit to reinvent the wheel, programme to programme, which has the risk of cost. So now we try to keep

the backbone on which each airline can adjust the features or the way they want to have the space," he says.

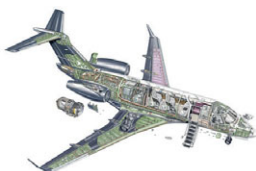
"For the widebody, [the Unity seat] can go from one platform to another without having to reinvent, redesign or recertify everything," he adds.

The concepts behind the seats were developed through an innovative internal design challenge across the business. "We had eight teams competing, like a tournament. At each stage there were mock-ups and the best ones went through," Mascre says.

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The real Diehl

Murdo Morrison

Easier-to-close luggage bins and a retrofittable galley and lavatory arrangement for the Airbus A320 that incorporates a touchless and wheelchair-accessible lavatory. Those are just some of the highlights of the Diehl stand, where the emphasis, says chief commercial officer Harald Mehring (*pictured*), has been on “showing what we have been working on for these past three years”.

The German company is also emphasising its CANSAS digital cabin concept, which includes smart technology to alert



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crew to when baggage bins are full – and allow them to lock them in the event of an emergency landing – or if water is running low in a lavatory.

There are two luggage

bins – one is mechanically assisted and requires 30% less force to close. It is flying on a trial with an unnamed A350 operator. The other, still at prototype stage, is fully automated,

using electro-mechanical technology to open and shut at the push of a switch.

The galley/lavatory design reshapes the traditional rear layout of an A320 by removing two lavatories to create an additional row of seats, instead placing them against the rear bulkhead next to the galley. A partition between the two toilets can be removed, allowing space for a wheelchair user. The lavatory itself also includes touch-free sensors for flushing and raising or lowering the seat.

The combination is available on new Airbus narrowbodies as part of the airframer’s Airspace interiors package. However, Diehl is also offering it as a retrofit on existing A320s, and an adaptation of the concept on Boeing 737s.



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Murdo Morrison

One of the newest players in the seating sector is at AIX for the first time, showing twin prototypes of its business class seat – one for widebodies and the other for single-aisle aircraft.

Unum was founded by Chris Brady (pictured), former chief executive of economy seat specialist Acro, and is hoping to secure a launch customer here.

Judging by the interest in the products on show, that might not be such a long shot. “We are back to back with appointments,” says Brady.

UK-based Unum, which is aiming to have its seat in production within 18 months

of securing its first client, is targeting the retrofit market, including the fast growing single-aisle mid-haul segment.

While Brady admits that smaller, emerging operators – disillusioned with trying to deal with the larger seating manufacturers – are his most likely initial customers, he insists that his product offering is “strong enough to appeal to a tier one [airline]”.

Both full-lie-flat seats are designed to be configured in an outward herringbone with direct aisle access. The widebody variant has a pitch of 39in and is angled at 36 degrees, while its narrowbody sibling is angled at 45 degrees, with a 34in pitch.



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Inmarsat ready to take on looming LEO competition

Kerry Reals

Inmarsat Aviation president Philippe Carette (*pictured*) is not afraid of upcoming competition in the in-flight connectivity market from new entrant low-Earth orbit (LEO) satellite providers, because he is “convinced” that LEO as a standalone offering will not be the best approach for the aviation industry going forward.

The multi-orbit, integrated strategy adopted by Inmarsat through its Orchestra network – which will bring together its existing geosynchronous (GEO) satellites with a constellation of around 150 LEO satellites and terrestrial 5G – is “the best



approach” to serve the airline market, Carette tells *Flight Daily News*.

LEOs “should play a role” and can bring “additional support” to in-flight connectivity services, particularly when aircraft are on approach to “hotspot” airports, he says. However, he is “definitely

convinced the endgame will be a combination” of GEO and LEO satellites, and 5G.

Inmarsat unveiled Orchestra in July 2021, billing it as combining “the benefits of multiple technologies to create one cohesive solution”. Alongside its OneFi

customer experience platform, Orchestra features heavily on Inmarsat’s stand at this year’s show.

Carette, who joined the satellite company in November from Thales where he was chief executive of its InFlyt IFE service, says airlines have responded enthusiastically to both solutions.

OneFi was launched in September to help monetise in-flight connectivity by bringing together onboard services within a single portal interface which passengers can access through their own devices. It will be launched in early 2023 by Saudia, and Carette says other unnamed airline customers have also committed to the service.

Sidewinder bleeps in flight for OneWeb

Low-Earth orbit (LEO) satellite operator OneWeb has moved a step closer to its planned 2023 entry into the in-flight Wi-Fi market by successfully delivering connectivity to a Boeing 777-200LR during a recent test flight.

The test involved the “Sidewinder” terminal, developed by Stellar Blu Solutions – formerly known as GDC Advanced Technology. The terminal incorporates Ball Aerospace’s electronically-steered array (ESA) antenna technology.

During the hour-long test flight – a video of

which is being replayed by OneWeb on its stand – the terminal achieved speeds of 260Mbps and simultaneously demonstrated the ability to connect to Microsoft Teams, 4K YouTube streaming, Netflix, online VR gaming and Nintendo Switch gaming. Network latency was “well under” 100 milliseconds, says OneWeb.

The provider is marketing its in-flight connectivity solution as a lower-latency alternative to existing geostationary (GEO) satellite-based solutions, which have to communicate with satellites much higher above the Earth’s surface than LEOs.

Flight tests will continue throughout the rest of this year, with certification of the Sidewinder terminal expected in mid-2023. OneWeb expects to launch its new service in the middle of next year. It has so far launched about two-thirds of its 648-strong constellation of satellites.

Responding to suggestions from incumbent GEO satellite providers such as Inmarsat that LEO is unsuitable for the aviation market as a standalone service, OneWeb vice-president mobility services Ben Griffin (*pictured*) says: “Multi-orbit has a part to play but for airlines around the world,



LEO will stand alone and be more than capable of doing the job for IFE.”

He adds that airlines have been “incredibly interested and inquisitive” in OneWeb’s in-flight connectivity service, and there is a “real hunger to see how IFE will develop” over the coming years.

All fired up

Pilar Wolfsteller

Ultrafabrics, Tapis Corporation and Franklin Products have partnered to create a seat cover fabric that integrates a state-of-the-art fire-blocking backcloth, thus reducing the weight and improving the comfort of airline seat cushions.

The new fabric line, called Atago, which is being demonstrated here at the show, has an integrated flame-resistant layer that results in reduced time in sewing, manufacturing and assembly, and results in a lower cost as well.

The new product takes its name after the Atago Shrine in Tokyo, which was built in 1603 to protect the city's residents from fire, the company says.

"What we were challenged to do with this line was to reduce

the weight but also to improve the performance," says Tapis sales director Matthew Nicholls (pictured). "So the new product is built with an integral fire-blocking layer into the synthetic. We're about one-and-a-half pounds per passenger lighter compared to synthetic leather, and compared to other competitive brands we're at least a pound lighter."

United Airlines has purchased the product, and it will be going into service later this year, Nicholls says.

"The other cool thing that happens with Atago is that when you take that extra layer and the adhesives out, you're letting the cushion do what it's supposed to do," Nicholls adds.

"You're letting it breathe, letting it compress and letting it come back, you're letting it support the passenger. So actually, it's incredibly comfortable as well."



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Burrana plugs into Airbus on A320s

Burrana has obtained Airbus's approval to market its RISE in-seat power solution for A320-family aircraft, and has signed an unnamed launch customer for the product.

RISE Power will now be available for factory installation for aircraft deliveries starting in the second quarter of 2023. The unidentified launch customer will equip more than 50 A320 and A321

aircraft with 3 Amp (15W) USB-A and -C combo jacks at every seat, as well as 110 VAC power outlets in premium economy seats.

Burrana says its in-seat power solution features minimal components, consisting of a small, lightweight box housing either double USB jacks or 110V plus USB outlets, compact seat power boxes, and harnesses.

"This linefit collaboration

with Airbus for RISE in-seat power is a significant milestone for Burrana as we continue to deliver brand-enhancing cabin technology solutions to airlines," says Burrana chief executive Graham Macdonald. "Once fully installed, thousands of passengers will be powering their devices with our in-seat power solution at any one time."

See Face the Facts P22

The Dubai carrier is rolling out its new premium economy product on much of its widebody fleet after trialling the Recaro seats in a handful of A380s

Different class

Graham Dunn

Having tested the waters of the premium economy segment over the past 18 months on some of its Airbus A380s, Emirates has begun selling tickets for its new cabin class as it roll-outs the product in earnest.

The airline took delivery of its first A380 to feature premium economy – and the first in its fleet – in December 2020. The Gulf carrier's last six A380s, the final one of which arrived at the end of last year, were delivered in a four-class configuration featuring premium economy.

The seats are a version of Recaro's PL3530 premium economy seat. Emirates and the German seating manufacturer began working on the design in 2018 and the project took two years. Recaro says the seats take cues from upscale German cars, and feature a bronze trim and cream-coloured leather dress cover.

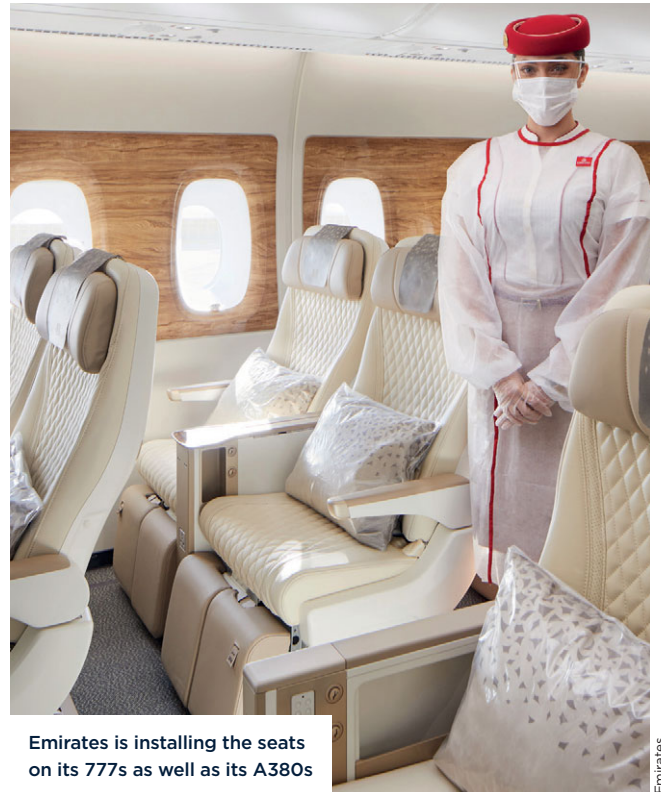
Initially offered as an upgrade to “valued customers” given the limited availability across its fleet, Emirates firmed its commitment at last November's Dubai air show when it unveiled a retrofit programme, becoming the first of the big Gulf carriers to launch a formal premium economy product.

“Since we first introduced our premium economy seats in January 2021, the positive response and demand has been tremendous,” says Emirates Airline president Tim Clark.

“We currently have six A380s equipped with this cabin class, which limits our initial deployment, but our intention is to offer this experience to many more markets across our network. This November, we will begin our retrofit programme to install premium economy on 67 A380s and 53 Boeing 777s.”

The airline will have 126 aircraft equipped with premium economy once the 18 month retrofit programme is complete. Emirates will install up to 24 premium seats, involving removing five rows of economy seats, on its Boeing 777 laid out in 2-4-2 configuration. The airline's premium economy cabin on its A380s features 56 seats, also in a 2-4-2 configuration. The seats feature a 40 inch pitch, a width of 19.5 inches and recline 8 inches.

The Dubai carrier will initially sell premium economy on four of its A380-operated routes to London Heathrow, as well as two Paris Charles de Gaulle and Sydney services from this August. From December premium economy will also be available on two of its Christchurch services.



Emirates is installing the seats on its 777s as well as its A380s

While Emirates' final A380 deliveries signalled the end of production of the ultra-large jet, Clark has previously explained how the aircraft remains crucial to its hub strategy through to the mid-2030s.

Indeed, with uncertainty around incoming jets, Emirates is attaching increased importance to the refresh of its existing cabins. Boeing has delayed delivery of its new 777-9 – of which Emirates has 115 on order – until 2025, while deliveries of its first 787-9s next year could be impacted as Boeing awaits regulatory clearance to resume deliveries of the type, which have been on hold for much of the last 18 months.

“The most critical thing is to retain our fleet as large and versatile as it has been,” Clark said last November while unveiling the retrofit programme. “If that means we have to retain older aeroplanes for longer and upgrade them, then that's what we will do.” ▶

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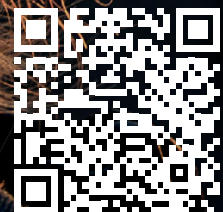
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David Pook, vice-president marketing and sales support at Burrana, describes what the Australian provider is bringing to the market

RISE to the challenge

Q Burrana was formed in 2019, following digEcor's acquisition of Collins Aerospace's commercial in-flight entertainment business. Why were these two companies a good fit, and what can the merged and rebranded Burrana offer to airlines?

A Collins had expertise in line fit at both Airbus and Boeing, and with narrowbody overhead systems and widebody seatback systems. Meanwhile, digEcor's expertise was in retrofit power and seatback solutions, so the product portfolio blended very well. We have also benefitted culturally from combining the innovation and flexibility from digEcor with the avionics background and reliability of Collins.

Q What problem was Burrana's new RISE IFE platform designed to solve, and what has been the response from airlines?

A RISE is designed to solve a number of problems that have plagued the IFE industry for years: weight, complexity, lack of upgradeability, lack of airline control over the user interface, long development times, expensive software changes, slow and unreliable device charging, large seat boxes that impinge on passenger space, static and repetitive advertising, costly and slow content loading. The RISE platform provides compelling solutions to these challenges. Our existing and potential customers have provided positive feedback on these solutions.

Q Burrana's RISE platform features DC in-seat power. What are the advantages of your power distribution system, and how important is it for airlines to provide passengers with the means to plug in their electronic devices?

A Our 48VDC architecture increases safety within the seat by using lower voltages, reduces box size, weight and power consumption, improves overall reliability, and enables maximum flexibility to configure and upgrade each cabin as required. With the increased roll-out of "bring your own device" solutions, the ability to charge your personal devices becomes even more critical if you expect to engage passengers and derive ancillary revenue during the entire flight duration. Battery anxiety is real. Without a charging solution, passengers are reluctant to use their devices onboard, with the fear of running out of battery and not having the device available upon their arrival. In-seat power has become the most requested cabin feature, above all other IFE solutions.

Q RISE can be configured to include seatback, wireless or overhead entertainment, or a combination of the three. Which of these methods of delivering IFE do you expect to be the most prevalent going forward?

A For narrowbody aircraft, we anticipate wireless to become the most prevalent IFE configuration. However, overhead remains strong in China, and seatback may actually grow now that these aircraft are flying longer and on more international segments. For widebodies, seatback is likely to remain the standard offering, complemented by IFC/wireless.

Q Which aircraft types is RISE certified for, both for retrofit and linefit, and how many airline customers have signed up for it?

A RISE has been selected by one large customer for both line fit and retrofit on the Airbus A320 family, and will enter service in the second quarter of next year. We expect to announce additional airlines and aircraft types very soon.

Q What will Burrana's main message be at this year's AIX, and what are you hoping for from the show?

A Our main message to the market isn't just to detail what we are demonstrating and what products we sell, but rather, how we enable airlines to provide passenger experiences, and then what that means for increasing revenue, enhancing operational efficiencies and minimizing operational expenditure for the airlines. We are excited for the chance to finally meet face to face with our industry colleagues and showcase our RISE platform, as the initial launch was virtual due to Covid-19. We are hoping for the opportunity to explain how our platform is built to solve the most challenging roadblocks plaguing our industry. ▶





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After finessing its novel premium seat design and looking for partners, the now-Belfast-based company hopes AIX 2022 could be its breakthrough

Butterfly emerges

Murdo Morrison

A start-up hoping to find a launch customer and financial backers for an innovative “two-in-one” flatbed seat that won a Crystal Cabin Award eight years ago is to establish itself in the UK’s global capital for aircraft seating.

Butterfly Engineering – founded by James Lee and Lars Rinne – has been based for several years in a small design office in Hong Kong, but has now opened a facility in Belfast’s Titanic Quarter business district. Northern Ireland is home to Collins Aerospace’s largest

seating factory in Kilkeel and Thompson Aero Seating in Craigavon, as well as an extensive local supply chain.

Rinne says the aim is to seek technical standard orders (TSO) approval for the Butterfly seat before applying for design organisation authorisation from the UK Civil Aviation Authority, which would allow it to use local companies for manufacturing and assembly.

“The region is the European centre of aerospace seating, with lots of suppliers, and another attraction is that the Northern Ireland government are ready to provide support,” he says.

The pair also want to attract investors by demonstrating that the start-up is “growing into a reputable seating

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company...in a growing market segment”.

The patented Butterfly seat converts from a business-class flatbed into two premium economy seats, allowing customers, particularly those operating narrowbody aircraft on a range of routes, to “adapt their cabin configuration on a flight-by-flight basis”, says the company.

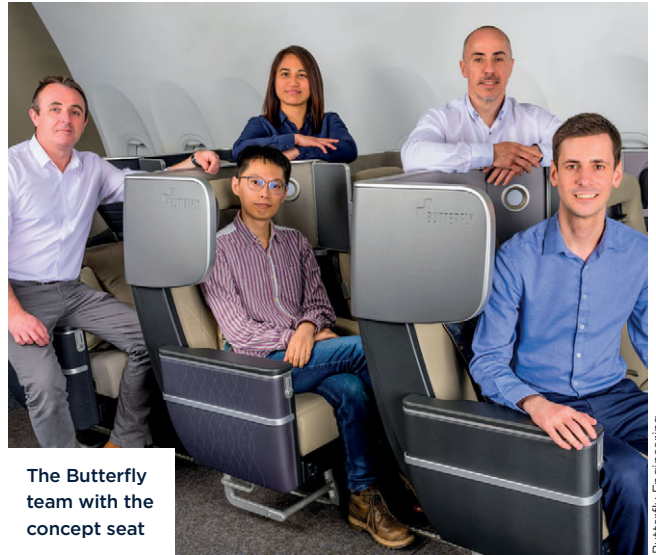
Lee and Rinne have spent seven years trying to industrialise and find backers for the Butterfly concept. There were extensive talks with Airbus’s BizLab business accelerator offshoot about becoming an exclusive partner, but the OEM decided against taking it further in 2018.

Rinne admits this put the future of Butterfly at risk. However, by working another job and making some revenue from other projects, he and Lee have managed to keep the business afloat and design a further iteration of the prototype.

Butterfly is exhibiting the latest version on the Tapis stand after teaming up with the US aircraft interiors specialist at the 2019 show. Tapis supplies the fabrics for the seat, but the relationship goes deeper. Tapis sales director Matthew Nicholls says the company threw Rinne and Lee a lifeline when they were struggling.

“They had an amazing show at our booth, but then – boom – Covid happened,” says Nicholls. However, “the break gave them time to rebuild the seat at true production grade and quality” and the “2.0 version” of the product “looks amazing”, he adds.

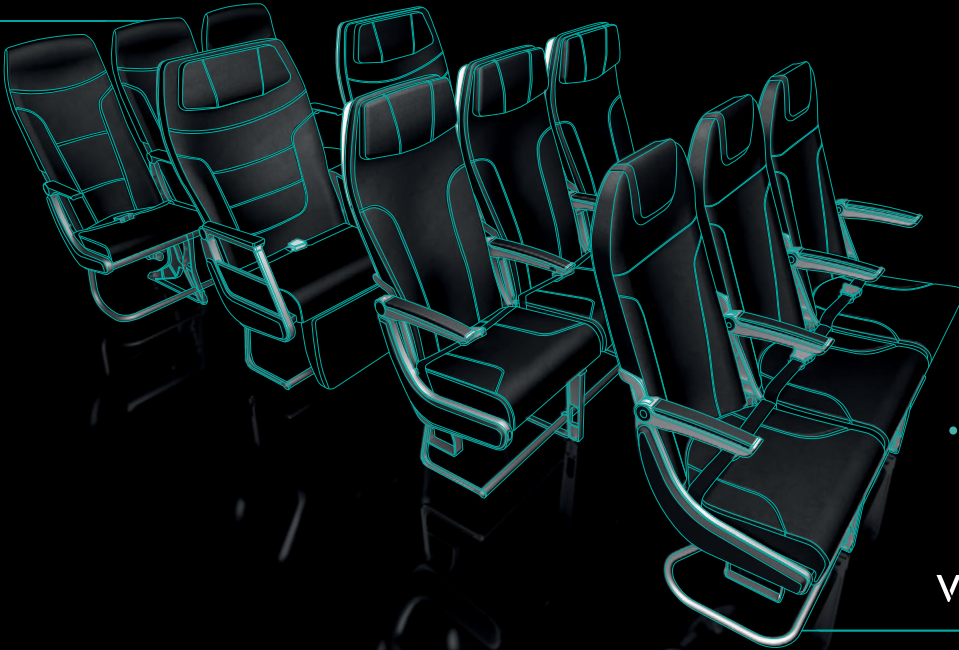
“It’s been amazing to be involved from the ground up



The Butterfly team with the concept seat

Butterfly Engineering

and you can see that the materials and finishes were thought about from the beginning, and it shows in the quality of fit and finish,” says Nicholls. “The materials were designed to be in the places they are, not thrown on as a last minute afterthought, which can often be the case.” ▶



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After years of determined work by campaigners and following recent design innovations from industry, in-cabin access for wheelchair users finally looks set to become a reality

Disability activists have long fought to make air travel more accessible for wheelchair users



Wheels in motion

Canopus/Shutterstock

Kerry Reals

Campaigners who have fought for years to make air travel more accessible to wheelchair users are finally starting to see some light at the end of what has been a very long tunnel.

Last September, a report mandated by the US Congress concluded that wheelchair securement systems inside the cabins of commercial aircraft were technically feasible. Hot on the heels of the report's release, two promising concepts to enable wheelchair users to bring their own wheelchairs on board and remain seated in them for the duration of their flights were unveiled. Both made the shortlist for this year's Crystal Cabin Awards.

One is the Air 4 All concept, put forward by a UK-based consortium made up of design company PriestmanGoode, airworthiness approval specialist SWS Certification and aviation accessibility campaign group Flying Disabled.

Adapted seating

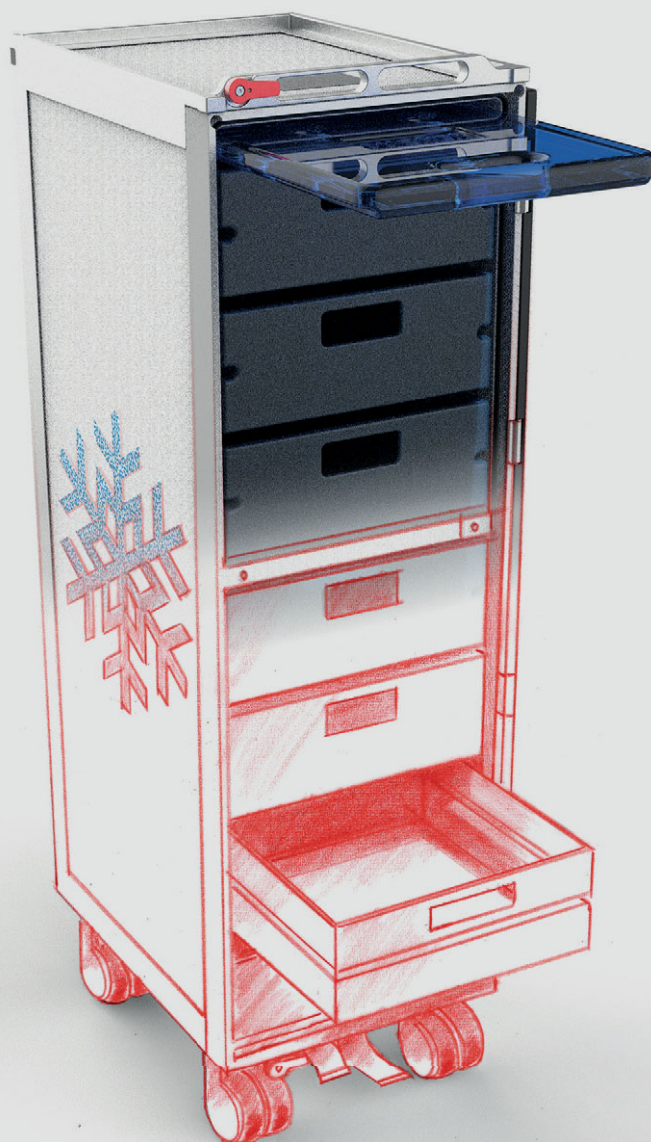
Air 4 All's patented idea uses an attachment mechanism similar to ISOFIX/LATCH systems in cars, the idea being that a wheelchair can be mechanically latched into place during flight. The initial design is aimed at narrowbody aircraft and involves converting front row seats, in a two-by-two configuration, by installing a guidance and locking system for up to two wheelchairs. When such access is not required, the seats can be flipped down and used as regular seating.

"The main goal was to use the same footprint that a front row, business class on a narrowbody would use," says PriestmanGoode design director Daniel MacInnes. "The goal was not to use up any more space in the cabin and to really just stick with that pitch."

The two seats are housed in a fixed shell that "cradles the wheelchair" when the seat is folded up, but "when the seats are in the down position, it looks just like a traditional business-class seat", MacInnes says.

"The rest of the shell where it wraps around, on the

Idea first. From craft to aircraft.



Current boarding process risks injury, or damage to wheelchairs



Rudolfvich/Shutterstock

back of it you can either have monitors in there or upper storage – anything that an airline would want to replicate what the passengers behind are being offered. So it makes everybody feel like they've got a product and nobody's being short-changed," he adds.

Flying Disabled founder Chris Wood says that when he first saw the Air 4 All design, "my jaw dropped". Wood founded the charity almost 30 years ago when he saw first-hand the difficulties faced by disabled air passengers while travelling with his two children, both of whom are wheelchair users.

"I've seen many designs over the years and many ideas, but none of them have really had a certification champion and a design champion, and in SWS and PriestmanGoode I'm standing on the shoulders of giants," says Wood.

The consortium is working on the concept with the subsidiary of an undisclosed major airline, which Wood says is "building it and funding it". The project has moved from the "MDF mock-up" phase into a second stage, with a third – "a working prototype" – expected later this year, says Wood. That will be followed by certification.

Precision engineering

"We're hoping in the next couple of years, it will fly," says MacInnes. "The engineering team that we're working with is trying to make sure that those unique items are certifiable, and I think most probably towards the middle to the end of this year we'll be working with the authorities to introduce them to it and make sure we've covered all of those key points that the FAA [Federal Aviation Administration] and EASA [European Union Aviation Safety Agency] will require."

The Air 4 All concept's patent drawings are based on manual wheelchairs, but the consortium is working with wheelchair manufacturer Sunrise Medical to design a powered wheelchair that could be fixed into the space.

"The momentum is there. Even if we're just looking at from two years ago to today, it's definitely a different space in the appetite for a wheelchair spot on airplanes"

Michele Erwin Found and president, All Wheels Up

"We're looking at a fixing system that would become a universal fixing point for anybody that needs to lock their wheelchair [into place]," notes MacInnes.

The second such concept to be shortlisted for an award is the Fly Your Wheels Suite, designed by researchers and students at Wichita State University's National Institute for Aviation Research, in collaboration with Collins Aerospace and wheelchair securement systems manufacturer Q'Straint.

This concept is also initially aimed at narrowbody aircraft but unlike Air 4 All, it does not require the modification of any seat rows. Instead, space for a wheelchair would be created by modifying the closet towards the front of the cabin.

"The fundamental idea lies in the modification of the cabin's closet, which has been re-engineered to provide a safe, interactive and spacious suite for passengers in wheelchairs, while ensuring operational practicality and



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Air 4 All solution does not require sacrificing cabin capacity, making it attractive to airlines

Air 4 All

compliance with current FAA regulations,” says Wichita State University. The space can be turned back into a closet when it is not required for a wheelchair user.

Glenn Johnson, a fellow of industrial design at Collins Aerospace, says that by using this closet space the concept avoids both the need for wheelchair users to navigate past it, and the need to alter the aircraft’s seating configuration.

“One of the biggest problems airlines face is the boarding and de-planing time. Most [Boeing] 737s in the US have a closet in this location, and navigating past that closet in a wide wheelchair is challenging,” says Johnson. “Another advantage is this concept doesn’t require the modification of existing seats. If we put a person here, we’re effectively adding a passenger and adding to the profitability of the aircraft. We’re not taking revenue opportunities away, and that’s the basis of this idea.”

Another advantage, says Johnson, is that the concept uses “certifiable stuff”, with Q’Straight’s wheelchair tie-down systems already in use on other modes of transportation.

“We’re going to tie down the chair with a 20-plus-g

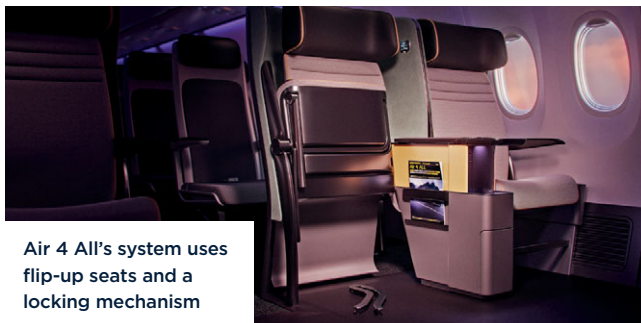
Q’Straight system. The configuration allows the wheelchair occupant to drive straight on board through the primary door, along with all the other passengers. All the existing emergency equipment is relocated within the closet, so that doesn’t need to get moved,” says Johnson. “As a company, we make the seats, lavatories, closet space and the monuments, so we can supply each of the components required.”

Wheelchair users will have the option of facing a carer or travel companion during flight or facing forward, he adds.

The unveiling of the Fly Your Wheels Suite and Air 4 All concepts came within months of the publication of a report by the Transportation Research Board (TRB), which was commissioned by the US Access Board after it was called on by Congress to examine the feasibility of wheelchair securement systems for passenger use in aircraft cabins.

The report found that the majority of commercial aircraft have a main boarding door that is wide enough to accommodate most personal wheelchairs, and that the most common cabin layouts on 737- and Airbus A320-family aircraft “should require only modest interior modifications to create a wheelchair securement area” at the front. It concluded that there were no design or engineering challenges that would call into question the technical feasibility of an in-cabin wheelchair securement system.

The TRB’s report was seen as a landmark moment by disability activists, who have been campaigning for years to make air travel more accessible to passengers with reduced mobility (PRM). Michele Erwin, founder and president of US-based All Wheels Up – a charity which funded a proof-of-concept study in 2016 to see if wheelchairs locked in place with Q’Straight tie-downs could meet FAA standards – says her organisation “hasn’t stopped” since the report was published.



Air 4 All’s system uses flip-up seats and a locking mechanism

Air 4 All

Generating momentum

“All Wheels Up has been advocating for a wheelchair spot for 10 years, and the momentum is there,” says Erwin. “We did the first crash-testing in 2016 and ever since then, the momentum has been more of a wave. It’s amazing what you can do when you put facts and science behind your advocacy.”

There are now “multiple OEMs in this space working specifically on a wheelchair spot on airplanes”, says Erwin, noting that “even if we’re just looking at from two years ago to today, it’s definitely a different space in the appetite for a wheelchair spot on airplanes”.

Erwin founded All Wheels Up in 2011 after trying to arrange a trip to Disney World with her son, who has spinal muscular atrophy. She points to the risk of injury to disabled passengers during the current process of boarding aircraft for wheelchair users, which involves physically transferring PRMs from an aisle wheelchair to a regular airline seat. Flying Disabled’s Wood agrees, noting: “We really shouldn’t be man-handling people in this day and age.”

In addition to potential injuries, there is a risk of damage to the passenger’s own wheelchair when it is stored in the cargo hold during flight.

“Wheelchairs can cost anything from \$10,000 to \$85,000. We’re talking about equipment that costs more than many cars on the road today, and we’re expected to just toss it into the cargo hold,” says Erwin.

Changing reality

Geraldine Lundy, founder of the Accessible Travel Consultancy and former passenger accessibility manager at Virgin Atlantic, says the publication of the TRB’s report “warmed the cockles of my heart”.

Lundy has worked alongside Erwin and Wood for a number of years and says she was always supportive of the idea of wheelchairs in the cabin, but knew there were “numerous hurdles to get through” before it became a reality.

While Lundy was at Virgin, the carrier hosted the inaugural Wheelchair in the Cabin Symposium at its Crawley, West Sussex headquarters in 2017. Both Erwin and Wood, along with politicians, designers and wheelchair users, spoke at the event, which shone a spotlight on the idea of enabling disabled passengers to bring their own wheelchairs on board. The issue has since moved up the agenda and a number of developments have taken place, says Lundy.

She praises the Air 4 All concept, noting: “When I saw the combination of their design with the US Access

“The cabin’s closet has been re-engineered to provide a safe, interactive and spacious suite for passengers in wheelchairs”

Wichita State University



Fly Your Wheels design makes use of existing cabin closet space

Wichita State University/Collins Aerospace

Board paper, I thought, ‘this has gone from, I may see wheelchairs in the cabin, to I really think I’m going to see them quite soon’.”

The TRB report envisions the removal of seat rows to make room for in-cabin wheelchairs, although neither the Air 4 All nor Fly Your Wheels Suite concepts would require this, which should be good news for revenue-conscious airlines.

“The advantage that the Air 4 All design has over what the US Access Board came out with was that with the Air 4 All solution you don’t lose many seats, so it’s not going to be a huge commercial disadvantage to airlines,” says Lundy.

As awareness of the issue has grown, so has demand for more accessible air travel, Lundy asserts. The “PRM penetration rate” has gone up across Europe since pre-pandemic times, she says, noting: “Before the pandemic, at most major airports the PRM penetration rate would hover around 2%. So for every 100 passengers who flew, about two would identify as having a disability and would request assistance. Now, although there are not as many passengers flying yet as before the pandemic, the PRM penetration rate is about 4%.”

Leisure market

Lundy attributes the rise, in part, to the fact that leisure flights have eclipsed business travel as the airline industry has begun its recovery from the pandemic. However, other factors are also at play, she believes.

“Another aspect is that your rate of disability increases with age, and if you’re an older person who has lost a year to two years of their life of travel because of all the restrictions, you’ve got this impetus of, ‘I want to travel. I want to get out there and enjoy my life while there’s still time’,” says Lundy.

While there is still a way to go, including certification of in-cabin wheelchair concepts, the need for airlines to commit to making their aircraft more accessible and for more wheelchair manufacturers to “come to the table and make wheelchairs that are designed for air travel”, Lundy says that with regulators now on board, she feels more optimistic that it will happen.

Campaigners also plan to keep up the pressure until they get their way. As Erwin puts it: “We are not going to rest until there’s a wheelchair spot on airplanes and everyone is flying in their wheelchairs.” ▶

The demand for personal and business connectivity has become greater than ever during the pandemic period, including on board aircraft. We assess the key developments seen since the last AIX event



Inmarsat's
GX Aviation
product
offers in-flight
broadband

Sky-high Wi-Fi

Kerry Reals

In-flight connectivity (IFC) providers may have seen a lull in activity over the past two years as their airline customers were largely grounded by the Covid-19 pandemic, but there is an upside. Demand for onboard Wi-Fi, which was already growing rapidly before the global health crisis, accelerated even more as people were forced by national lockdowns to shift their professional, social and educational lives online.

As IFC providers set up stall at the first face-to-face Aircraft Interiors Expo since 2019, they are keen to show off the new products and services they have been working on to ensure that they are in the best position to compete and tap into this increased, seemingly unstoppable, global demand for connectivity.

"We've seen a lot of change in the in-flight connectivity market over the last couple of years," says Andy Masson, vice-president product and portfolio management at

Panasonic Avionics. "What we have seen coming out of the pandemic is a big shift in the way that people act on the aeroplane. We've seen that reflect in the use of connectivity in the aeroplane, and we're seeing it in our numbers."

Research carried out by Panasonic last year "indicated to us that there has been a behavioural shift - certainly in terms of online behaviour", notes Masson. He points to greater demand for productivity tools such as Microsoft Teams and Google Docs, adding that "this has been mirrored on the personal side as well, in the number of people on social media and using connected devices to stay in contact".

These changes are also being reflected in the requests that Panasonic is receiving from airlines, says Masson, with "a bigger push for more bandwidth, connectivity and for that service to be offered more widely". He adds: "We've always had the assumption that connectivity was focused on the business user, but an awful lot of people are using it for personal use. Our suspicion is that's just



Markus Mainka/Shutterstock

Delta Air Lines selected Viasat to equip more than 550 of its narrowbodies

going to continue, and the trend will proliferate because everyone's very used to that as a service now."

Some airlines used the time during the pandemic to equip existing aircraft with IFC systems, or to place orders to ensure their future assets are connected.

Major contracts

Notable IFC deals inked over the past couple of years include Delta Air Lines' selection in 2021 of Viasat's Ka-band connectivity solution for more than 550 narrowbody aircraft; LATAM Airlines Group's decision earlier this year to install Intelsat's 2Ku system on up to 160 single-aisle aircraft; and Saudia's announcement last year that it would equip 35 new Airbus A321neo and A321XLR jets with Inmarsat's GX Aviation in-flight broadband solution.

Saudia will be the launch customer for Inmarsat's new OneFi platform – a single portal interface through which airlines can monetise IFC by offering ancillary products and services to passengers in real time on their own personal devices. Inmarsat senior vice-president in-flight connectivity Niels Steenstrup says the pandemic caused it to accelerate the launch of OneFi.

"A lot of airlines have recognised that they can use connectivity to generate ancillary revenue, from purchasing a Wi-Fi session and being connected, to having sponsors who are willing to pay for that access," says Steenstrup. "We've seen a fair number of those types of models, and an increase in interest as airlines look to increase ancillary revenue."

Summing up the impact of Covid-19 on the IFC industry, Steenstrup says: "I think if you were drawing a curve, you would have pre-pandemic where there was a steady climb in the need for connectivity, a drop off a cliff where everything just stopped almost for 12 months or so, and then there was a slow climb back out which is now an accelerated climb."

While some aspects of the IFC sector were quieter during the pandemic, the volume turned up to maximum

"We've always had the assumption that connectivity was focused on the business user, but an awful lot of people are using it for personal use"

Andy Masson Vice-president product and portfolio management, Panasonic Avionics

on merger and acquisition activity. The market was stunned in November 2021, when California-based Viasat announced plans to acquire its London-headquartered rival Inmarsat in a transaction valued at \$7.3 billion.

Few details have been disclosed on how the proposed combination could affect the two satellite companies' IFC offerings, but both sides appear positive about the deal.

"We see it as so transformative – these are both great companies with complementary assets," says Don Buchman, vice-president of commercial mobility at Viasat. "I think we're going to bring a lot of value to our current customers and our future customers." Details such as how IFC services will be branded "will be determined post-acquisition", he adds.

Strong competition

Steenstrup views the tie-up as "a significant positive", but stresses that "we're head-on competitors today and we're head-on competitors until the minute the deal closes". He adds: "Viasat has a good reputation in IFC in North America, and Inmarsat is strong and has a good reputation in IFC globally outside North America, so



Mike Pigott says the rebranded Anuvu offers new vision for IFC

the two together are a very strong combination. I think together we will be able to bring really good services to passengers and airlines.”

The proposed Viasat/Inmarsat combination follows the sealing up of earlier M&A activity between IFC providers Intelsat and Gogo Commercial Aviation. Virginia-based Intelsat completed its \$400 million acquisition of Gogo in December 2020 and announced in July 2021 that it had dropped the Gogo name and branded all of its IFC and entertainment offerings as Intelsat.

Earlier this year, Intelsat announced that it had emerged from its financial restructuring process as “a private company with a substantially strengthened capital structure”. Frederik van Essen, vice-president business development and managing director at Intelsat, says the company has “more than halved” its debt since entering restructuring, and is in a strong position to participate in future consolidation activity.

“What we’re seeing in the market is a measure of consolidation and in order to participate in growing scale in the IFC market, it’s very important to be financially stable and in a healthy position,” says van Essen. “Clearly, if you look at the dynamics in the market and the talks in the industry, moves will be made. That is, in my view, inevitable and Intelsat – given its existing size in the satellite industry and especially in IFC – is definitely right in the middle of that and part of that dynamic.”

Integrated solutions

The integration of Gogo has gone “really well”, says van Essen, and improvements have been made to its 2Ku IFC solution. This is something that Intelsat is talking about and promoting during AIX, along with its \$2 billion roadmap to create a “unified global network” and the

introduction of more flexible software-defined satellites. “We’ve started to make a lot of upgrades to the [2Ku] network, so many airlines that were used to the old Gogo [system] would not recognise the current experience,” says van Essen. “Speeds and throughput have gone up, latency has gone down, and there’s much more capacity available.”

In early April, Alaska Airlines extended its existing partnership with Intelsat by selecting its 2Ku solution for 105 new Boeing 737 Max aircraft.

Going forward, van Essen sees telecommunications networks becoming more unified and interoperable with satellite-based IFC, resulting in a simplified process to log on to the internet in flight. For passengers, this will mean that “you get on an aircraft and your phone just works, you don’t have to go via portals and pull out your credit card to get a session, you will be billed your normal subscription”, he says. For airlines, decisions over whether to go with Ka- or Ku-band IFC, for instance, will become less of an issue as terminals become more sophisticated.

“Really technical choices that [airlines] felt they had to understand – that’s going to be less and less important, and more generic,” predicts van Essen.

Another significant development in the in-flight entertainment and connectivity world during the pandemic was Global Eagle Entertainment’s filing for Chapter 11 bankruptcy protection in July 2020, its subsequent sale to new owners and emergence from restructuring as the newly-rebranded Anuvu.

Explaining the new name choice, Anuvu executive vice-president connectivity Mike Pigott says: “We wanted to send a strong message to the market that we had a new vision for mobile connectivity, and a new strategy to deliver that to our customers.”

Anuvu has traditionally provided Ku-band IFC services to airline customers including Norwegian, Southwest Airlines and Turkish Airlines, supported by the leasing of capacity from a variety of satellite operators. Earlier this year, however, it signed a capacity deal with satellite operator Telesat for about 10GB of Ka-band capacity, as part of what Anuvu describes as its “bridge to LEO” strategy. This will see it eventually offering IFC services using Telesat’s upcoming Lightspeed low-Earth orbit satellite network.

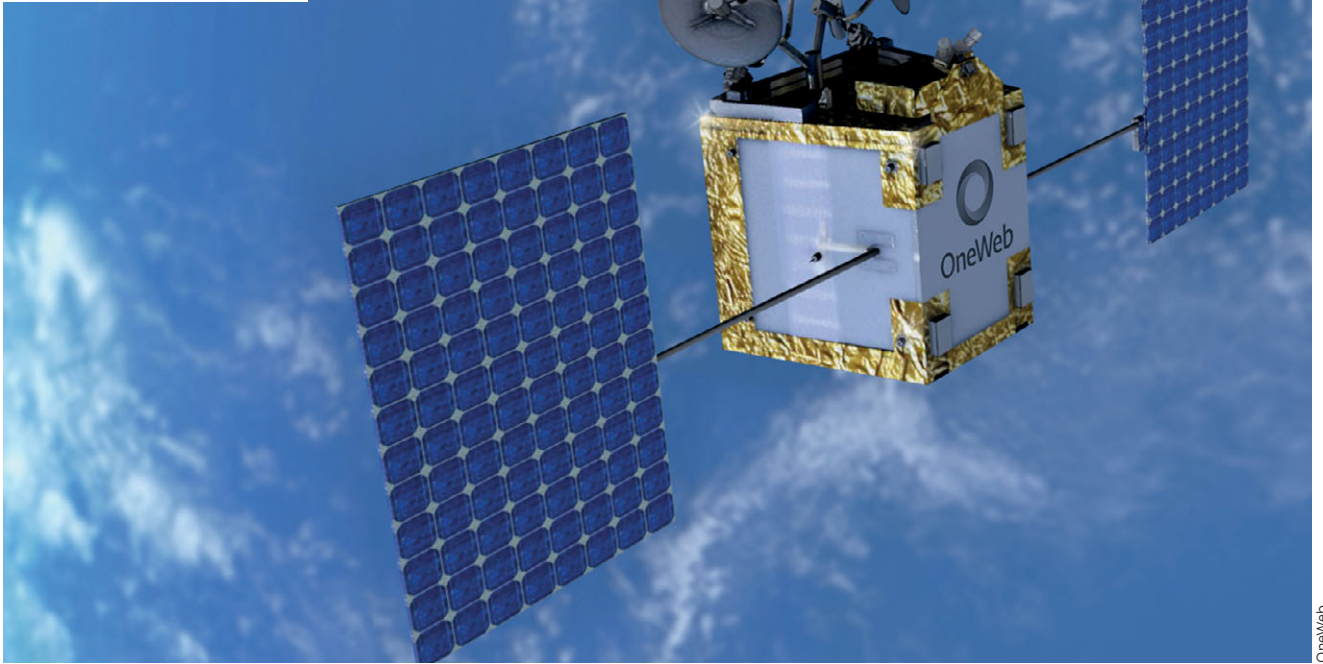
Anuvu has also, for the first time, invested in its own satellite constellation, in partnership with Astranis. It plans to launch two MicroGEO high-throughput satellites in early 2023, with six more to follow.

“Today, we’re a Ku provider in aviation using the GEO [geostationary] arc, and we’ve done that globally,” says Pigott. “We see a future world – a five-year vision, call it

“As the demographic gets younger and more willing to connect, I think [demand] will just increase organically”

Ben Griffin Vice-president mobility, OneWeb

OneWeb aims to offer LEO satellite-based IFC services from the second half of 2023



OneWeb

– where there’s going to be the GEO arc as a key part of our operation, and a LEO arc for low-latency services and global coverage.”

The MicroGEO satellites are smaller than other satellites in geostationary orbit and take months, rather than years, to build.

“The advantage we get is a lower cost and targeted performance for our mobility customers,” says Pigott. While Anuvu’s decision to invest in the MicroGEO constellation reflected its desire to have “our own control over some of our assets”, Pigott stresses that the company “still expects to lease a tremendous amount of capacity on the market because we expect performance demands to continue to skyrocket”.

Market entrants

On the LEO front, Telesat is not the only operator with plans to enter the IFC market. London-headquartered OneWeb aims to offer LEO satellite-based IFC services to airlines from the second half of 2023, while public charter operator JSX announced in late April that it would be the first airline to adopt SpaceX’s upcoming Starlink in-flight Wi-Fi service.

OneWeb vice-president mobility Ben Griffin says there are “several airlines that are interested in being launch customer” for its IFC service.

“We do certainly intend to announce some fairly big things [at AIX], so we’re looking at that as a target point for really putting a stake in the ground,” said Griffin ahead of the show. “We will definitely be intent on making a bit of noise and having a bit of fun.”

LEO operators bill low latency and full global, pole-to-pole coverage as their key advantages over GEO

satellite-based IFC competitors. Griffin also points to the electronically-steered array antennas that OneWeb intends to use, which he says weigh less, create less drag and are easier to maintain than their mechanically-steered counterparts. OneWeb has agreements in place with two terminal manufacturers – GDC Advanced Technology and SatixFy UK – although Griffin says it is open to entering additional deals with other producers.

Telesat, meanwhile, signed an agreement with ThinKom Solutions last year to collaborate on integrating the latter’s Ka2517 mechanically-steered phased array antenna with the upcoming Lightspeed LEO network.

The Canadian satellite operator also plans to use Anuvu’s Airconnect IFC terminal for Lightspeed, and is evaluating electronically-steered antennas as well, says Philippe Schleret, Telesat’s regional sales vice-president for North America.

Telesat expects to begin launching Lightspeed in 2025 and to offer full global services the following year. Schleret predicts that LEO satellites will be a “game-changer” for the IFC market.

In response to the threat, geostationary satellite operators are making LEO moves of their own. Inmarsat, for instance, last year unveiled its Orchestra network, which it says will “seamlessly integrate GEO, LEO and terrestrial 5G into one harmonious solution”. The network will, in the future, include 150-175 LEO satellites.

One thing existing IFC players and new entrants alike are banking on is that demand for connectivity will continue to rise. “The propensity to connect will only go one way,” predicts Griffin. “As the demographic gets younger and more willing to connect, I think that will just increase organically.” ▶

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Taste of Travel

Theatre

What's on at the
Taste of Travel Theatre

Hall A4

10:00-11:00

Future of sustainability onboard - a WTCE and Foodcase study
With expert panel

11:15-12:15

The urgent need for global collaboration
With expert panel

12:30-13:00

Bottega novelties on board
Italian wines and spirit producer shares knowledge, wines and hospitality with visitors

13:15-13:50

True price - a radical new theory to help save the environment
Ariane van Mancius
NowNewNext

14:00-14:45

Redefining onboard catering
With expert panel

15:00-15:45

Zero waste: chef session
Bjoern Orth
LSG

16:00-16:45

Onboard innovation leap: the future
With expert panel

17:00-19:00

WTCE official drinks
Sponsored by Heineken

Thinking out of the box

Pilar Wolfsteller

When parents take children travelling, they face numerous logistical challenges. Vegan chocolate company Playin Choc attempts to solve a few of them with its flagship product, the ToyChoc Box.

"The ToyChoc Box comes with two pieces of chocolate, a 3D animal puzzle

toy that the kids can make, and a fun fact card so they can learn about that animal," company founder Maya Simler says. "The toys are made from recycled cardboard and printed with vegetable-based ink. So there's no waste; everything is home-compostable or recyclable."

Simler founded

the company in her kitchen in the UK in 2016, first creating lactose-free chocolate products for her own children. During her first visit to AIX in 2019, she closed a deal with Norwegian, and this year another major European carrier will introduce her products on its flights. Her creations have won numerous global chocolate, design and food innovation awards.

"One of the things that has come out of the pandemic is that families are travelling more than business people, and the airlines have to differentiate and compete for that family budget," Simler adds. "This is one small way to...offer them something a bit different."



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On alert over allergies

Bernie Baldwin

Special meals is a simple term, but the breadth of its meaning is increasing all the time. Creating onboard food to deal with allergies, dietary needs, religious stipulations and other demands from today's passengers is a mammoth task.

While acknowledging industry efforts, Marc Warde, owner/director of Niche Free-from Kitchen, believes the industry can do a lot more. Chairing a Taste of Travel discussion on the topic yesterday, he noted how, among children, there has been a 300% increase in allergies in 2022. "That's astronomical," he declared.

Though there are seven main allergy groups – eggs, cow's milk, tree nuts, peanuts, shellfish, wheat and soy – nuts are often the trickiest to avoid, and the associated risk of anaphylaxis can be deadly. So serious is the problem that the World Allergy Organisation has recommended the removal of nuts from all flights. But there has been pushback to the idea from some airlines.

"Twenty years ago, we still had smoking on aircraft. Now, smoking

is an addiction and we say, 'You're not having that for the duration of the flight.' But a nut is not an addiction, so people can leave that to one side for eight, 10 or 12 hours, during a flight," Warde argues. "We must educate passengers and say, actually, allergies have become so prolific, we need to ask you not to eat nuts on this flight."

Warde's colleague, Helen Parkinson, who is product development manager at Niche Free-from Kitchen, was diagnosed with coeliac disease when she was young. "It's all I've known my entire life and it's what got me interested in food because I had to read every single packet and label," she says.

Alibi labelling

Parkinson says some special meals come with 'alibi labelling' such as the phrase 'may contain'. "I think if you're going to do that, don't even bother serving them," she stresses.

Gottfried Menge, vice-president culinary excellence at Gategroup, believes special meals

should perhaps be treated like ethnic meals. "You maybe need a dedicated area where you produce these or go out to a third party outside, so they are prepared in an environment which is safe," he says.

Combined requirements

Airlines would like to do more, according to Virgin Atlantic's manager of inflight services food, beverages and ancillaries, Audrey Hart, though noting the added challenge of operating in a global market where some regions have as many as 28 major allergens.

"Sometimes special

requirements are combined," Hart says. "If you need something that is gluten friendly but also low lactose, it does not necessarily combine. And when you layer that with lifestyle choices or religious choices, we are further limited, because we just don't have the setup to combine an infinite number of limitations, be they dietary or otherwise."

As these challenges are faced, one message sits at the top – let the passenger know exactly what is in their meal. Only then can they decide whether to eat.



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The time is right for Jetlag

Pilar Wolfsteller

Antoine-Baptiste Leonetti, the co-founder of Non-

na Lab, grew up in French Polynesia. He spent a lot of time travelling on long-haul flights between the South Pacific and Europe, and at some point he got sick and

tired of jetlag.

"There is no remedy for jetlag," he says. "So we made one."

The feeling of jetlag is primarily due to stress, which disrupts sleep patterns, he adds. That disruption, combined with a circadian-rhythm-unfriendly time zone shift, cause those sleepless nights air travellers experience far too often.

Leonetti's concoction, appropriately called "Jetlag", is a fruity drink -

"it tastes like apple and chamomile", he says - that contains melatonin, to encourage the body first to relax, and caffeine, to give it a boost later. Travellers must drink a small bottle of "Jetlag" before departure, and a second bottle just before going to bed at their final destination.

"Jetlag" is currently available in 1,000 pharmacies in France, and Leonetti is looking to bring his product to airlines, caterers and airport lounge operators. So far, he's garnered interest from 10 carriers from across the globe.

"We are breaking ground on a multi-billion market, and there's a path to become the global leader," he says.



Pesitro gets teeth into aviation

Pesitro, a Chinese company that manufactures, packages and distributes oral health care products, is exhibiting at WTCE for the first time this year.

Julio Felipe Bicudo, the company's international sales director, says Pesitro supplies to large retailers in more than 52 countries, but it has yet to sign an airline.

It has brought sustainable toiletry products like toothbrushes, floss picks and shaver handles made from bamboo, to show off in Hamburg.

"We produce items for vanity kits, and believe this kind of bamboo product is the future, also for airlines," he says.

"Over five billion plastic toothbrush handles are thrown into the sea each year. Now we have to move to biodegradable and sustainable products, and bamboo is one way of doing that."

Though the handles are recyclable, there is still no biodegradable toothbrush bristle available in the market, he says. "That's a challenge the industry continues to work on. We are still looking for materials we could use, but so far it's not possible. So our toothbrushes are 95% biodegradable."



Meeting customers again sounds good

Jakob Levison (pictured left) and Vas Stylianos are ready to rock after a more-than-two-year Covid-induced silence.

“It’s the re-launch of our industry,” Levison says. “So it’s exciting to be here. Our expectations of the show are to see all our dear customers again, and to and to pick up where we left off.”

Linstol is a US-based company that supplies in-flight passenger items like cutlery, napkins, amenity kits and textiles to more than 100 airlines.

The company was founded in 1993 and



initially sold headsets to British Airways. Today, Linstol partners with UK company Meridian Audio, which is aiming to attract premium aviation clients

to its high-end audio experiences.

“Those people are expecting a more premium sound experience, perhaps the experience that

they’re used to receiving in their home and in their car,” Stylianos, Meridian’s consumer electronics account manager, says.

But the pandemic has changed the industry, so Levison and Stylianos are eager to hear from clients what they anticipate will come next. Noting a trend towards self-enclosed suites for premium travel, Stylianos suggests: “In that enclosed space, there are further opportunities to generate even better audio experiences, maybe without headphones - either something in the seat or organically.”

Perfect Cocktail shakes up industry

Cocktail aficionados maintain that the perfect mix cannot come out of a container, but have to be mixed fresh. Milan-based The Perfect Cocktail begs to differ.

The company supplies retailers, bars, restaurants and hotels with its 12 pre-mixed ready-to-drink cocktails. “For that kind of customer, quality is very important,” says Alberto Topan, the company’s sales manager.

Now, Topan is hoping the aviation market will also acquire a taste for the beverages.

“It starts with the

selection of the raw materials, but the two most important things are that we have are a patented production process and packaging process. The mix of the cocktail is probably the simplest part. But the ability to standardise the process and the product, for its full shelf life, is not so easy. It’s very, very hard.”

The Perfect Cocktail is exhibiting here for the first time, and on its first day, the company already snagged one major European airline, which agreed to a three-month trial. The magic, Topan says, is in the simplicity.

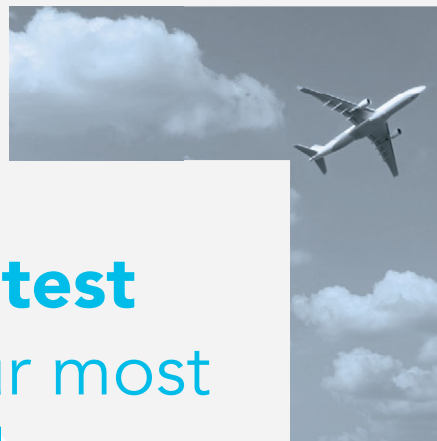


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