

## Murdo Morrison

Two UK economy seat rivals announced deals at the show yesterday, with German turboprop developer Deutsche Aircraft selecting Acro Aircraft Seating to supply its Series 9 for the in-development D328eco, and as an approved retrofit supplier for legacy D328 turboprops and jets.

Meanwhile, Mirus Aircraft Seating announced that Moldovan low-cost carrier FlyOne has chosen the latest version of its Hawk economy seat to retrofit two Airbus A321s in a 220-passenger configuration.

Mirus says FlyOne, which launched in 2016 and flies to 43 destinations, opted for the Hawk seat because of its "unique slimline design and cost-saving abilities".

Neil Cairns (right), chief executive of Chinese-owned Acro described Deutsche Aircraft's decision as "a great deal for us" that was swayed by the fact that the Series 9 is the "widest and most comfortable seat on the market" as well as an alignment of values on sustainability: Acro claims that the Series 9 is "99% recyclable".

Deutsche Aircraft managing director Nico



# Deutsche opts for Acro

UK seat firm wins D328eco deal, as rival Mirus secures Moldovan customer

Neumann (left) says the "weight and recyclability" of the Series 9 were key factors in the move.

In May, the Leipzig-based

company announced Private Wings as the launch customer for its D328eco, with a commitment for five aircraft. Berlin-based

Private Wings already operates 10 examples of the original Dornier 328, nine turboprops and a jet.

Continued on page 3



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 **Collins Aerospace**

## Kerry Reals

**H**ughes Network Systems is stepping out from the shadows as a direct provider of in-flight connectivity services after more than a decade as a behind-the-scenes operator.

The US-based company, which operates the JUPITER geostationary (GEO) satellite system, is introducing three direct IFC services to the market: Hughes LEO In-Flight; Hughes Fusion In-Flight; and Hughes JUPITER In-Flight. It has signed a distribution partnership agreement with OneWeb, whose low-Earth orbit satellites will be used for the LEO and Fusion services.

To support the LEO-only and hybrid LEO/GEO solutions, Hughes has developed a lightweight, low-profile electronically-steered antenna (ESA), measuring 2ft by 2ft by 2.1in.

The Fusion service connects with OneWeb's LEO satellites and Hughes' JUPITER satellites, but is designed to work with any GEO network. The JUPITER service is a GEO-only solution now, supported by Ka-band high throughput satellite capacity from Hughes' JUPITER network across the Americas and partner networks in Europe, the Middle East and Africa, but will be multi-orbit later – either through OneWeb's Ku-band network or potentially through Ka-



Rasoulia: No-compromise strategy

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# Hughes directly back in the game

band LEO and medium-Earth orbit (MEO) satellite offerings including Telesat's Lightspeed and SES' O3b mPOWER services.

"Our strategy is a no-compromise strategy," says Reza Rasoulia, vice-president of Hughes' aviation business unit, emphasising the company's belief in a multi-orbit future for satellite-

based connectivity.

"We've been in the IFC market for over 10 years as a managed service provider, network implementation and modem provider," says Rasoulia, adding that the decision to go direct to the market with its own suite of IFC solutions was "a natural evolution for us". He stresses, however,

that Hughes will continue to work with partners in addition to going direct.

He declines to comment on whether Hughes' has signed any launch customers for the services, but says the JUPITER In-Flight solution is scheduled to launch in the first half of next year, with multi-orbit service to follow in early 2025.

## Continued from page 1

The 328eco is a re-engined and 2m (6ft 7in) longer version of the earlier Dornier 328, which increases capacity to 43 passengers, 10 more than the original. Deutsch

Aircraft is targeting service entry of the Pratt & Whitney Canada PW127XT-S-powered type in 2026.

Northamptonshire-based Acro is gearing up to supply its Series 6 fixed back seat for Allegiant Air's

order for 50 Boeing 737s. The deal, announced last year, is Acro's first line-fit deal on Boeing aircraft. It already supplies seats for new Aircraft jets.

Acro plans to begin production in a new

Shanghai factory by the end of the year. It will provide seats for the Asian market. The company also plans to establish a production line in the USA at some point, says Cairns.

## Coats of many colours

Mankiewicz has developed a new coating system featuring an array of combinations with OEM-qualified coating systems. After a base colour is applied, a “sprinkle coat” of another effect paint is added, which can be textured or smooth, metallic or solid.

All this is being shown in a new aircraft mock up on the company’s stand (using part of an old Airbus A319) where Mankiewicz demonstrates all it can do with interior coatings. “This year, for example, we are focusing on sidewall panels and on seatback shells, especially for economy class seats,” says René Lang, executive managing director, aviation coatings.

Lang highlights the advantage of being able to use these paints without complicated regulatory processes. “They are all approved by Airbus and Boeing for the interiors, so a designer or an airline can choose all these special effect colours and use them without additional approvals. That’s good for new items, but it’s also good for refurbishment,” he says.

Historically, galvanised coating of aluminium surfaces was the regular process for protection. “But galvanising from an environmental point of view is a disaster, so we developed a coating material that feels and looks like galvanised, but is painted,” Lang says.



# Hawaiian welcome for Adient 787 seats

**Jon Hemmerdinger**

**H**awaiian Airlines and seat company Adient Aerospace are riding a wave of enthusiasm ahead of the island carrier’s expected receipt this year of Boeing 787s outfitted with Adient’s Ascent premium-cabin seats.

Company executives are talking up their partnership at AIX, saying the seats will deliver a unique premium-cabin experience.

California-based Adient Aerospace snagged Hawaiian as its first customer in 2019 shortly after Boeing and the Adient automotive seating business partnered to form the seat maker.

Hawaiian expects to receive its first Ascent seats – it calls them Leihoku suites (meaning “lei of stars”) – on its first 787s, due in November.

Adient’s quality and willingness to customise the seat are partly why

the airline chose Adient, says Hawaiian director of inflight entertainment and onboard products Evan Nomura (*left*).

While most business-class seats are designed to give travellers maximum privacy, Hawaiian’s suites have centre dividers that can be lowered, creating a more-social environment. The cabin environment reflects the state’s friendly, welcoming traditions, with many of the airline’s passengers travelling on



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# Airbus Services wins ITA premium economy work

ITA Airways will upgrade its six Airbus A350-900 aircraft with a new premium economy class section, with the retrofits to be completed by Airbus Services by mid-2024, the Toulouse-based airframer said yesterday.

“We have selected Airbus Services thanks to its OEM expertise, expert engineering know-how, project management, and supply chain

management,” says Alessio Leone, head of cargo operations at ITA.

The installation will replace a section of nine-abreast economy class seats with an eight-abreast premium economy section, which is “increasingly sought-after thanks to its yield management benefits for airlines, while reducing costs for business travelers,” Airbus says.

In addition to the new

seats, one additional galley will be installed and a partition between the classes. Overhead bins, carpet, seat tracks and cabling for in-seat power and inflight entertainment systems as well as lighting will also be adapted as part of the project. Oxygen, reading lights and ventilation systems must also be reconfigured, Airbus adds.

# AJW’s SkyLeather set to deliver

AJW Group’s new seat business is close to delivering its first refurbished SkyLeather aircraft seats, having nearly completed an initial project for Azerbaijan Airlines.

The interiors shop expects within several weeks to return to the airline six Airbus A320s equipped with the refreshed seats.

Long known as a parts logistics provider, AJW diversified in 2019 by opening AJW Technique Interiors, a means to leverage the strength of a maintenance network that supports some 600 aircraft, says interiors programme manager Sohaib Ahmed (pictured).

“The... department was formed partly because our existing customer base asked for interiors,” he says. “To grow the department is my responsibility.”

AJW’s primary cabin products are its SkyLeather seat covers, which are made from “water-based polyurethane”, a durable and easy-to-clean synthetic material, says Ahmed. “It gives you the nice natural feel of genuine leather” but weighs 25% less.

SkyLeather is an aftermarket option for refurbishing used seats.

Air Serbia had been AJW’s SkyLeather launch customer, but changes to its order put Azerbaijan ahead in the delivery schedule.



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vacation, says Nomura. “It wasn’t a difficult process to design this seat... Everyone was very collaborative.”

Adient Aerospace chief executive Tony Guy (right) stresses that Adient’s craftsmanship and innovation set it apart. The company’s automotive arm has long produced seats for luxury cars, including those made by BMW, Tesla and Mercedes.

Cabin design firm Teague worked with Hawaiian to define its 787 cabins. “The Adient seat certainty stands apart in the industry... There are very real touches of automotive DNA,” says Teague senior director of airline experience Anthony Harcup.

# JPA joins eco alliance

Jon Hemmerdinger

Cabin consultancy JPA Design has joined the Green Cabin Alliance to help position the industry to adopt environmentally friendlier practices.

JPA is the first cabin design company to enlist with the London-based non-profit, whose members include Adient Aerospace, Boeing, Thompson Aero Seating and Unum, says Alliance founder and director Elina Kopola. “The Green Cabin Alliance is an attempt to... promote a more-sustainable process” in the cabin supply chain.

Also based in the UK capital, JPA helps airlines craft cabin designs. Its



D'Cruze (right) signs up with Kopola at the show yesterday

customers include American Airlines, Cathay Pacific Airways, China Airlines, Etihad Airways, Finnair and

Singapore Airlines.

“The airlines... have a very strong sustainable agenda,” says JPA business

development director Richard D'Cruze. “Being plugged in to a network of suppliers... allows us to bring [suppliers] with more-sustainable production” to airlines.

In addition to coordinating cabin sustainability efforts, the Alliance ultimately aims to help develop a framework and guidelines by which companies can measure sustainability.

“We have neither in our industry at the moment,” says Kopola. Airlines must consider sustainability early in their cabin-design work, she adds, noting that rushing to become more-sustainable while in mid-project will not be effective.

## Magnificent seven

Seven recipients of Tuesday's Crystal Cabin Awards were at the CabinSpace Live theatre yesterday to talk about their winning entries. Pictured (left to right) are Jeffrey McKee from Collins Aerospace; Job Heimerikx, AirFi; Luzius Rickenbacher, Lantal; Maddy Kerrigan, Teledyne; Kurt Weidermeyer, Thales; Thomas Hogeveen, University of Delft; and Louise Leaupepe, Air New Zealand.



## Royalty programme

Spafax has formally launched at the show its new Spafax One digital in-flight entertainment suite, which debuted recently with select airlines. The solution enables airlines to live-stream events to passengers during flights. It also enables over-the-top (OTT), catch-up TV and late-loading content.

As an example of its live-streaming capabilities, Spafax One last month delivered a live feed of King Charles III's coronation to thousands of passengers travelling on British Airways' connected aircraft.

“From broadcaster negotiations to technical solutions, Spafax One was instrumental in passengers seeing history in the making right from their seatback screens,” says the company.

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TK Kallenbach:  
Big challenge

# Age concern

## Aircraft delays causing cabin systems obsolescence, warn suppliers

**Pilar Wolfsteller & Kerry Reals**

Aircraft delivery delays are not only affecting airlines' capacity plans but also slowing in-cabin technical advances reaching the market - with some innovations passing their sell-by date before they enter service. That is the warning from some exhibitors at this year's show.

In addition, supply chain issues are frustrating manufacturers who are keen to showcase their technical advances amid tight competition.

The problems are affecting manufacturers' in-flight entertainment systems and electronics equipment, as well as the "brains" behind those systems. There is a never-ending race for the fastest internet in the air, the broadest broadband offering, the lightest

equipment upgrades and the easiest interface.

"Some of these delays are so long that the systems are literally going obsolete before they get into the field," says TK Kallenbach, chief executive officer of the InFlyt Experience at Thales Aerospace. "That's a big challenge for us."

"The fact of the matter is that we really are struggling with on-time delivery," he says.

Panasonic Avionics says it has been facing the same issues.

"Airlines select cabin technology one to two years prior to delivery of a particular aircraft type, then they fly the aircraft for seven to 10 years while consumer technology continues to evolve," chief executive Ken Sain says. This has traditionally led to a technology "lag" between what passengers are using on the ground and what they

can access on board aircraft.

"Airlines struggle to keep technologies up-to-date and often have to come back to IFE suppliers to make changes to software," adds Sain.

But with the modular Panasonic system, those delays can be mitigated at least. The modular architecture featured in Panasonic's Astrova IFE solution "allows this [technology lag] to be broken", he adds, because it "allows IFE components to be updated over time".

Earlier in the week at the IATA annual general meeting in Istanbul, the association's chief economist Marie Owens Thomsen said: "When aircraft are delivered six months late that is considered to be 'on time'." The supply-chain problems behind such delays reflect the fact that "it was so much easier to turn the global

economy off than it was to turn it back on again", Owens Thomsen said.

As a result of the delays, more airlines are moving toward operating older aircraft for longer periods of time. So retrofits and interior refreshers are also becoming more popular with aircraft operators.

"One of the things that we're seeing as an increasing trend is that the airlines are probably going to make another retrofit step", as operators wait for the Boeing 777X and Airbus A321XLR, says Thales' Kallenbach.

"So we're seeing that dynamic play out in various retrofit programmes across the board. They are going to keep flying these aircraft, because they got plenty of life left in them," he says.

"And we'd like to see them upgrade not just the seat package but the full IFE package."



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# AliceBluAero looks to make Quantum leap

**Jon Hemmerdinger**

Northern Ireland's AliceBluAero is closing in on certification of a premium-cabin seat it describes as more luxurious and comfortable than seats made by much-larger competitors.

The two-year old company is at AIX, seeking an initial sale for its lie-flat seat, called Quantum.

"We are looking for a launch customer," says AliceBlu managing director Ryan McNeice (pictured).

AliceBlu started in business 25 years ago as



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an engineering company making machined component for other industries, including for Formula 1 racecars. Its

executives had long eyed transitioning into the aerospace industry but never found the time. Then Covid-19 hit, leveling

its orders and leaving engineers free to pursue the aerospace opportunity, says McNeice.

AliceBlu chose to develop lie-flat seats for narrowbody jets because its transition came as airlines were beginning to deploy A321s on long-haul flights, such as those across the Atlantic, he adds. "It's a new market. It's in favour of a start up."

The Quantum seats are 0.6m (25in) wide and extend to 2.2m-long beds, and the suites have dining tables measuring roughly 500cm x 500cm.

AliceBlu's team of some 15 employees include those who hail from cabin firms such as Adient Aerospace and Thompson Aero.

"This is a small company," says McNeice. "But the level of skill within the team is unbelievable high."



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**Bernie Baldwin**

Tapis and Ultrafabrics want airlines to think differently about colour. The companies – which operate as a partnership – are highlighting a bright magenta seat covering on their stand. The initiative came from a tie-up with Pantone, the famous colour matching company, to promote Pantone’s colour of the year, Viva Magenta.

“We created our own palette based on that Pantone colour, called Vivid Punch,” says Barry Silverman, vice-president marketing and branding, Ultrafabrics (pictured).

“We wanted to introduce a conversation about colour in interior aviation design and this was the most interesting way to do that.”



Already, interest is strong. “We wondered if bright pink seats were a bit too crazy, but actually it’s drawn the crowds,” says Matthew Nicholls, sales director, Tapis. “There’s a reason why it’s the Pantone colour of the year – it’s pretty impressive.”

Interior colours typically relate to the brand. “Traditionally, airlines have used blues and greys, but it’s becoming increasingly difficult to distinguish between brands. While blues represent comfort, security and safety, other colours that can do that just as well,” Silverman says. “In a time where airlines are competing for customer attention, and creating customer experiences that reflect the strategy of the airline, colour is certainly a way to do that.”

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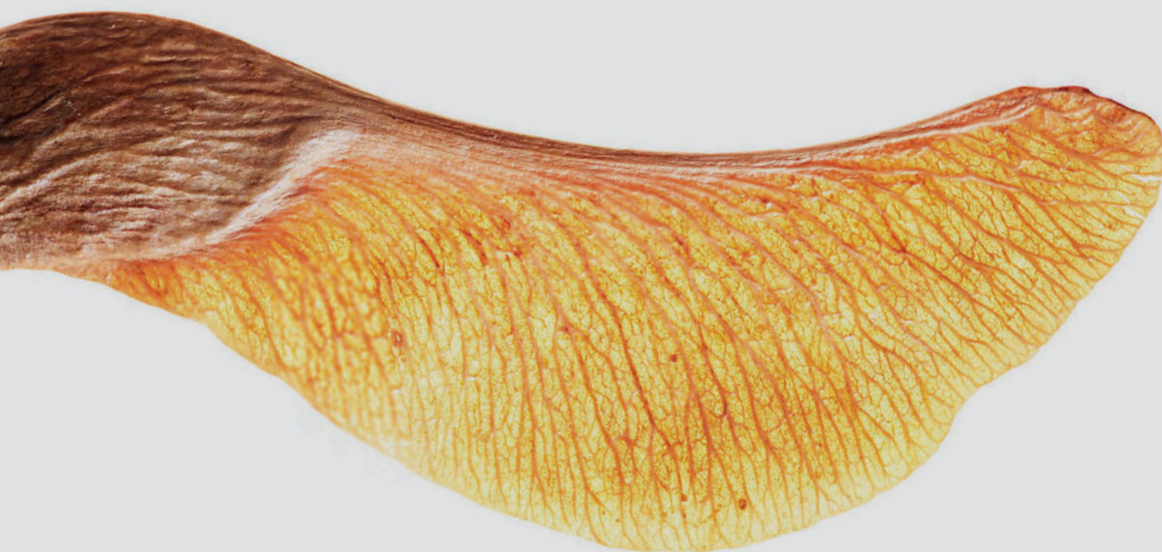


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# Thompson's Vantage points

**Murdo Morrison**

Thompson Aero Seating is showing for the first time a version of its original Vantage seat specifically for the Airbus A321.

The Northern Ireland-based premium-class seat specialist is also exhibiting the latest iteration of its VantageSolo, which it claims to be the world's first direct aisle access, lie-flat seat designed for narrowbodies. It is in service with JetBlue and Saudia, which recently selected the seat for its on-order A321XLRs.

Thompson is among the seat manufacturers responding to the growing number of airlines operating or planning long-



haul services using single-aisle types such as the A321LR and A321XLR.

Completing the line-up is the twin-aisle Vantage XL – the version here is for the A330, but with slight variations the seat

can be optimised for other widebody types.

The Vantage seat on display is 4in wider than legacy examples. The forward-facing two-one design swaps wasted space at the fuselage wall

for features such as a more spacious footwell on the single seat, and a wider middle console on the double seat. It also includes items such as a lighter carpet and recycled panels as part of what Thompson chief commercial officer Andy Morris calls "our sustainability journey".

He maintains that one of Thompson's trademarks is its willingness to adapt its products. "Our evolution, by integrating new features, is always going on. We never just launch a product and stand still," he says.

Thompson was also showing select visitors to its stand a behind-closed-doors early prototype of an in-development seat, but keeping quiet about details.

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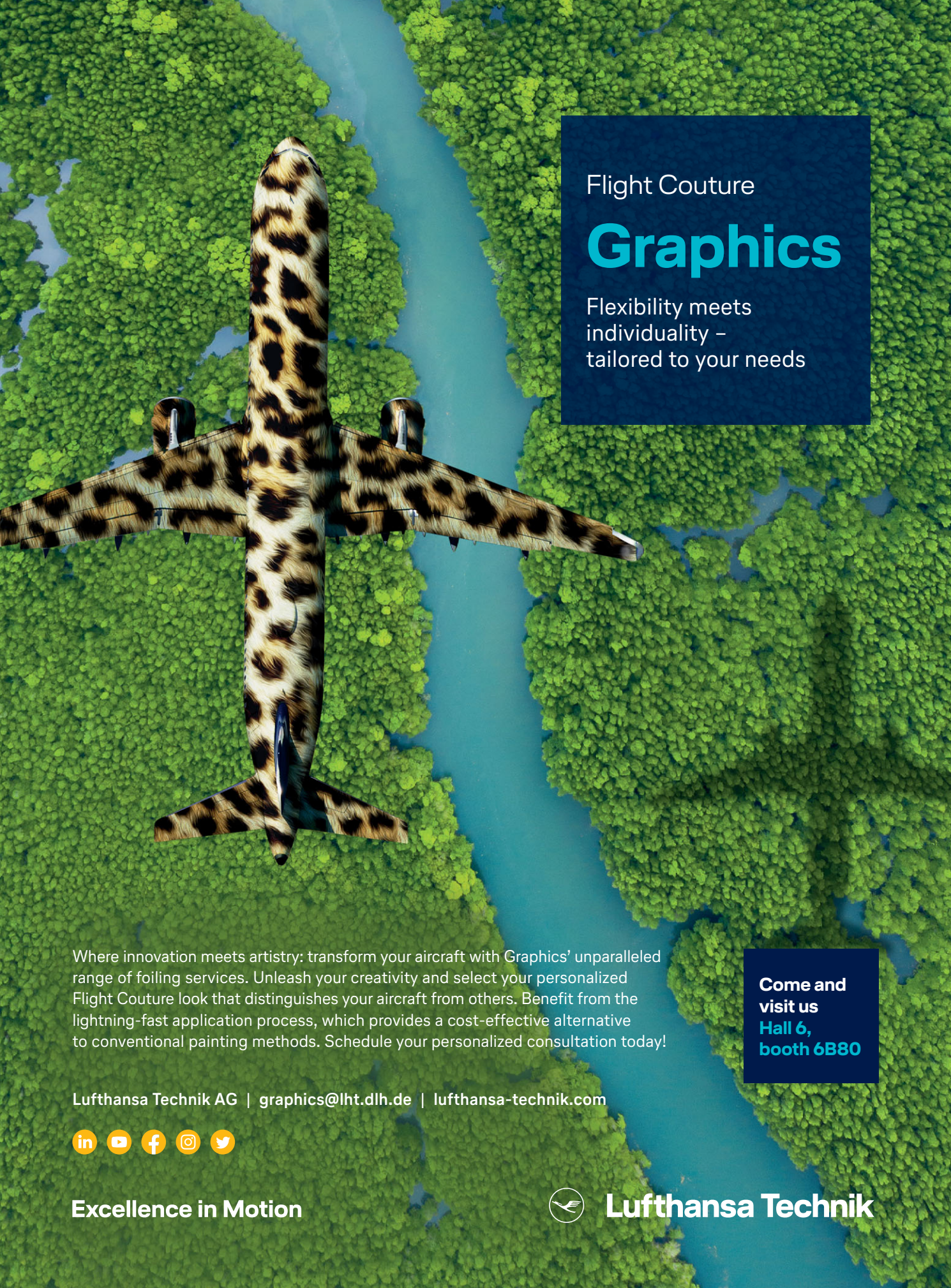
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# Schott de-lights

**Pilar Wolfsteller**

Schott Aviation's Opal Cover in-seat lighting solution, which the company is presenting at this year's AIX for the first time, is an upgrade to its Opal series that adds even more exclusivity to wide-body premium class cabins.

Schott says the customisable reading light can be tailor-made to match seating colours and textiles.

"We're able to integrate the light into the texture and the look and feel of the whole cabin," says Philipp Fischer, vice-president for Schott Aviation.

"Customers love it, we have had numerous inquiries and are close to completing the

project," he adds. "We're finding that airlines want something that is specific to their brand, and through the colour and the material type, we can do that."

In-seat integration and customisation are key, Fischer says, adding that operators are also beginning to differentiate not just between business class and the main cabin, but also within the premium segment as well, with the upper or luxury product gaining more and more traction.



**Fischer: Customers want something that is specific to their brand**



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STCs on other aircraft types”, he says, pointing to the Airbus A350 as “a very good aircraft to start with”.

RealGlass is “highly scratch resistant, flame retardant and the only fully transparent [product] in the industry”, says Wiersema. It is also highly durable and can last “the lifetime of an aircraft”, whereas plastic window lenses “need to be replaced every five years”.

The material weighs the same as the polycarbonate lenses it seeks to replace and is fully recyclable, says Wiersema. While it costs around three times as much, the cost of ownership is much lower because it lasts so much longer, he adds.

FSG sales director Boaz Bal says that RealGlass “looks more classy” than polycarbonate, which is why it is attractive to VVIP aircraft operators.

**Kerry Reals**

Aviation Glass and Fokker Services Group (FSG) are working together to obtain certification for the for-

mer’s ‘RealGlass’ product to replace plastic inner window lenses on the Airbus ACJ330, with a view to eventually entering the commercial widebody market.

Supplemental type certification on the ACJ330

from the European Union Aviation Safety Agency (EASA) is expected this year, Aviation Glass managing director Jaap Wiersema tells *Flight Daily News*. After that, “we will see if we can get general



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# Bring it on

Intelsat expects more consolidation among satellite IFC providers

## Kerry Reals

Intelsat is unruffled by rival satellite in-flight connectivity provider Viasat's acquisition of Inmarsat, viewing the combination as "positive" because it reduces the number of competitors in the space, and as the latest example of consolidation in the market.

Luxembourg-based satellite company SES confirmed in March that it was in merger talks with Intelsat, which itself is no stranger to consolidation, having acquired Gogo Commercial Aviation in 2020.

While Intelsat is not commenting on the potential tie-up with SES, Dave Bijur, senior vice-president of commercial

aviation at Intelsat, tells *Flight Daily News* that Viasat's acquisition of Inmarsat was "not the first" example of consolidation within the satellite IFC market and is unlikely to be the last.

"I suspect the wind of change will continue to blow in that direction," says Bijur.

In addition to consolidation, Bijur predicts that there will be increased "differentiation" between IFC providers in terms of the types of satellite orbits they use.

"Viasat is not going to be a LEO [low-Earth orbit satellite] player and we are," he says, pointing to Intelsat's partnership with OneWeb to provide airlines with a hybrid GEO/LEO service. Alaska Airlines has already agreed to install

the multi-orbit system on its regional jet fleet and Bijur expects more regional jet operators to follow suit as legacy air-to-ground (ATG) IFC systems reach end of life.

"All regional jet operators have to make a decision and ATG is yesterday's technology - they all want to go in the satellite direction," he says, adding that Intelsat is "close to" signing another regional jet customer for its multi-orbit service.

Intelsat's electronically steered array (ESA) antenna can operate between LEO and GEO satellites, providing airlines with the flexibility they crave, says Bijur. The lightweight antenna is also sought after by airlines because it can help them save up to \$40,000 a year

on fuel costs compared with traditional antennas, he adds. These savings, together with the polar coverage offered by LEO satellites, has meant that in addition to interest from regional jet operators, Intelsat's "booth at this show has been filled with long-haul airlines", he notes.

Intelsat also announced at the show that long-time customer Japan Airlines (JAL) has agreed to upgrade about 50 Boeing 737s and 767s to the company's 2Ku in-flight connectivity system. The service is designed to operate on today's high-throughput satellites, as well as with Intelsat's fleet of new software-defined satellites, which are scheduled to enter service in 2025.

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# Waste not with Iacobucci cart

**Bernie Baldwin**

**R**etrolley is a new galley cart from Iacobucci HF Aerospace, which is designed to start the process of cabin waste recycling, ensuring that as much material as possible can be re-used rather than needlessly thrown away.

"The first thing to be done when recycling is to sort waste on board the aircraft. The Retrolley enables this with separate bins for cups, liquids, recyclable material and, of course, non-recyclable," explains the company's chief executive, Lucio Iacobucci. "In fact, there are eight different configurations, created to meet

different airlines' needs. This initial onboard sorting helps airlines with their ground waste management."

Retrolley is the lead product in Iacobucci Sustainability 2030, the company's programme to make not just its products more sustainable, but its operations. "We're starting with Retrolley because when flying around the world, we observed enormous amounts of cabin waste. So we took the opportunity to work with Airbus on the project, by designing and certifying the trolley," he says.

The chief executive says it will make a launch customer announcement shortly, with the Retrolley likely to go into service later in 2023.



**Lucio Iacobucci:**  
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# Skyted keeps calls private

**Bernie Baldwin**

**N**eed to have an onboard phone call, but worried about confidentiality? Skyted says it has just the answer to ensure your discussion will not be overheard – a special light-weight mask.

Developed with OneWeb, Airbus, PriestmanGoode and Onera, the mask uses passive noise reduction technology to prevent sound leakage. Bandwidth allowing, it thus provides the potential for all passengers on an aircraft to make a call simultaneously.

“One billion electronic



BILLYPIX

**Isenbart: Confidential information stays confidential**

speech connections are made every day, whether person-to-person or in

group calls on applications such as Zoom or Teams,” says Sandrine Isenbart,

Skyted’s sales and marketing co-ordinator. “This helps any confidential information to remain confidential.”

A finalist in the IFEC & Digital services category at this year’s Crystal Cabin Awards, the mask is being promoted for use in air and rail transport.

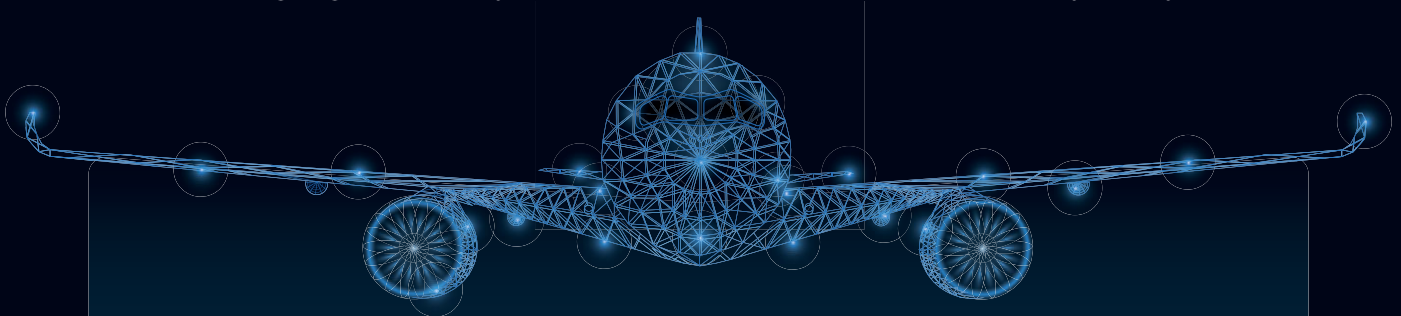
“It can be used with any phone and headset, any operating system and any group conversation app,” Isenbart says.

Skyted is consulting with potential customers on the final design and continuing in-flight testing with a target service entry of next January. The mask will be priced around €400 (\$427).



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# Jamco gets in the zone

Technology from Japan does away with need for headphones

## Kerry Reals

Aircraft interiors supplier Jamco has teamed with an affiliate of Japanese telecommunications company NTT Group to develop a personalised sound zone that enables airline passengers to hear audio without headphones.

The patented technology, which is in research and development phase, uses embedded speakers located within individual headrests to create a sound zone around each passenger.

This allows passengers to listen to audio without headphones or disturbing their neighbours, says Jamco. Users control the volume and sound settings from the speakers.

“Unlike standard wearable devices, the passenger can still hear in-flight announcements,” says Jamco, adding that crew can communicate with passengers without them removing headphones.

Other advantages, says the company, include the removal of all the drawbacks of headphones, such as wires, cleaning and maintenance.



System allows passengers to hear in-flight announcements

The technology is also in line with the airline industry’s sustainability goals because it prevents waste associated with headphone disposal.

Jamco is developing the technology with acoustics specialist NTT Sonority.

The companies are billing the personalised sound zone, which is targeted to launch later this year, as “a next-generation in-flight audio experience”.

Japan-based Jamco supplies interiors products for Airbus and Boeing aircraft, from lavatories to galleys to cockpit doors.

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**Willemin: Aiming to deliver the technology to OEMs**

# Weld apart

**Jon Hemmerdinger**

A process combining 3D printing with plastic moulding can produce parts that are strong but weigh half as much as metallic parts.

That is according to Zurich aerospace start-up 9T Labs, which arrived at this year's AIX pitching its "additive fusion technology". 9T's goal is to supply its composite parts to OEMs.

"Our aim is to deliver this manufacturing standard in the market," says 9T director of business development

Yannick Willemin.

Launched in 2018 as a spin-off from the ETH Zurich technical institute, 9T is developing the software and machines to produce components using the additive fusion method.

At AIX, the company is displaying several components made using the process, including an overhead bin bracket and seat components.

The additive fusion manufacturing process involves using a 3D printer to produce aerospace components from materials including carbonfibre. Then, 9T combines -

"welds", in Willemin's words - multiple such components using heat and pressure in a machine called a "fusion module".

The result is a single component that is incredibly strong and light, says Willemin. His pitch is that use of lighter components will give airlines the option to add back weight in ways that benefit customers, such as more seat padding or larger video screens.

9T is now conducting feasibility studies of its technology and will then complete its proof of concept before working to scale its manufacturing capability. Willemin thinks 9T can produce components at a rate of 1,000-2,000 units annually.

# Two into one from ThinkKom

ThinkKom Solutions has unveiled a new two-in-one antenna that can communicate with different satellite constellations and networks.

The ThinAir Plus combines ThinkKom's LEO/MEO/GEO satellite-compatible VICTS technology with a small LEO-only electronically steerable antenna, which the company says provides

redundancy, flexibility and efficiency.

"As an antenna company, we're providing an agnostic solution that delivers connectivity from every orbit to every seat," says ThinkKom chief technical officer Bill Milroy. "With the Plus architecture, we're able to add next-generation benefits on top of our existing, high-performance antenna."

The Plus architecture is modular, which ThinkKom says allows for a mix-and-match of Ku- and Ka-band antennas installed with a common adapter plate, fairing and radome. Airlines can deploy ThinkKom's Ka2517 solution today and swap to Ku-band VICTS antennas in the future without changing the mounting hardware.

## Hello Dubai

Soisa Aircraft Interiors is to open a new facility in Dubai to expand its global manufacturing capabilities. This adds to the upholstery and assembly services the company provides from its base in Chihuahua, Mexico.

The Dubai site will serve clients in the Middle East, North Africa, Europe and Asia. This will directly benefit customers such as Etihad, Emirates and FlyDubai with better logistics, minimal lead times for materials, reduced turnaround times and improved cost efficiencies, says the company. The expansion means Soisa now has capacity available in Chihuahua for new projects.

## FLIGHT DAILY NEWS

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Counterpoint Market Intelligence's ninth report on the aircraft interiors market reveals a diverse sector with strong growth potential. Director and co-founder Richard Apps outlines the key trends

# The inside story



Jetstar

More efficient narrowbody aircraft, such as the Airbus A321LR, are driving market change

**W**e estimate that the 2022 aircraft interiors market, covering the acquisition of products for new build and retrofit aircraft and spares sales, is worth \$11.7 billion, and we forecast it to grow by 11% a year for the next 10 years.

The two largest segments are seats and in-flight entertainment and connectivity, which make up 33% and 26% of the overall market.

The effects of the Covid-19 crisis on the sector and the recovery continue to dominate much thinking. Our modelling shows overall activity in the aircraft interiors industry returning to 2019 levels in 2024. Post-Covid effects still loom large, particularly in supply chain and skilled labour shortages. The focus of the industry is now on operations and execution, while strategic moves seem to be a secondary consideration.

In addition to direct effects from the Covid crisis, we think the crisis has accelerated trends already present in the market. Some of these trends are:

**Financial:** Industry profitability has been hit hard by the pandemic, with revenue down around 50%. Although each case is different, the impact of Covid-19 was universal. However, it is interesting to note that a number of companies were making losses or low margins in 2019, at a time of strong demand. Unsurprisingly, 2020 results were generally very poor with most companies loss-

making, 2021 saw some improvements, and 2022 was universally better.

**Cost cutting:** Almost all suppliers have lost staff and some larger companies have closed sites, in some cases using the crisis as the spur to undertake rationalisation that would probably have taken place anyway. There is also a continuing move to place work into low-cost countries.

**Supply chain disruption:** Almost all suppliers are facing supply chain disruptions caused by labour shortages and difficulties in getting bought in components and specialised raw material. While the higher profile microchip shortages have hit aircraft interiors, there have been reports of many other niche areas being in shortage; for example, speciality foams, particular specific grades of aluminium and some specific fire-retardant plastics. Most in the industry think that many of these, led by microchips, will persist throughout 2023 and the situation will not stabilise until 2024.

**Industry structure and consolidation:** The industry structure has been relatively stable with two large players, Collins Aerospace and Safran, some medium sized players, and then a relatively fragmented tail of smaller suppliers including new entrants.

However, there are two types of participants we think may precipitate industry change.

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The first is manufacturers. While Boeing is a significant player through its Interiors Responsibility Centers, EnCore and Adient Aerospace, Airbus, in contrast, has minimal direct participation in the aircraft interiors, although it owns seat brand Stelia at arms length. We think that interiors manufacturing falls into the category of non-core activities for the commercial aircraft OEMs, although we would stress that the design and configuration of interiors will remain a core activity for the commercial aircraft OEMs.

The second is airlines. There are now three major airlines with significant involvement in the market: Delta Flight Products, Lufthansa Technik and Turkish Cabin Interiors (which now incorporates TSI seats and Cornea IFEC).

The rise of long-range single aisle aircraft and slower growth in widebodies: This trend started before Covid, and evidence shows this trend is continuing. Reasons include:

Long haul international travel is recovering more slowly than short haul travel, it is not expected to be back at 2019 levels until 2024/25.

More capable aircraft such as the A321neo LR and XLR offer possibilities for new routes and/or substituting for less efficient smaller twin aisle aircraft.

Major-airline bosses are predicting that the demand for business travel may have been permanently impacted by new ways of working and have predicted up to 30% less demand. However, there are signs that wealthy leisure



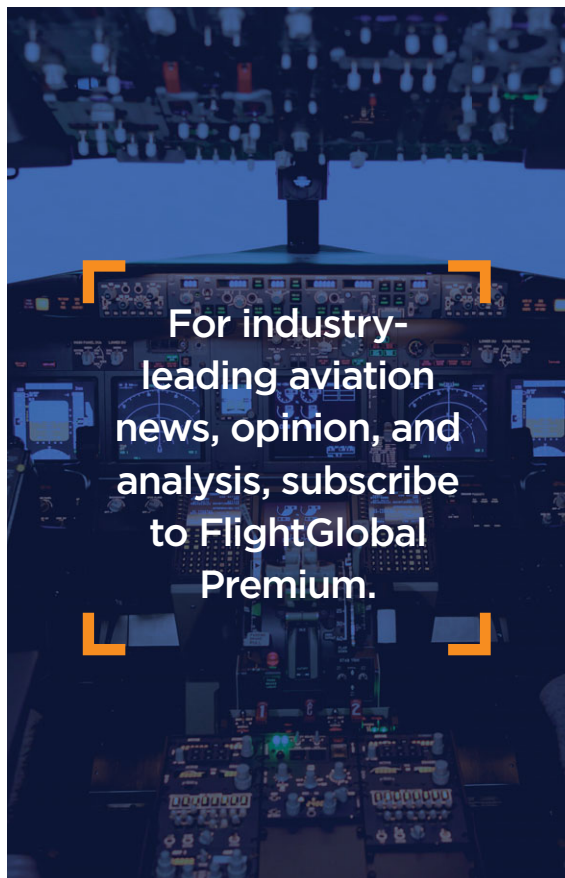
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travellers are increasingly travelling business class and may take up at least some of the capacity.

While Covid crisis solutions that offered passenger separation did not endure, we do think that the crisis has spurred innovation and permanent change in the following areas:

**Anti-microbial materials:** this applies to both soft furnishing and hard surfaces.

**Touchless operation:** this particularly applies to lavatories but also to a lesser extent IFEC systems.



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Wealthier leisure travellers are taking up capacity in business class

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► **Ease of cleaning:** anti-microbial materials are part of the answer, but we expect this to be an increasingly important consideration for new designs.

**On-board wi-fi:** introduction/trials of on-board wi-fi, both installed and carry-on, to replace magazines, particularly on low-cost carriers.

As the world moves towards net zero carbon emissions, there is pressure on aircraft interiors companies to help their airline customers become more sustainable in their operations.

There is an obvious potential conflict between low weight and comfort and luxury, and we think that in the last few years of relatively low fuel prices, comfort and luxury may have received greater emphasis. We think that this will now reverse, and that low weight will become an even more important differentiator in the market. This will apply across all aircraft interiors but particularly seats, IFEC systems and galleys.

Recyclability of interiors is also receiving greater emphasis and there is a clear trend to move to more easily recyclable materials where possible.

Seating is still attracting new entrants although we do detect a shift to premium seating for new entrants – the two most recent new entrants are Unum and Alice Blu.

There are signs of a market shake out particularly in economy seats: ST Engineering withdrew from this market in 2020, and there is a significant number of companies which are achieving few seat sales – we expect others to exit.

Premium economy continues as a significant growth market, with some 55 airlines now flying full premium economy seats.

On the back of the rise of long-range single aisle

aircraft, lie-flat single-aisle seats may be in growth but is evolving into an increasingly crowded niche market.

When it comes to IFEC, on narrowbody and short haul routes, the largest part of the market is for wireless systems and internet connectivity to connect with passengers' own devices (PEDs).

On longer haul the demand is for seatback systems plus wireless internet connectivity for PEDs.

There is a clear market demand for internet access via PEDs.

Very basic internet is often available for free for at least some of the flight, for instance, for sending text messages, and anything faster you have to pay for.

Some airlines, particularly those with air to ground (ATG) connections, offer free limited speed internet connection in lieu of an IFE system.

Some airlines see free internet connection as a differentiator but there are not many as costs are so high.

There is increasing evidence that people are prepared to pay for a fuller internet connection on board, although if they do so, they expect it to work. However, most commercial airline connections will not currently support video calling or streaming of TV programmes.

The emergence of low Earth orbit (LEO) satellite constellations from the likes of Starlink, OneWeb and planned by Amazon, offer improved latency, higher speeds and lower costs to airlines. As these emerge over the next six to 18 months there is significant change coming to the passenger experience. ►

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Northern Ireland is a global hub of the interiors sector, with two major tier one manufacturers and a mature and sophisticated supply chain

# Seat central

**Murdo Morrison**

**H**amburg – host city to AIX – is arguably Europe’s aircraft interiors capital, with an impressive cluster of specialist firms. However, when it comes to punching above its weight in the sector, Northern Ireland runs it close. The province’s 1.9 million population is just 3% of the UK’s, but its industry produces half the nation’s cabin furnishings output, and one in three of the world’s aircraft seats.

Two subsidiaries of international aerospace entities – Collins Aerospace’s large seating plant in County Down and AVIC Cabin Systems unit Thompson Aero Seating – are Northern Ireland’s biggest players in the sector. However, the province is also home to more than a dozen

smaller, family owned enterprises, coupled with the odd start-up, several of which are exhibiting at AIX.

Northern Ireland’s journey to becoming the world capital of airline seat production began in the late 1960s when Aircraft Furnishing established a factory in Kilkeel. US firm B/E Aerospace took over the business in 1993 before B/E was itself absorbed into Rockwell Collins, finally ending up part of Raytheon Technologies-owned Collins Aerospace in 2020.

Today, Collins is the second biggest aerospace employer in Northern Ireland after Spirit AeroSystems (formerly Bombardier), with a workforce in the small coastal town of around 800, making economy and premium seats. Collins also has seating factories in the USA, but most of the company’s distinctive business class products originate in Northern Ireland.

## Putting it to the test

A clutch of new crash simulation facilities have opened since the pandemic, with Thompson Aero Seating the latest to invest in such a capability

Thompson Aero Seating will become the second UK seat manufacturer with a brand new dynamic test facility (DTF), when the centre at its Banbridge, Northern Ireland factory opens later this year. The AVIC Cabin Systems-owned unit says the £7.5 million (\$9.4 million) investment will “catapult Thompson into a new era of development and innovation”.

It comes after Mirus Aircraft Seating in April officially unveiled its DTF as a 407sq m (4,380sq ft) extension of its Hingham headquarters in Norfolk.

The start-up will run the facility as an arms-length business called M-Test, offering third-party services to other seating as well as

automotive companies.

Thompson and Mirus follow the example of German rival Recaro, which opened its DTF opposite

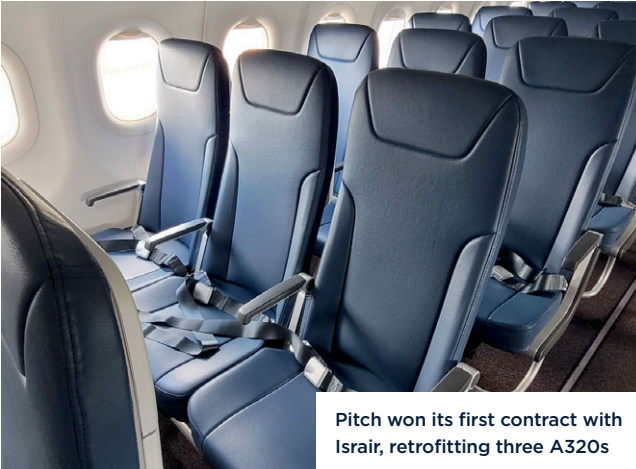


Thompson’s new operation is currently under construction

its Schwaebisch Hall base in 2021. For all three companies, the motivation was the same – avoiding three- to six-month lead times at independent test centres as well as nurturing innovation and speeding development by giving designers and engineers instant technical feedback.

“The DTF will give Thompson enhanced capability to certify new products for airworthiness and to carry out research and development work, without even needing to leave the factory,” says chief executive Neil Taggart. He adds that the facility – the only one on the island of Ireland – is a “huge opportunity to save on lead times in the development of our new seats

Thompson Aero Seating



Pitch won its first contract with Isirair, retrofitting three A320s

Causeway Aero

2000s, when Thompson set up in Portadown, with BMI, Jet Blue and Qantas among the early customers for its Vantage family of premium seats. With almost 15,000 of its first, business and premium economy seats now in service, Thompson, which has a second site in Banbridge, is one of the major players in this part of the market.

Thompson “soft launched” its latest Vantage variant, the VantageDuo, at last year’s AIX. A “fixed-shell” recliner rather than a lie-flat product, aimed largely at the medium-haul narrowbody market, it offers a 130-degree recline, compared with the norm of 110 degrees. Although it does not yet have a launch customer, “a number of airlines are quite excited by it”.

Thompson is also showing at Hamburg an updated, lower-pitch version of its VantageSolo, after JetBlue debuted the original design on its Airbus A321neo in 2021. While much of the company’s success since the pandemic has been in the narrowbody market, it says there is “renewed interest” from operators in its widebody-specific products, such as the VantageXL.

Northern Ireland is home to other, even younger seating fledglings. They include design house Butterfly Engineering, which began in Hong Kong but has a design centre in Belfast’s Titanic Quarter. It is working to find a launch customer for its narrowbody design, the unique selling point of which is its ability to transform from a longer-haul lie-flat to a regional recliner, says the company.

Causeway Aero is another growing player in the interiors market, whose portfolio now also includes seating. Originally established in 2015 as an attempt by the owners of two local SMEs, Moyola and Denroy, as well as government agency Invest Northern Ireland to establish a tier-two cabin systems and aerostructures

and improve sustainability”.

As with all DFTs, Thompson’s £6.7 million facility – funded in part by government agency Invest Northern Ireland – comprises a sled test track that reproduces the dynamic conditions of a full-scale crash in a controlled environment by creating 100g accelerations. Using crash-test “dummies” strapped to seats, simulations take milliseconds, with banks of cameras taking multiple images.

Mirus has been using M-Test since the end of last year, with much of the testing of its latest seat design carried out there. At least one other seating company has hired it out – Mirus has strict policies, including separate entrances, security processes, IT system, and staff, to prevent any compromise of commercial confidentiality, says chief executive Ben McGuire.

“It’s really good to have that in-house capability,” he says. “We are already doing all our testing here.



Mirus’s M-Test opened last year at its Norfolk HQ

Mirus

We used to use two test houses, which were great, but they were busy with automotive clients, so we might have to wait three months to

book something in. And, as well as giving us the capacity to do more testing, it gives us a nice passive line of third-party income too.”



**Bradfor: Roots go back to Northern Ireland's famous textiles sector**

Bradfor

Integrator in the province, its role has morphed somewhat since then.

Today, under its new chief executive and major shareholder Michael Rice, Causeway specialises in composite cabin components and managing interior refurbishments, having acquired an engineering consultancy that had been one of its suppliers. In fact, since he took over in 2018, Causeway has been on an investment spree.

In 2021, the company snapped up Pitch Aircraft Seating, based in Redditch in the English Midlands, another start-up that two years earlier had contracted Causeway to certificate and assemble its PF3000 lightweight, fixed-back economy seat at its Lisburn factory. That came after Pitch won its first contract, to retrofit three A320s for Israeli leisure airline Israir.

Although Rice said then that Pitch "completes Causeway's nose to tail aero interiors capability", his main aim is to position Causeway as a specialist in cabin refurbishments. "I really want to drive that part of the business," he says. "Too many associate us just with Pitch." Lessors over the border in Dublin are potential customers. "We want to be their one-stop shop for lease transitions," he says.



**Exact says it specialises in rapid response contracts**

Exact Group

Last year, the company also announced Britten-Norman, manufacturer of the nine-seat Islander piston aircraft, as launch customer for lightweight semi-flexible laminate panels that it says can offer an up to 25% weight saving by replacing bulky insulating blankets as part of a "minor" supplemental type certificate (STC) overhaul.

Northern Ireland's other SMEs specialising in interiors include Newry's Exact Group, which produces, among other items, build-to-print composite and metal components for aircraft interiors, as well as for satellites and the power generation and medical sectors. It claims its stock in trade is reactive build-to-print contracts - "rapid response - usually within one day, sometimes within one hour".

Another notable lower-tier manufacturer is Belfast-based IPC Mouldings, which specialises in injection-moulded parts and assemblies. It employs 40 people, with 85% of its turnover coming from the aerospace sector. Its components are on products such as Finnair's distinctive AirLounge business class seat from Collins.

Collaboration among non-competing SMEs is something Invest Northern Ireland is keen to foster as it promotes the idea, at AIX and beyond, of a cabin furnishings ecosystem in the province. For the firms themselves, it gives them the chance to shift up the value chain by offering a systems solution to a potential customer, rather than simply a collection of components and services.

"All of us are ultimately competing against low-cost countries, so we've got to go one better," says Joanne Liddle, managing director of IPC. "What we can do is offer a better understanding of the customer. A local supply chain also means a lower manufacturing carbon footprint and less risk on logistics, as Covid showed."

Bradfor's Clements agrees. "We bounce ideas of each other," she says. "We don't compete so we are able to share knowledge, and pre-Hamburg we've been meeting monthly. We've worked on various technical problems that we couldn't have solved on our own." ▀





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Lilium is working with Expliseat and Diehl on its passenger seat and interior fittings

# Vertical integration

**Murdo Morrison, Pilar Wolfsteller & Howard Hardee**

Intended to carry passengers on short city hops, electric vertical take-off and landing (eVTOL) aircraft are likely to have interiors that are comfortable and functional rather than luxurious and laden with latest technology. However, if the visions of urban air mobility (UAM) evangelists prove true – and thousands of these platforms are crisscrossing urban skies by the decade’s end – the sector will represent a considerable opportunity for cabin equipment suppliers.

A handful of developers have given some insights into their thinking and at least one – Germany’s Lilium – has announced the names of two suppliers it intends working with. Diehl Aviation announced last July that it will “collaborate on the design and development of the Lilium Jet cabin, as well as acting as integrator and manufacturer for interior components”. Meanwhile, Lilium also last year selected Paris-based Expliseat to design and build the aircraft’s crew and passenger seats.

For Wisk, the Boeing-backed, Silicon Valley-based start-up, customer studies have been crucial in shaping the passenger cabin on its in-development eVTOL

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Archer says 'comfort is at core' of its Midnight cabin



Archer

platform, director of product design Uri Tzarnotsky tells FlightGlobal. As an example, he cites what happened when members of the public were shown two cabin concepts – one with four seats facing inward, often called campfire or party seating, and the other a conventional two-by-two layout with all passengers facing forward.

“In the studio, where we are all co-workers and friends, there was a strong preference for campfire seating,” he says. “However, when we put four strangers in those mock-ups, as would be the case in a real-world scenario of ridesharing, we realised how grave a mistake that direction would have been. People were averting their eyes, displaying nervous body language, pulling their feet in tight, and struggling to get comfortable in a cabin with poorly defined boundaries of personal space.”

Julien Montousse, vice-president of design and innovation at fellow US developer Archer Aviation, says comfort will be at the core of its Midnight cabin, creating a passenger experience that is “alluring, seductive and emotional”. However, do not get the impression of a flying limousine. “We’re not going to have a Louis Vuitton- or Cadillac-inspired interior,” he says. “We are much more the kind of brand like North Face – a performance brand made of very good materials.”

However, as is the case for all aircraft designers, functionality and aesthetics will battle with weight and cost when it comes to every aspect of an eVTOL’s interior, often forcing tricky compromises. Montousse gives the window as an example. “Windows are much heavier than composite. We had to work really hard with engineering

to have them agree to have big side windows so that when you sit you can see almost straight down, and you can really engage with the city,” he says.

For aircraft designers, beginning with a blank slate is exciting. However, that comes with challenges, as there are many more decisions to make. “In a way, it’s a lot more inspiring to start from a clean sheet, but it’s a lot harder because every single feature is questioned,” he says. “Like, do you need cupholders? We can’t just include something for the sake of it. We have to ask what the value is, what is the function?”

When it comes to seats, the imperative to be as light as possible has forced a search for alternative materials. There is another factor too. “We think it’s important for customers to feel at one with the seat, and that they are consuming a product that’s eco-friendly,” he says. That has driven Archer to seek out recycled and environmentally friendlier options, such as using flax, rather than plastic, for seat backs and a synthetic fabric made from recycled plastic bottles for the coverings.

However, there are not always simple solutions in the quest to be more efficient and sustainable, and Montousse concedes there may be a long wait to achieve some of Archer’s environmental targets. “Some of the materials are extremely lightweight, but they may not be as durable as we want,” he admits. “We’re just scratching the surface in terms of the kind of eco-friendly material that can be incorporated into the plane.”

Embraer-backed Eve, one of the longest established players in an emerging sector, unveiled a “fifth



Deciding on the size and shape of the cabin windows was one of the hardest decisions for Wisk

generation” concept interior for its under-development 54nm (100km)-range eVTOL aircraft at last year’s Farnborough air show. The mock-up revealed a single pilot seat with four passenger seats – two facing forward and two rearward, split by a double armrest. The seats and interior fittings use many natural materials such as cotton and cork, according to the Brazil-based company.

According to Wisk’s Tzarnotsky, “sanctuary” has been the “overarching theme” in designing the latest Gen 6 version of its eVTOL platform. “We looked at a lot of design languages from modern and high-tech to colourful and friendly in the interest of establishing a welcoming and inclusive environment in the cabin,” he says. “Sanctuary was ultimately the one that allowed for focus and productivity as well as rest and relaxation.”

Wisk will use certificated helicopter seats, but is working with its unnamed seat vendor to “ensure it aligns with expectations regarding comfort and styling that reinforces our design language”. Passengers will enjoy wi-fi, personal device charging, and air conditioning, with the cabin designed to reach a set point temperature within a minute of the door closing. Additionally, says Tzarnotsky, passengers will be able to control airflow from their personal vent, as they do on an airliner.

However, one of the trickiest decisions Tzarnotsky and his colleagues had to make was also over the windows, and not just because of the trade-off with cost and weight. “Flight at lower altitudes is not something people get to experience very often,” he says. “We struck a good balance between having large panoramic windows to provide an exceptional field of view, without compromising the sense of safety and security in the cabin.”

Diehl – which has also been working with rival eVTOL developer Volocopter on its interior design – will provide an extensive work package for the Lilium Jet cabin, including providing ceiling and floor panels, walls and partitions, and the luggage compartment. The German

interiors specialist will also supply the lighting system and air conditioning ducts, the latter manufactured from lightweight composites such as foam granulates.

Expliseat is a young company known for its lightweight airliner seats that replace traditional aluminium with carbonfibre and titanium, and maintains the product it is designing for Lilium will be “one of the first serially produced eVTOL seats”. Martin Schuebel, Lilium’s senior vice-president, procurement, says “Expliseat’s expertise with lightweight and durable materials” will help the developer reach its weight and distance targets “while ensuring a premium passenger experience”.

Expliseat chief executive Amaury Barberot explains how the companies ended up working together. “Lilium wanted to design a platform that did not look like a helicopter, so they did not want a standard helicopter seat, but it still had to meet all the same safety requirements, such as the downward crash test,” he says. “We told them our background is in commercial so you will not get a traditional helicopter seat, but that we also make the lightest seat in the airline sector.”

The French company has built a prototype seat that has already “passed several development milestones”, including a crucial crash test, says Barberot. He reveals that other eVTOL developers have approached Expliseat, but “because everyone wants their own seat, we have decided to limit our discussions to and focus on around five that we think have the best chances to succeed”. However, Barberot insists: “It’s a market we are betting on.”

At least 10 start-ups have concepts in advanced stages of development. For technical, commercial or financial reasons, not all will make the finishing line. However, if even the most conservative market estimates are right, the industry will be building more than 1,000 UAM platforms each year by 2030. For Archer’s Montousse, the sector presents one of the most exciting opportunities for interiors suppliers in a long time. “I want designers to see eVTOL as the next frontier of creativity,” he says. ▶

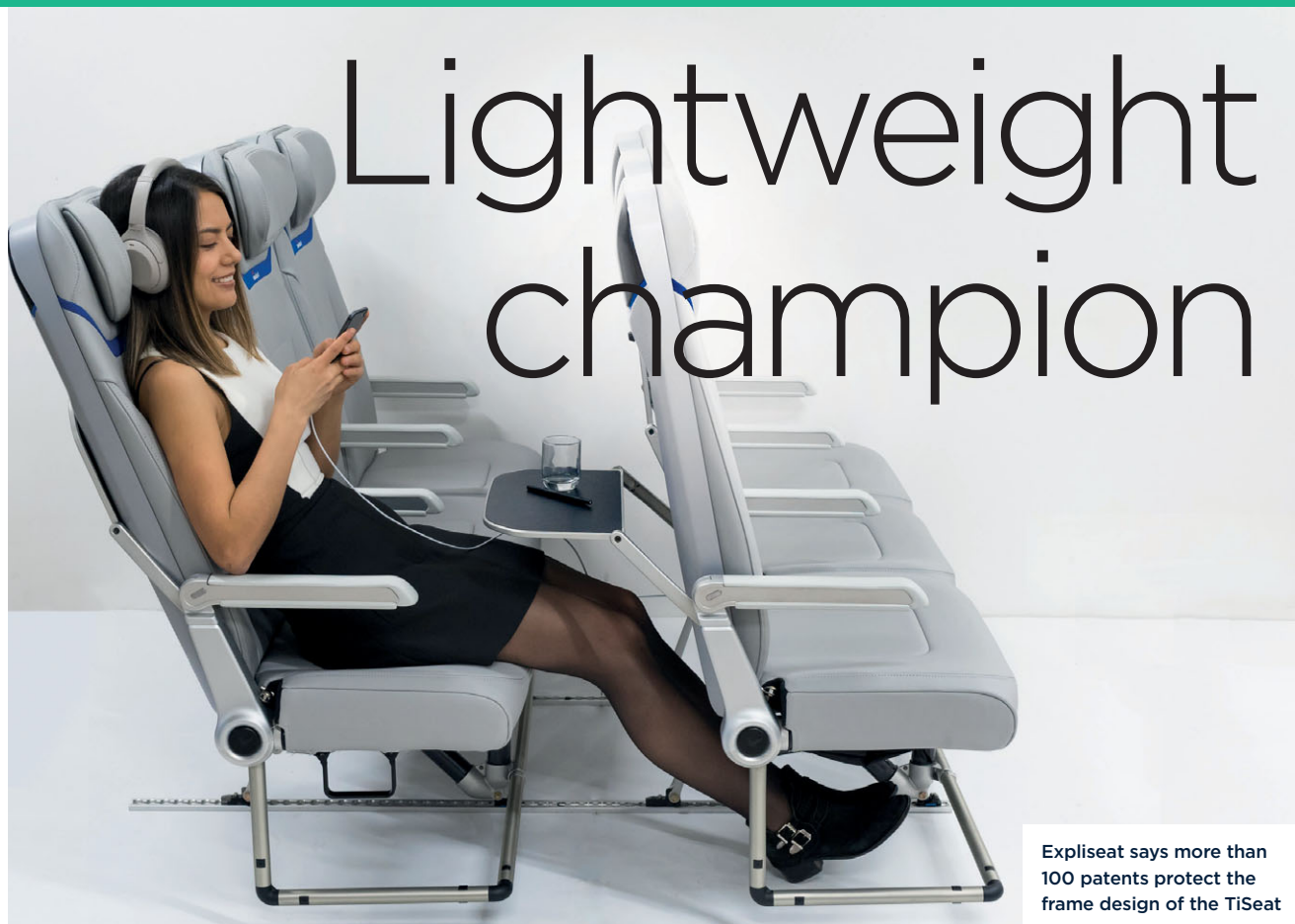
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# RECARO



Expliseat's founders set out to create the lightest airliner seat on the market. Just over a decade on, their innovative product is beginning to gain traction outside the regional sector



# Lightweight champion

Expliseat says more than 100 patents protect the frame design of the TiSeat

## Murdo Morrison

**T**welve years ago, four young French engineering graduates – with no real background in product development or aerospace – decided to make their mark on aircraft interiors. They would disrupt the commercial aircraft seating market by designing a lightweight product they believed would be radically different to anything the giants of the industry were producing.

“We were the generation of the [Airbus] A350 and A380 and the [Boeing] 787, which were embracing new materials such as titanium, but when we flew in one of them we could not see that technology in the cabin,” explains Amaury Barberot, one of the founders of Paris-based Expliseat, and its newly appointed chief executive.

The company claims its key product – the titanium and carbonfibre TiSeat – is the lightest in the industry.

The seat is approved for platforms including the A320, 737, ATRs, De Havilland Canada Dash 8-400, and Comac ARJ21. Since entering production nine years ago, more than 10,000 have shipped to customers such as Air Tahiti, Cebu Pacific, Porter Airlines and SpiceJet.

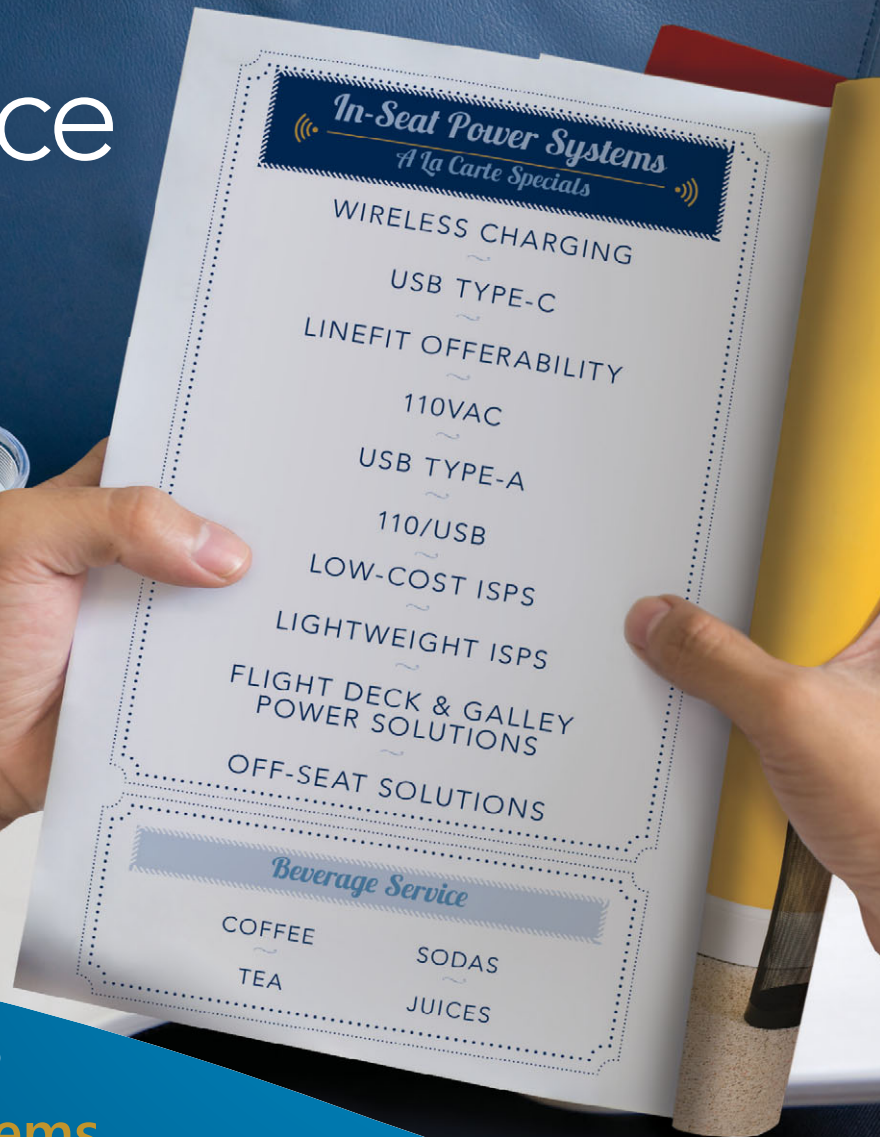
The company is marking three major milestones at AIX. The first is a recent injection of capital of around €17 million (\$18.6 million) partly from the French state investment fund. Until now, the company has depended largely on investment angels, including French business leader and one-time briefly Airbus boss Christian Streiff.

The second is the opening of a new 6,000sq m (65,000sq ft) final assembly line in Angers, which the investment will largely pay for. The factory will complement the company's existing production facility in Montauban, near Toulouse, and the headquarters and design centre in Paris's fashionable 11th arrondissement.

Thirdly, Expliseat has secured what it describes as a breakthrough Airbus deal. Kuwait's Jazeera Airways will



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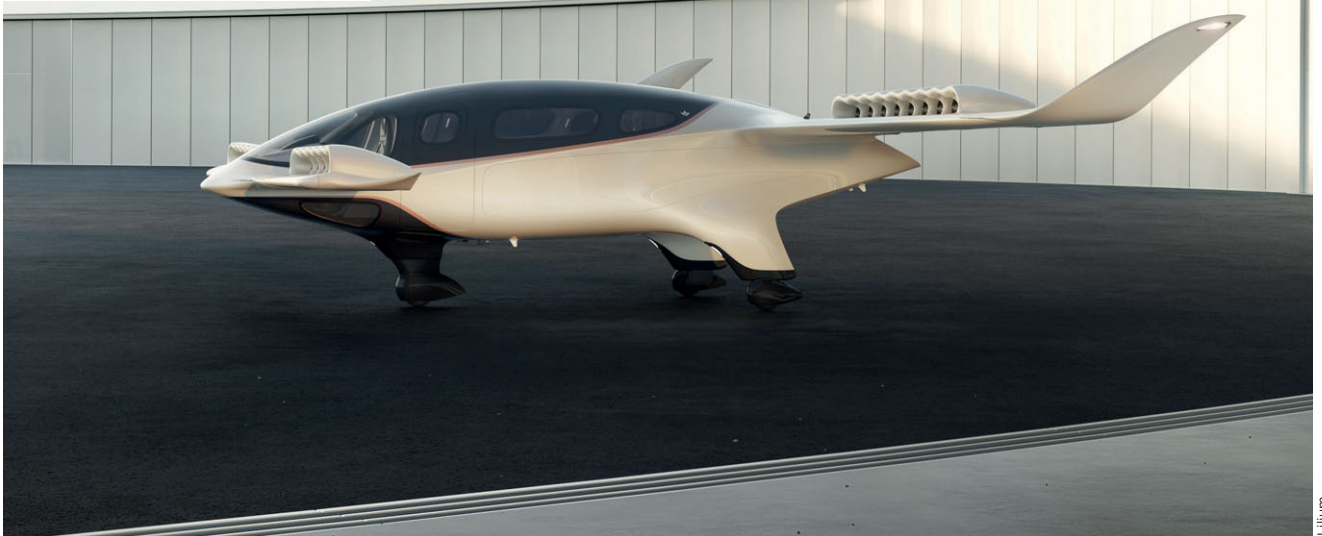
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The company is focusing on the emerging urban air mobility market and has a contract with Lilium



Lilium

reetrofit 11 A320s with the latest TiSeat. Until now, the vast majority of Expliseat's seats have been on regional aircraft. "We can now say we are serious about the single-aisle market," says Barberot.

As with most start-ups, Expliseat took some time to find its feet. Barberot and his co-founders spent the first three years finessing their design. Originally intending to create an all-composite structure, they settled for a titanium and composite mix. Barberot maintains that the TiSeat is still unique in the market in having a primary seat structure containing composite material.

After convincing the European Union Aviation Safety Agency to certificate their innovative seat in 2014, they won their first customer, delivering the first of what would have been 10 A321 shipsets to French charter carrier Air Mediterranee, only for the airline to enter liquidation a short time later.

Expliseat had more success in the regional segment, where the seat's weight advantage really paid dividends. Air Tahiti operated ATR 72s but was unable to sell every seat because of weight restrictions on short runways at island airports it served in French Polynesia. The airline retrofitted 10 of its turboprops turning a 500kg (1,100lb) weight saving into five extra tickets per flight, says Barberot.

After ATR approved it as a buyer-furnished equipment (BFE) supplier in 2016, Expliseat had further wins, including its first line-fit deals with ATRs. In 2017, it secured a BFE deal with SpiceJet, which was the launch customer for the high-density, 90-seat version of what was then the Bombardier Q400 – now the De Havilland Canada Dash 8-400.

By the time the pandemic arrived, the company had about nine customers. It had achieved its first supplier-furnished equipment (SFE) agreement with Chinese airframer Comac for the ARJ21, as well as its first retrofit deal on the 737 with Canadian leisure airline OWG. In 2021, in another landmark piece of business, Airbus included the TiSeat in its BFE catalogue for the A320 for the first time.

Expliseat is showing the latest version of the TiSeat, the E2 S-Line, at AIX. At 6.5kg the seat is slightly heavier than its predecessor – the company having traded some of the weight advantage for added cushioning and features, such as a bigger tray table, arms rests and a recline mechanism. However, Barberot claims it is still 1.5kg lighter than any rival.

More than 100 patents protect the frame design of the TiSeat and Expliseat has won an award for its strategy to protect its intellectual property. "A lot of competitors have reviewed our patents, but, we have done this for 10 years and no one has yet managed to copy it," he says. "We spend a lot of money protecting that IP. One day there will be another composite seat, but we have a head start."

As well as a push into the single-aisle market, Expliseat is also focusing on the emerging urban air mobility market, announcing at Hamburg last year that it will supply the pilot and passenger seats for the electric vertical take-off and landing jet from German developer Lilium. Barberot is convinced further opportunities will come in a sector where weight saving will also be at a premium.

The new factory in Angers, which comes on stream this year, will allow Expliseat to produce up to 25,000 seats in a year. However, the company will keep its head office in central Paris, where Barberot says it is easier to attract young talented engineers and which is more convenient for customers and its regularly travelling sales team.

Barberot believes Expliseat's weight-saving selling point adds considerably to its sustainable credentials. However, the company is also looking at the seat's recyclability.

It recently agreed with Air Tahiti to take back all of its first generation TiSeats that the airline was replacing on its ATRs, dismantle them, and recycle as much of the seat as possible into its new products.

"If the trial works," says Barberot. "We will extend the offer to all our customers as part of the contract when they buy new seats." ▶

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AIX is continuing its campaign to encourage more women into the sector and celebrate the successes of those who already work in it

# Gender agenda



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Report looks into what more needs to be done to improve gender diversity in the industry

## Kerry Reals

**A**IX is continuing its push for greater gender diversity within the aviation industry through a new campaign that celebrates influential women in the sector and shares their insights on how to ensure more female professionals come on board.

For the next chapter in its ongoing Women in Aviation campaign, AIX has published a report based on the experiences, successes, anecdotes and advice of 10 female leaders from across the aviation industry. Through a series of interviews with these women, the report details their achievements, what it's like to work in a traditionally male-dominated sector, how things have improved and what more needs to be done to further increase diversity.

"Being able to pull together the diverse and fascinating insights from the leading women driving the industry, and imparting their knowledge onto others, is a huge privilege,"

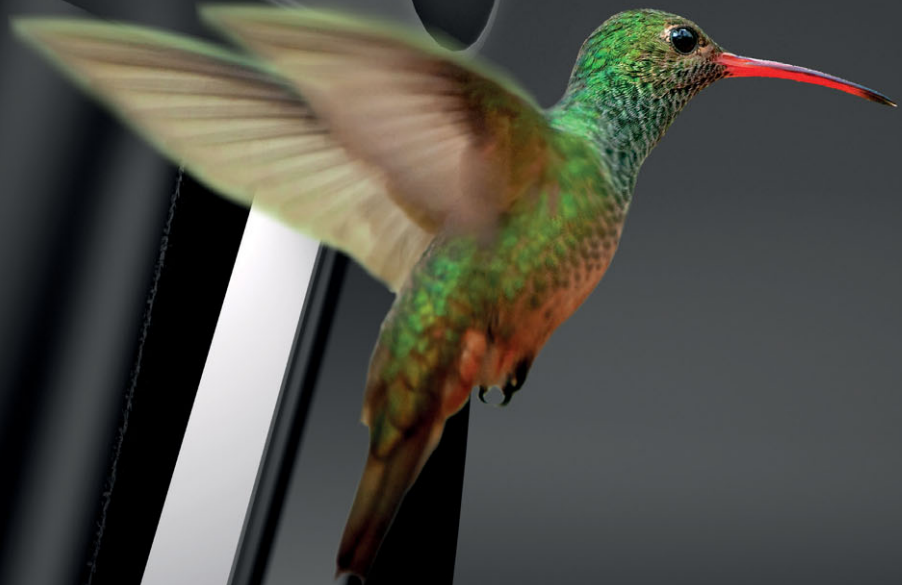
says AIX event director Polly Magraw. "AIX is the home of conversations that influence the industry of tomorrow, and by highlighting the achievements and challenges of these women, we can carve out a clear path to even greater diversity in the industry and encourage more influential, ambitious women to help drive it forward."

The Women in Aviation report features inputs from female executives at airlines including JetBlue Airways and Cathay Pacific, suppliers such as Collins Aerospace, and design companies such as PriestmanGoode and Teague. In addition to discussing their personal career journeys and offering advice to other women considering a future in aviation, participants give their thoughts on industry trends and what they see as the biggest challenges facing the sector.

Melissa Raudebaugh, general manager of in-flight service, fleet and galley planning at Delta Air Lines, says the aviation industry "has come on leaps and bounds" in the last five years when it comes to improving diversity in the workplace. **]**

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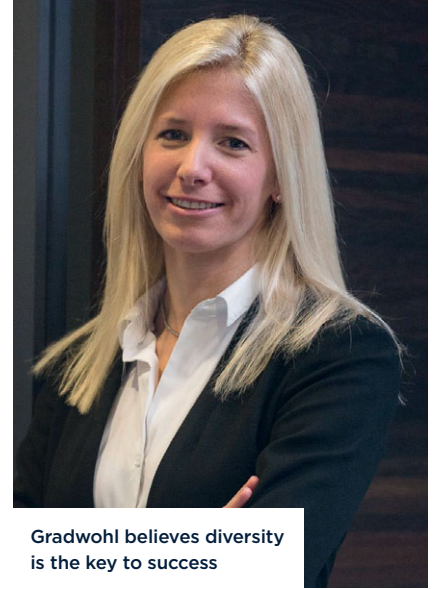
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**Nassar: Progress not at the speed we would like to see**



**Duffy: Having the wrong mindset is the biggest obstacle**



**Gradwohl believes diversity is the key to success**

“Companies are taking a closer look at how they’ve historically handled diversity and are making great strides in addressing this head-on,” says Raudebaugh, attributing progress to a “change in thinking”.

Alina Nassar, former president of the International Aviation Women’s Foundation, agrees that there is greater evidence of “concrete and consistent actions” to change companies’ policies on issues such as equal pay and diverse participation in decision-making processes. However, progress “has not been at the speed we’d like to see”, says Nassar.

She views reducing the aviation industry’s carbon footprint as the biggest challenge facing the sector, along with attracting and retaining the right talent, and boosting innovation.

“The more diverse and inclusive our teams are, the better prepared we are to face those challenges,” says Nassar.

Carrie McEwan, senior human factors specialist at Teague, also believes there is “still work to do” on promoting more women to leadership roles, but notes that things have improved since she started working in the aviation industry two decades ago.

“I’m excited to see that we’re continuing to increase the role that women will play within the industry at all levels,” says McEwan. She emphasises the importance to companies of listening to a diverse range of opinions when making decisions.

“Increasing diversity [and] including opinions, insights and inputs only helps expand and move the dialogue forward,” says McEwan. “I ensure I do this when I work with design teams – I do a lot of research and make sure we include a wide range of users’ perspectives, from passengers to flight attendants and maintenance crews, all from different backgrounds and cultures. It’s bringing that together to make things more pleasant and usable for everyone.”

McEwan stresses the need for self-advocacy and building up a “network of advocates”, noting that early on in her career she “didn’t feel empowered to stand up to” gender discrimination.

“I recommend reaching out to other women, seeing what everyone’s doing and learning from one another,” she advises female professionals considering a career in aviation. “There are a lot of places to network and build up a community and culture of women, so I encourage getting involved in those conversations.”

Anita Gradwohl, group director for customer relations and sales at Austria-based aircraft interiors specialist F/List, believes it is vital for women to have a “strong character” to thrive in the aviation industry.

“Fight for what you believe is right – in a professional and assertive manner – but have a good sense of humour to help smooth the way,” says Gradwohl, who began her aviation career 18 years ago as a dispatcher at Diamond Aircraft.

She still sees prejudice as being “the greatest obstacle preventing women from succeeding in the workplace”, noting: “Unfortunately, traditional gender roles are still dominant and some employers can view aspiring female candidates and employees as being a ‘pregnancy and family risk’. This creates a discrepancy in the gender mix in the workplace.”

Her advice to companies is to introduce more flexibility when it comes to working hours and locations, “to help mothers stay in the workforce”. Addressing the gender gap is “paramount” for businesses because diversity is key to success, in Gradwohl’s view.

“Studies have shown that mixed management teams operate more efficiently than the ones that are comprised of a gender majority,” she observes. “I firmly believe in the importance of diversity of thought – making the most of all team members have to offer.”

Shawn Duffy, chief financial officer at Viasat, which provides satellite-based in-flight connectivity services to airlines, believes the biggest obstacle to anyone’s success is having the wrong mindset.

She emphasises the importance of seeing challenges as opportunities rather than obstacles, and says the best piece of advice she ever received was from her father, who said: “Yes, you can. Give it your all and you can do anything.” ▶



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# Fizz-ness class

Amber Elias

Picture this. Royal nuptials in Abu Dhabi, crystal Champagne flutes in hand, but nothing to toast with. This is when Jennie Kergoat-Ruelland (*pictured*) knew she needed to fill a gap - and glasses.

"Guests had two Baccarat, crystal champagne flutes, and they filled them with smoothies - not chic! I looked at it and I said I had to find something," she recalls of the event, which she helped to organise as a wedding planner.

Kergoat-Ruelland had already swapped a career as an airline executive for event planning across the world. After her epiphany in Abu Dhabi just over a decade ago, she launched a premium sparkling glass of bubbles that could be enjoyed by everyone.

So Jennie is described as "premium luxury bubbles", without alcohol, which is an "elegant alternative" to Champagne and sparkling wine.

Launched in 2012 with a rosé, Paris-based So Jennie is at the show this year with its latest product: Blanc Dry. Exclusively produced from organic white grape musts, it has already been awarded the double gold medal from the Wines and Spirit Wholesalers of America.



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# Yes we can

**Amber Elias**

**P**ortland, Oregon-based Straightaway is a distillery that knows the secret to a good cocktail starts with its ingredients. It is tempting WTCE delegates with its range of instant cocktails in a can.

“We take the long way to make sure we get it right, that’s what a really great, world-class bar would do too,” says Cy Cain, co-founder & chief executive (pictured). “In our back bar we make all our own

bitters, Amaro, sweet vermouth, liqueurs and also blend our own gin.”

Travellers can avoid attempting to be a mixologist on their tray table with the convenience of a carefully measured drink.

“We focus on batching a cocktail the same way as a pinot noir would be put into a bottle, and the same way you make a hazy IPA beer. We wanted to make it as easy to have a world-class cocktail in a can,” says Cain.

Best enjoyed on the rocks at 35,000 feet.



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# Inspired by the sun

“If you’re flying in planes, tell me that you don’t have a picture from the window with a sunset or sunrise,” says Alberto De Lucio (pictured), senior vice-president of Linstol, who knows a frequent

flyer cannot pass up a good social media post.

Inspired by natural beauty, veteran exhibitor Linstol has a new collection of luxury amenity kits, headphones and travel accessories designed to

complement the colours of a sunrise and sunset.

“Sustainability for us is in everything that we do, but we do believe sustainable should be interesting, not just dark and ugly,” says De Lucio.



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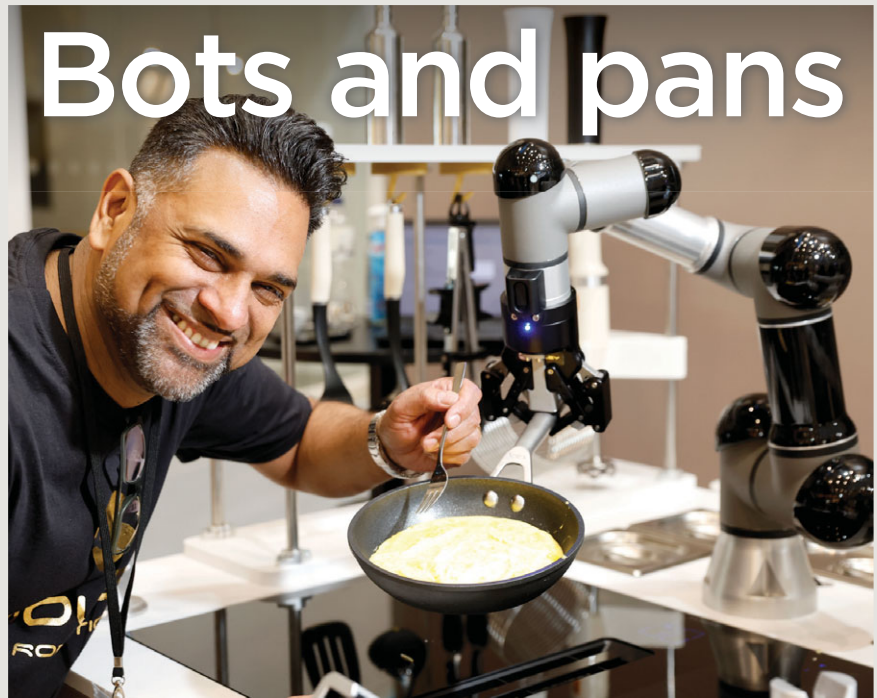
Meet the robochef. The centrepiece of the Moley Robotic Kitchen is a robotic arm fully equipped to cook an omelette from scratch.

Operated by a touch screen, users can choose from a range of pre-programmed dishes cooked with fresh ingredients and served piping hot.

The robot is part of a complete galley equipped with an induction cooktop, downdraft extractor fan, utensils and cookwear, and has the potential to free-up value crew time both in the air and in the lounge.

“It can be introduced into business and first class, in the galley system, and commercially it can be ramped up to have four or five arms to make any recipe,” says Darma Vaja, head of design and sales (pictured).

The only thing it cannot do is the washing up.



## Bots and pans

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## Closing the circle

Sustainability is a hot topic at this year's show, but it is debut exhibitor Stallion Barware's entire mission. Creating reusable products for catering and airlines from agricultural waste, the business has forgone plastic in favour of a bio solution.

Aiming to generate a circular ecosystem to keep waste out of landfill, Stallion Barware not only provides food and drinks service products to airlines and other travel companies but also collects used items back to manufacture into different products. Its customers include Indian airline Vistara.

“The idea is to close the loop and be more circular as much as an airline can be,” says Nishith Jardosh, chief executive (pictured).

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## Taste of Travel

### Theatre

#### What's on at the Taste of Travel Theatre - Hall A1

##### 10:45 - 11:30

*Winning Tactics for Boosting the Passenger Journey*  
 Nick Wiley, managing director, En Route, Brett Hooyerink, director of sales & culinary development, McGuire & Associates, Kirsten Perliski, director, hospitality and planning, United Airlines, Manoj Pridhanani, chief design officer, Kaelis

##### 11:45 - 12:30

*Living the High Life: What Commercial, Private and Executive Aviation Can Learn From Each Other*  
 Marc Warde, owner/director, Niche Free-From Kitchen, Daniel Hulme, CEO, OnAir Dining, Axel Bilstein, CEO, Flying Food



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# First-time Ferez

## Jon Hemmerdinger

A Kyrgyzstan supplier of inflight amenity kits is debuting at this year's WTCE, seeking to build on its current relationship with Air Astana.

Based in the city of Bishkek, Ferez & Co launched its amenity kits only one year ago and

makes the products in the central Asian republic, says lead product manager Alyona Sushkova (pictured left).

"We would like to show we have advantages," she says. "It's a big opportunity to show the world who we are."

Ferez makes its amenity bags from materials including cork, canvas and

Tyvek. It fills them with a host of handy products, from toothbrushes to shoe horns, lip balm to combs, slippers to hand wipes.

The company's current airline customer is Air Astana, based in neighboring Kazakhstan.

"We need to get more clients," says Ferez head of commerce Irina Udaltsova (right).





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## A taste of Portugal on TAP

Portuguese carrier TAP will offer its long-haul business class passengers the chance to try regional dishes prepared by top local chefs, through a new partnership with The Art of Tasting Portugal.

Every two months until April 2025, TAP's "Local Stars" initiative will showcase cuisine from different Portuguese regions, with each chef preparing a bespoke three-course menu for business class passengers.

"The Local Stars project allows TAP to work with some of the most reputable Portuguese chefs in the development of business class menus, bringing the gastronomy we serve on board our aircraft to new heights," says TAP chief commercial and revenue officer Silvia Mosquera.

Portuguese catering company CateringPor is overseeing the initiative.

# Emirates getting drastic on plastic

**Kerry Reals**

Emirates is handing out toy bags made from recycled plastic bottles to its youngest passengers and reusable amenity kits to long-haul customers, as part of efforts to reduce single-use plastics in the cabin.

The carrier has also introduced a recycling initiative, through which cabin crew collected and recycled more than 500,000kg of plastic and glass last year. Glass and plastic bottles from every flight that lands in Dubai are separated and sent to a local recycling facility.

Six years ago, Emirates began offering blankets made from recycled plastic bottles to economy passengers. Since then, the airline has started to provide complimentary toy bags and baby amenity kits made from plastic bottles and other sustainable materials.



The reusable amenity bags

"Each Emirates kids' backpack is made from 5.5 recycled plastic bottles and each duffle bag is made from seven," says the carrier. "The swing tags and even the outer cases the products are shipped in are made from recycled card."

Long-haul premium passengers are given amenity kits wrapped in washable, reusable paper pouches. Each contains a toothbrush made from wheat straw and plastic, along with socks and eyeshades made from

recycled plastic – all packaged in 90% rice paper.

"Consuming responsibly is a key environmental focus area for Emirates, [which has] embedded an environmental requirement in the supplier code of conduct and considers the entire lifecycle of products from the design stage," says the airline.

"For example, wooden tea and coffee stirrers, paper straws and in-flight retail bags are made using wood and paper from responsibly managed forests."

Emirates joins a growing list of airlines determined to remove single-use plastic products from their cabins. Chile-based LATAM Airlines Group, for instance, has set a target to replace 100% of single-use plastics with more sustainable materials by the end of this year. Similarly, Ryanair committed in 2018 to eliminate all non-recyclable plastics from its operations by 2023.

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## Growing onboard product market for Muslim airline travellers offers huge potential

# Halal opportunity

**A**irlines have yet to fully tap the potential of the Halal onboard product market, both for in-flight catering and cosmetics, amid growing demand for goods that have been prepared and handled according to Islamic law.

“Halal products may well still be an area of passenger growth that hasn’t been fully realised or leveraged by onboard suppliers,” says WTCE event director Polly Magraw, pointing to a Muslim travel market that is rapidly rebounding after the Covid-19 pandemic. “It is estimated that, in 2022, the 1.9 billion Muslims worldwide spent over \$2.02 trillion across six economic sectors, led by Halal food.”

As a result of the high number of Muslim passengers travelling on its aircraft, for instance, Qatar Airways has approximately 3,000 chefs producing over 200,000 Halal-certified meals a day.

“With Muslim passengers accounting for such a large growth sector, it’s important to understand how Halal offerings can factor into this,” says Magraw.

Research from MasterCard’s Global Muslim Travel Index shows that access to Halal food is the chief concern of Muslim travellers when travelling for leisure – making it a more important factor than price.

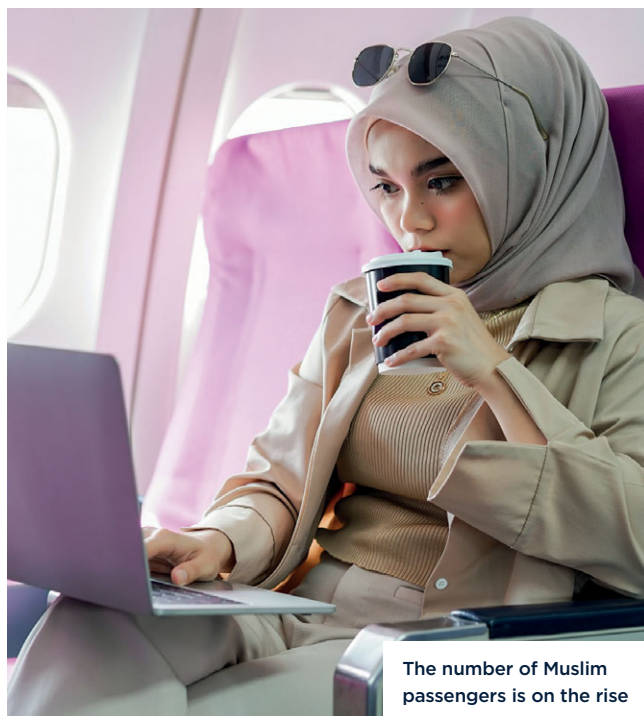
According to the Islamic Chamber of Halal Services (ICHCS), becoming Halal-certified gives airline buyers the opportunity to cater for all Muslim passengers’ needs and lets consumers know that they can trust an airline’s products to comply with their religious beliefs.

“As an example of trader responsibility, we have seen [some] airlines demand Halal certificates from all their food and beverage suppliers,” says ICHCS chief executive Ashraf El Tanbouly.

When it comes to food, Halal products have been prepared and handled according to Islamic Sharia law and do not contain any trace of pork or alcohol. There are also opportunities for airlines to target certain Halal products at passengers who choose to avoid meat or alcohol for non-religious reasons, further broadening their reach.

“The potential crossovers between vegan and Halal products open up the market significantly,” observes Magraw.

Several WTCE exhibitors have already spotted the potential of the onboard Halal products market and have worked Halal offerings into their ranges. For instance, Netherlands-based onboard snack solutions provider, Snackboxtogo, offers multiple items that are vegetarian or vegan and Halal at the same time, in order to appeal to a wider consumer base.



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**The number of Muslim passengers is on the rise**

Another exhibitor with Halal offerings is Italian master baker Laurieri Srl, which specialises in the production of baked sweet and savoury snacks. In addition to Halal products, the caterer’s range includes items that are chemical-, preservative- and colouring-free, lactose-free and vegan.

On the drinks side, So Jennie specialises in non-alcoholic sparkling wines. As well as bubbles, So Jennie makes a selection of Halal wines that are 0.00% alcohol by volume (ABV). Most of these alcohol-free or de-alcoholised wines are suitable for Halal certification, not simply the standard <0.5% ABV, which is the standard definition of non-alcoholic. The company is regularly audited to ensure its products meet Halal 0.0% requirements.

It is not only the Halal food and drinks market that holds potential for airlines; there is also a growing market for Halal cosmetics.

“In the cosmetics/pharmaceutical sector, the consumer demand is growing, but suppliers are not yet seeing the opportunities as clearly as food suppliers,” suggests ICHCS’s El Tanbouly. ▶



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