

Aircraft

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VOLUME 14 • ISSUE 02 • APRIL/MAY 2025

CABIN

Perfecting the passenger experience

Management



SEATS OF THE FUTURE

**The most essential element
of passenger comfort**

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AIX IS HERE

We preview the perennial interiors show, plus Crystal Cabin

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IN THE GALLEY

Onboard equipment meets the modern age

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SPACE MONEY

IFC is a huge investment, but who's ahead?

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CONSTELLATION CONSOLIDATION

As you'll read, in this issue we have some analysis on the seemingly unstoppable rise of Starlink, and the softer launch of the Amazon-backed Project Kuiper.

The article is written from the point of view of an investment banker, offering a fresh perspective on an issue that we've been covering here in *Aircraft Cabin Management* for the last few years.

Just as interesting is what is happening in the rest of the space communications industry. In the past year we have seen mergers between Viasat and Inmarsat, GoGo and Satcom Direct, Gilat and Stellar Blu among others. I note with interest a report in the *Financial Times* that mentioned how Leonardo, Airbus and Thales are considering a consolidation of their space units.

The issue here is that of money. Space is expensive, and it takes a serious amount of liquidity to be competitive in the communications industry; it seems that no matter how big you are, there is always more costly, highly technical work needed to improve your network.

For the most part, the passenger remains blissfully unaware of what is literally a battle of time and space. They will notice, and will complain loudly, if the latency is poor or if the service is patchy. We can't blame them either as the average cost to get online is around \$20, though some airlines charge much more.



▲ The future is in the stars... and it's expensive

There is always more costly, technical work needed to improve your network

For airlines, it means there will potentially be less choice in the market, although service levels will hopefully improve.

And while it looks like Starlink is making an unassailable lead, it pays to remember that nothing in tech is forever – just look at the situation currently facing Elon Musk's other company, Tesla.

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PUBLISHED BY

Real.
RESPONSE MEDIA

Unit 4, Cally Yard, 445 Caledonian
Road, London N7 9BG



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FEATURE

NEWS FROM ACROSS THE INDUSTRY

Business Briefing.



Onboard Systems

SINGAPORE AIRLINES TO DEVELOP AI WITH SALESFORCE

Software house Salesforce and Singapore Airlines (SIA) have announced that the airline is to incorporate various systems from the developer into its customer case management system, enabling it to deliver more consistent and personalised service to passengers.

Additionally, the two companies also plan to co-develop Artificial Intelligence (AI) solutions for airlines at the Salesforce AI Research hub in Singapore.

SIA will implement Agentforce, an AI system that deploys autonomous agents to perform specific tasks. This helps to streamline its customer service operations, allowing personnel to focus on providing enhanced and personalised attention in each customer interaction. Data Cloud, the hyperscale data engine built within Salesforce, powers Agentforce by combining relevant data together, enabling

the AI agents to better support the customer service representatives with personalised advice and solutions for the customers.

SIA will also use 'Einstein' generative AI capabilities featured inside Service Cloud to summarise customers' previous interactions. This will reduce average response times, facilitating more efficient and proactive customer service.

Mr Goh Choon Phong, CEO, Singapore Airlines, said: "The SIA Group has been an early adopter of Generative AI solutions, developing over 250 use cases over the past 18 months and implementing around 50 initiatives across our end-to-end operations.

“SIA Group has developed over 250 AI use cases over the past 18 months



Interiors

Thompson Vantage Business Class seats fitted on Aer Lingus

Irish-flag carrier Aer Lingus has taken delivery of its first two of six Airbus A321XLR aircraft. The new extra-long-range narrowbody aircraft is configured with Thompson Aero Seating's Vantage business-class seats on board.

Thompson Aero Seating, based in Portadown, Northern Ireland, was selected to provide its renowned Vantage seats.

The manufacturer worked closely with Aer Lingus and London-based design house Factorydesign to create and customise the perfect seat that will appeal to the airline's passengers through the provision of a bold look that embodies its dynamic brand.

Philip Howe, head of sales, Thompson Aero Seating, said: "We have worked with Aer Lingus for a decade and are currently the sole supplier of all its business class seats. This project has given us the opportunity to further cement the relationship, which is great for Thompson, Aer Lingus and for Northern Ireland."



Interiors

EVA AIR REVAMPS PREMIUM ECONOMY

EVA Air has unveiled its fourth-generation Premium Economy Class seats featuring a pitch of 42 inches.

Although the airline has a justifiable claim to having invented the Premium Economy class, this is the first time it has introduced a Premium Economy Class on the Boeing 787-9.

EVA Air says that the new seat elevates the design concept from an “upgraded economy” standard to a “business class-like” experience. The new Premium Economy Class features 28 seats

arranged in a 2-3-2 configuration. The cradle motion recline mechanism allows the seat cushion to slide forward and upward simultaneously, creating a comfortable recline equivalent to 8 inches while preserving space for the passenger seated behind.

The design boasts side privacy panels on the headrests and built-in reading lights. Each seat is equipped with a 15.6-inch high-definition screen. The tray table includes a stand for personal devices and the seats are fitted with 110V AC and USB combination sockets.

Airlines

Airspace cabin debuts on Wizz Air fleet

Wizz Air has taken delivery of new aircraft featuring the Airbus ‘Airspace’ cabin configuration.

The airspace cabin features a modern LED lighting system with multiple ambiance settings to enhance different phases of the flight and the overhead compartments are the larger and more modern Airspace type.

Accessibility has been improved with the introduction of braille signage

throughout the cabin. Visually impaired passengers will now have access to braille row number indicators and lavatory signage.

“We are thrilled to introduce the Airbus Airspace cabin to our fleet, setting a new standard for passenger experience,” said Michael Delehant, CCO at Wizz Air. Wizz Air is an all Airbus operator with a fleet of over 180 A320 family aircraft currently in operation.



BRIEFS

- Air New Zealand’s CEO Greg Foran (pictured) has handed in his notice. He will leave on 20 October 2025 and the board has begun the search for his replacement.

- Tech firm SITA has launched a global messaging solution designed to modernise ATC communications. SITA ATC Connect allows the sharing of flight information with air navigation service providers (ANSPs) quickly and securely worldwide.

- The UK government has published a consultation setting out how it intends to support the green fuels sector and provide certainty for SAF producers.

- Delta Air Lines is to fit the Hughes Simultaneous Multi-Orbit IFC package to its A350 and A321neo aircraft.

- Emirates will expand the list of cities served by its refurbished Boeing 777 to Seoul, South Korea and London Stansted.

- MRO provider FL Technics will be opening its own in-house sewing shop under the European Union Aviation Safety Agency’s (EASA) Part-21J approval, allowing it to offer its clients a broader range of services.

IN NUMBERS

460

Approximate number of companies exhibiting at AIX in 2025

£22.51

Mean average price of internet on board, according to eSIM provider Holafly

£100K

Engineers working for American Airlines now have six-figure salaries, thanks to a union deal



Interiors

FINNAIR DEBUTS REFITTED E190 CABIN

Finnair has held an event at Exeter Airport to show its refitted E190 cabin. The airline's investment will see seven of its E-jets refurbished, with the remainder of the fleet of 12 aircraft due to be completed by spring 2026.

The cabin features a mixture of Recaro R1 and R2 seats, both of which are lighter than their predecessors. The carpets have also been swapped out for a new, lighter material, reducing the overall weight of the aircraft, and the fluorescent strip lighting has been replaced by Cobalt LED units.

Various other interior elements are also being updated, with cabin design consultancy PriestmanGoode brought in to 'theme' the whole cabin.

Eerika Enne, Finnair head of inflight customer experience, said: "After receiving positive feedback following the rollout of our new long-haul cabin, we wanted to invest in our regional aircraft to further improve comfort on flights within Europe."

"We look forward to welcoming customers onboard our newly refurbished aircraft in the coming months. With new lighter seats and cabins, we know these aircraft will help Finnair fly into the future."

The E190 jet, operated for Finnair by Nordic Regional Airlines, operates a range of the airline's most popular domestic and European routes, including Edinburgh, Dublin and Manchester to Helsinki.



Materials

Muirhead designs seating for the visually impaired

> Glasgow-based Muirhead has announced a design concept which seeks to improve accessibility for blind and visually impaired travellers.

The latest in the firm's 'Sensation' collection highlights the importance of texture, colour contrast and tactile signposting to help passengers navigate their surroundings with confidence.

Following last year's neurodiverse-friendly aircraft seat covers, the Scottish supplier's 2025 collection seeks to inspire CMF designers as they envision the future of cabins.

Jamie O'Donnell, lead designer at Muirhead, said: "Blind and visually impaired passengers deserve cabin interiors that empower them to travel with confidence and dignity. Thoughtful seat cover design plays a crucial role in making that possible."

Beyond the surface

At F/LIST, we redefine high-end cabins. Inspired by the beauty of nature. Crafted with precision. Infused with tomorrow's technologies, and perfected to last. Since 1950.

AIX: BUILDING ON SUCCESS

Familiar concepts and a host of new exhibitors will join this year's Aircraft Interiors Expo

AIX, the bellwether event for airlines and cabin interiors professionals to shape the cabin concepts of the future, will return from 8-10 April 2025.

Held at the Hamburg Messe, the event will once again bring together the world's cabin interior and inflight entertainment industry, showcasing to airlines, leasing companies and private aircraft operators the sector's most innovative products, services and concepts.

Following the success of the 2024 edition, which attracted 12,000 professionals from around the world (a 22% increase on 2023), the organiser says that AIX 2025 will continue to build on last year's themes, including passenger experience, the cabins of the future and the role of accessibility.

All aspects of the cabin, from lighting, seating, galley equipment and LEDs to cabin management systems, IFEC hardware, communications and more, will be showcased at the exhibition for a 360-degree view of the sector.

Cabin concepts take off

Passenger Experience Conference (PEC) will take place in the A-Halls the day before AIX opens its doors on Monday 7 April.

The full day programme will feature high-profile industry leaders from sectors across the supply chain who will explore the most pressing issues and trends shaping the passenger experience. Past speakers from PEC have included representatives from Recaro, Safran, Collins Aerospace, Delta and Air Canada.

In addition, attendees of both the conference and AIX can maximise networking opportunities at the Welcome Party after PEC, which will offer a relaxed environment to build new connections after the day's conference.

Stay ahead

CabinSpace Live, the dedicated speaker theatre designed to explore the cabin of tomorrow and beyond, offers a platform for visitors to engage with the industry's experts, innovators and thought leaders. The 2025 seminar programme will offer three days of high-level sessions and panel discussions, sharing invaluable insights and case studies on topics such as inflight entertainment and connectivity (IFEC), commercial airline and business jet interiors, sustainability, accessibility and more.

"FROM PASSENGER WELLBEING TO STREAMLINING THE SUPPLY CHAIN, THESE NEWCOMERS EMBODY THE SPIRIT OF INNOVATION THAT DEFINES AIX"



1. F/LIST will debut its 'thin stone technology' 2. Cesium Astro will be exhibiting at AIX for the first time



Some of the highlights from the 2024 event



CABINSPACE LIVE

With AIX just a few weeks away, the organisers have announced the full programme for CabinSpace Live, demonstrating advancements in the future of aircraft interiors. Covering topics including IFEC, accessibility, sustainability and cabin refurbs, the programme will highlight developments and strategies for industry professionals.

Connectivity

Inside the IFEC Zone, the dedicated area focused on showcasing the sector's latest innovations, industry-leading exhibitors – including Panasonic, Expliseat, Rosen Aviation and Safran SA – will each demonstrate the latest innovations in hardware, software, digital tools and connectivity that will improve inflight entertainment, connectivity and overall operational efficiency.

The IFEC Zone will feature advancements in big data and analytics, cabin management systems, in-seat power and audio products, seat-back screens and wireless IFE platforms, serving as a hub for airline decision-makers to find solutions that enhance inflight services and passenger satisfaction. Key discussions will focus on improving onboard experiences

across topics such as digitalised cabins, the reduction of carbon footprints and the rising demand for passenger-friendly in-seat systems that support devices and offer personalised content.

Meetings

During last year's event, AIX Connect facilitated meetings, enabling attendees and exhibitors alike to build valuable business relationships, explore new projects and meet the industry's growing demand for collaboration.

This year's event is no different, with AIX Connect once again enhancing the event experience, allowing attendees to proactively schedule meetings with key contacts ahead of time using the show's planning tool. Its intuitive search function helps both visitors and exhibitors to discover new connections

CABIN REFURBS

The evolving nature of cabin interiors will be under the spotlight in 'Cabin Refurbishment: Tailored to Perfection'. An expert line-up will discuss how airlines can tailor refurbishment projects in response to changing passenger needs and operational considerations.

Speakers include Sébastien Koeck, marketing director Cabin Retrofit Services, commercial aircraft at Airbus; Brian Roland, director of Airline Relations at Astronics; Jennifer Coutts Clay, author of *Jetliner Cabins: Evolution & Innovation*; and Charlie McBride, senior project manager at PriestmanGoode.

CabinSpace Live 2025 takes place in Hall B1 Lower at the Hamburg Messe



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based on personalised matchmaking and to arrange meetings before even arriving in Hamburg.

Archana Dharni, event director for AIX, says: "It's exciting to announce that AIX 2025 is back in April. AIX is the essential meeting place for the aircraft interiors world, where the future concepts are first discussed and the challenges facing the industry are debated. AIX and PEC will continue to provide an unparalleled platform for airlines, designers, engineers, specifiers and manufacturers to find new solutions and forge powerful connections."

New Exhibitors

Around a dozen suppliers, including CesiumAstro, FDH Aero, F/LIST and Yokohama Aerospace America are making their inaugural appearance at the annual event.

This year's show promises pioneering displays and product launches from well-established as well as emerging companies based around the world. Attendees will find advancements in sustainable cabin design, with exhibitors presenting the latest in lightweight and eco-friendly materials.

The event will also launch the latest in IFEC technologies. Attendees can explore personalised audio experiences, high-definition displays and innovative connectivity solutions that keep passengers entertained and engaged.

New exhibitor CesiumAstro will demonstrate its satellite communication

1. Amerex Corp will be at the show for the first time demonstrating its Halotron fire extinguishers
2. Senior Aerospace BWT composite manufacturing



technology which will enhance an airline's in-flight connectivity and entertainment options.

As at previous editions, enhanced passenger wellbeing remains a focus, with airlines prioritising innovation through updated cabin lighting, air quality systems and design elements that promote relaxation and reduce stress.

Yokohama Aerospace America (YAA) will launch a PRM (Passenger with Restricted Mobility) lavatory module for the Boeing 737, designed with inclusivity in mind. Featuring touchless technology,

a smart mirror and foot-operated controls, the manufacturer says that this lavatory will offer a new standard for accessible air travel. YAA will also present its range of retrofit solutions for existing lavatories, including touchless upgrades and customisable design kits.

F/LIST will introduce its portfolio of premium cabin materials to the commercial aviation sector when it makes its debut as an exhibitor at AIX2025. A central highlight will be the F/LAB Stone Inlay. The inlay is highly durable, lightweight and easily maintained, yet adds sophistication to the inflight experience.

FEATURED COMPANY: BUCHER

Bucher's approach to aircraft interiors will be on display at this year's AIX, featuring an array of new and enhanced products. Attendees can explore a single-aisle aircraft cabin showcasing a versatile galley and the Bionic Partition Wall, both already in use with several airlines.

The company's SkyBassinet first seen at last year's event is now almost ready to take off and provide the highest comfort for the youngest passengers.

Meanwhile, the customisable class divider has been enhanced with new features.

Bucher is also expanding its tray table offerings with designs that combine functionality, space efficiency and passenger comfort.



The AIX booth will feature a twin-aisle centre galley from a renowned airline's current production series. This includes the airline stretcher equipped with ACE's Oxygen Medical Unit.

Visit Bucher at AIX in Hall B5, Booth 5D60



Product demonstrations and meetings at last year's show





Other newcomers will include Better-Mold (DG) Industrial Co. Ltd, specialising in high-quality moulded components; Fraunhofer IPK, a research institution driving innovation in cabin design and manufacturing processes; Amerex Corp, a leader in fire suppression systems for aircraft safety; Senior Aerospace BWT, providing advanced composite solutions for lightweight cabin structures; Robert Hofmann GmbH, contributing expertise in textiles and upholstery for passenger comfort; Von Roll Schweiz AG, developing sustainable materials for a greener cabin environment; Weihai Haima Carpet Group, producers of floor coverings for aircraft interiors; and F&S BV, experts in high-performance sealing solutions for optimal cabin pressure and comfort.

Archana Dharni says: "AIX has always been a vital platform for the aircraft interiors industry to connect, collaborate and propel itself forward. This year, we're already thrilled to welcome over a dozen new exhibitors who bring fresh perspectives and innovative solutions to the table. Their presence underscores the dynamism of our industry and AIX's role as a catalyst for progress.

"From enhancing passenger comfort and wellbeing to streamlining the supply chain, these newcomers embody the spirit of innovation that defines AIX."

Aircraft Interiors Expo (AIX) will take place in Halls B1-B7 at the Hamburg Messe, Germany, from 8-10 April 2025. The event will be co-located with the World Travel Catering & Onboard Services Expo. The badge covers entry to both events

▲ A presentation from Expleseat at the 2024 event

CABIN MANAGEMENT AT THE SHOW

This year, Aircraft Interiors Expo will welcome 56 companies bringing cabin management systems products and solutions to the show.

Like seating, galleys and galley equipment, cabin management systems has always been one of the most sought-after product categories at AIX. Here are some highlights we can expect from the upcoming edition.

TELEDYNE

Since its establishment in 1960, Teledyne has cultivated partnerships with civil and military operators globally, nurturing relationships with over 300 airlines, including the world's major carriers.

One offering is Teledyne ACES, the company's aircraft cabin air monitoring solution. ACES monitors and evaluates air quality in both the cabin and flight deck, utilising an array of sensor technologies to detect potentially hazardous contaminants that could compromise air quality.

ECLIPSE GLOBAL

Eclipse's Aero+ Software Suite manages onboard connectivity. Its IFEC products are designed to assist airlines in achieving their operational and business objectives. It is also integrated with IFE solutions that enhance the overall passenger experience.



1

The Aero+ Software Suite operates across all devices, facilitating control of in-flight networks. Offering a reliable internet connection for user devices, it optimises Voice over IP (VoIP) calls and video conferencing, ensuring uninterrupted communication. Moreover, Aero+ effortlessly integrates with customer ground networks, prioritising accessibility and guaranteeing end-to-end security through robust encryption protocols.

AXINOM CLOUD

Also in the show, the Axinom On-Board Cloud presents a streamlined approach to implementing cabin services, spanning entertainment, IoT and ancillary revenue streams.

By centralising on-ground service and data processes, including ingestion, management, packaging and targeting, it offers airlines a comprehensive solution tailored to their fleet's needs.



2

1. Teledyne ACES control tablet on board
2. Eclipse integrates with onboard IFE systems



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CRYSTAL CABIN AWARDS 2025

We run through the nominees and nominations for this year's trophies that everyone wants to win

The Crystal Cabin Awards are described by the organisers as “the world’s most prestigious honour for aircraft interior innovation” and who are we to argue? The ceremony, which is held in Hamburg during AIX covers advancements shaping the future of air travel comfort, efficiency and sustainability.

Scores of entries spanning major airlines, suppliers, manufacturers and

design firms from across the globe were narrowed down to 22 finalists across seven categories by a jury of industry experts. Among the new categories are “Accessibility”, “Cabin Technologies” and “Judges’ Choice: Airline Innovation”. All finalists have demonstrated their ability to improve passenger experience through ingenious cabin solutions and cutting-edge technology. Here is a rundown of some of the entrants.



Cabin Technologies

This new category unites innovations around systems, components and materials, providing insights into the future of the aircraft cabin.

Collins Aerospace has entered “Galley.ai”, an intelligent and connected ‘technological ecosystem’ that optimises crew efficiency by streamlining galley management and enabling communication between crew and passengers via artificial intelligence.

Meanwhile, Diehl Aviation aims to revolutionise cabin interiors with “eDecor”, a customisable, energy-efficient decor that enhances both brand presence and passenger comfort, changing the cabin’s appearance on the fly.

Invisible when not in use, Lufthansa Technik’s “Hidden TouchDisplay” is a customisable touch panel that integrates into any cabin’s design, delivering an effortless user experience while maintaining a sleek, uncluttered look.

1. Collins’ “Galley.ai” installation
2. Lufthansa Technik’s “Hidden TouchDisplay”
3. Diehl Aviation’s customisable “eDecor”



1. Cathay's Aria Suite with improved IFEC systems
2. The Airbus "A220 Airspace Cabin" concept

Passenger Comfort

The innovations in this category serve one purpose: providing a relaxed, enjoyable and care-free experience for air passengers.

Entrants include the Airbus "A220 Airspace Cabin", which extends the airframer's Airspace cabin concept to the smallest member of its commercial airliner fleet by adding XL overhead bins, Airspace lighting designs and improved power supply for passengers' devices.

Cathay Pacific, JPA Design and Reaktor have turned their attention to integrating business suite functionality

into the IFEC system of its Aria Suite with "IFEC: In-Flight Entertainment & Control", giving passengers control over many functions directly within the entertainment system's interface.

Meanwhile, long-haul ergonomics are at the centre of Comfort Motion Global's "Healthy Motion Seating" entry; this software, developed in cooperation with Thompson Aero Seating and Astronics PGA, proactively makes subtle adjustments to positions of seats fitted with electric motors to reduce fatigue and discomfort on long-distance journeys.

Judges' Choice: Airline Innovation

Another new Award for the 2025 season, the Innovation category recognises the role that airlines play in advancing the passenger experience ecosystem.

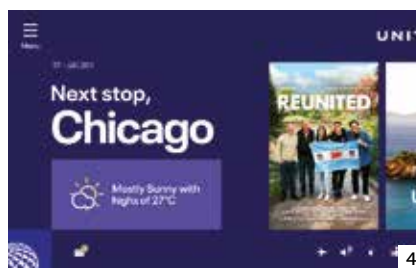
Selecting from entries by four airlines, the judging panel will be asked to honour one innovation with a special "Judges' Choice" award. The four airline innovations up for consideration have been submitted by Air France, Air India, Cathay Pacific and United Airlines.

The entry from Air France encompasses new cabins for the Embraer 190 single-aisle aircraft that are due to enter line service in early 2025. The cabin features new leather seats by French manufacturer Explicseat that are 30% lighter than the current model.

Air India's entry is Vista, an IFE system designed to prioritise the personal needs of the customer and offer a connected and immersive experience above the clouds.

A more artistic approach is Cathay Pacific's "Gallery In The Skies" which puts works of art into gallery spaces aboard its Boeing 777-300ER aircraft, using design to create an "inspiring art viewing experience" onboard.

United Airlines' new digital platform – "United's Onboard Digital Experience" – is something that we haven't experienced for ourselves, but is said to deliver 'personalised experience and relevant information' on the carrier's fleet of over 1,000 aircraft.



1. Air India's 'Vista' IFE system
2. Air France's Embraer cabin with new leather seats that are much lighter than their predecessors
3. Cathay's inspirational "Gallery in the Skies"
4. United offers a personalised approach with its "Onboard Digital Experience"

CRYSTAL CABIN, WHAT, WHEN AND WHERE?

The Crystal Cabin Award, an initiative of the Hamburg Aviation cluster, will be awarded this year in seven categories: Cabin Technologies, Passenger Comfort, IFEC & Digital Services, Sustainable Cabin, Accessibility, University and Judges' Choice: Airline Innovation.

The finalists will have the opportunity to present their concepts in person to the jury at the world's leading trade fair for aircraft cabins, the Aircraft Interiors Expo (8-10 April in Hamburg). The winners of the Crystal Cabin Awards will be announced on the evening of 8 April at a gala dinner at the five-star Grand Elysee Hamburg hotel.

Held since 2007, the Crystal Cabin Awards have captured the attention of the public and the mainstream press, as well as the airline trade, with articles often covering the more eye-catching winners in newspapers and on TV.

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Aviation

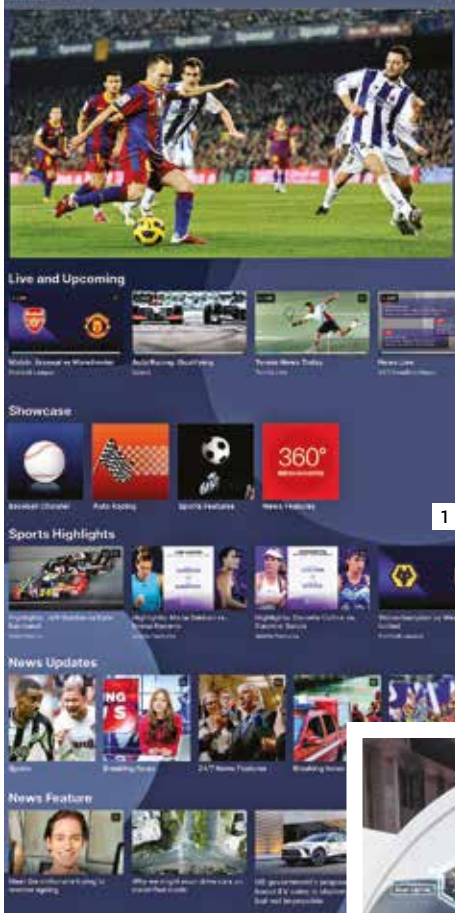
 **IMAGINE**

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**YOU INSPIRE
WE CREATE**



1. Thales' "360Stream" promises top-speed connectivity
2. Safran's "Connected Interiors"
3. VIP passengers will benefit from the "Triple Innovation for a Five Star Cabin Experience" technology

IFEC & Digital Services

Seamless connectivity and personalised content delivery is the dream of most carriers, and this Award celebrates the innovation that brings this technology a little closer to reality.

Focused on the needs of VIP passengers travelling on Boeing 737s, Lufthansa Technik, Satcom Direct and IDAIR have collaborated on "Triple Innovation For A Five Star Cabin Experience", a combination of a radome, an electronically steered LEO antenna and an integrated content delivery system designed to maximise in-cabin experience for the VIPs.



Sustainable Cabin

Sustainability is more than a meaningless buzzword at the Crystal Cabin Awards, instead recognising an industry-wide movement towards saving emissions, reducing waste and introducing circularity into processes and products.

This year, Boeing, Adient Aerospace, BotanyWeaving and LanzaTech have teamed up to enter "From Waste Carbon to Cabin Comfort: Bringing Circularity to Aircraft Textiles". Using carbon capture technology, the system transforms carbon emissions into sustainable fabric for the aircraft interiors industry, providing multiple ways of reducing the environmental footprint of textile production.

Another entrant, Diehl Aviation has chosen to concentrate on materials circularity for its 2025 entry, "ECO Bin". Billed as the world's first fully recyclable overhead stowage compartment, it features a specially developed recyclable sandwich material and reduces environmental impact by saving weight and CO₂ emissions.

Completing the three finalists for the Sustainable Cabin category in 2025 is Unum Aircraft Seating, whose entry "Ecoprint Refoam" utilises additive manufacturing techniques to create a lightweight, recyclable replacement for traditional polyurethane foam stacks in aircraft seating.



1. Diehl Aviation's "ECO Bin" prototype
2. The "Ecoprint Refoam" by Unum Aircraft Seating



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Accessibility

Accessibility is now an award category at the Crystal Cabin Awards in its own right as it has become a vital part of modern cabin design.

Cathay Pacific has reached the final with an innovation to make its Aria Suite business seat more accessible for wheelchair users. Known as “Seamless Accessibility”, the concept integrates a movable door garage specifically created to make transitioning from a wheelchair to a passenger seat easier.

Collins Aerospace's entry, “Prime+”, is a cabin platform system that enables for

wheelchair users to fly while seated in their wheelchairs, completely removing the need to move from a wheelchair to an installed seat.

“Space3” by Diehl Aviation adopts a flexible approach to accommodate wheelchair users in aircraft lavatory areas, incorporating several features such as foldable doors and sinks, while saving up to 80kg of weight.

1. Cathay's Aria Suite business seat has “Seamless Accessibility”

2. Diehl “Space3” adds flexibility to lavatory areas

3. Collins’ “Prime+” allows users to fly while seated in their wheelchairs



3

University

A hotbed of innovation, the university category opens the Crystal Cabin Award to blue-sky concepts from university students.

Hamburg University of Applied Sciences (HAW) cooperated with Diehl Aviation on “Single Aisle Lavatory Door 1 - Accessibility for all”. The concept is for passengers with reduced mobility on single-aisle aircraft using the lavatory space in a way that allows users to travel independently. The lavatory features a layout that accommodates a wheelchair and provides room for a support person.

“Ultra-lightweight Display System” by students from Tongji University in cooperation with Boeing leverages miniature projectors and gesture recognition technology to deliver a new in-flight entertainment system. Each



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projector can use surfaces like seatbacks, tray tables, windows and cabin partitions as a display.

Finally, the students of UDIT Universidad de Diseño, Innovación y Tecnología in Madrid in cooperation with Iberia have entered “R.A.I.S.S.” or Restroom Autonomous In-flight Sanitising System. This robotic system cleans the floor after each use, and incorporates additional highlights such as an interactive screen, an island-format sink and a self-cleaning toilet system. ●



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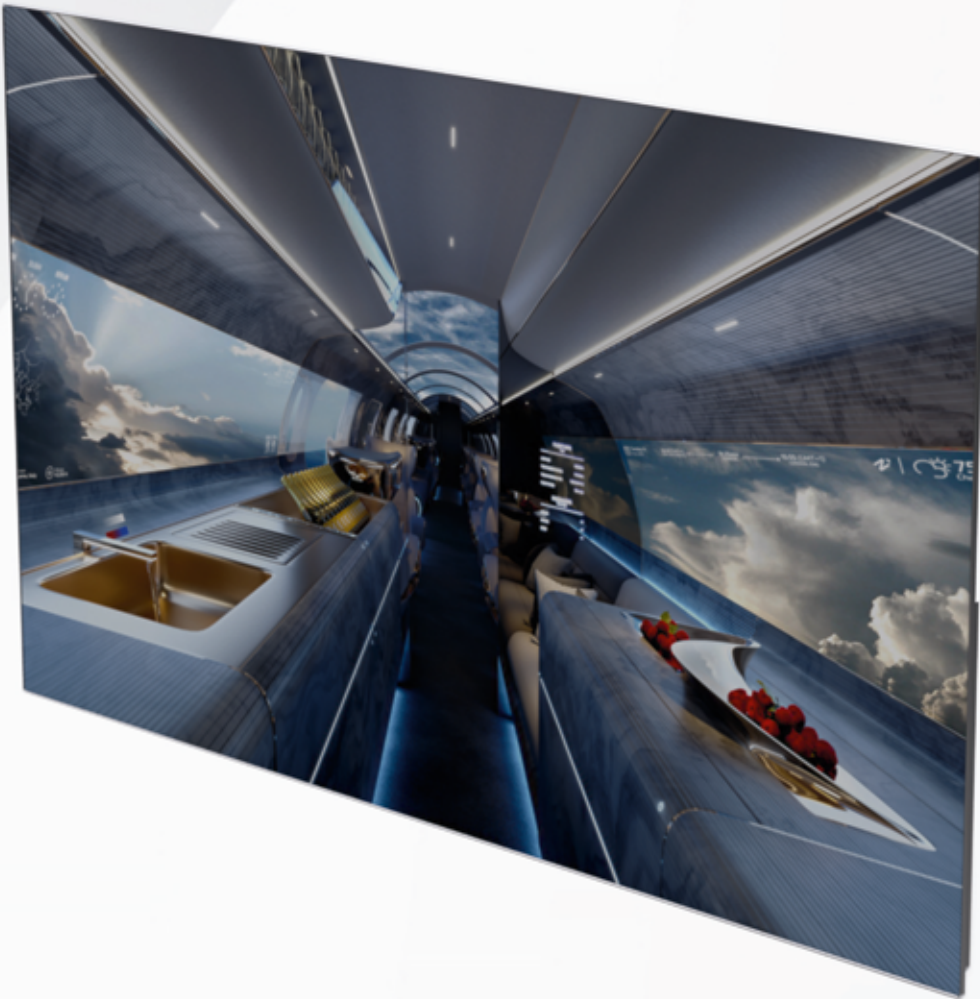
3

1. Hamburg Uni's accessible lavatory concept

2. The “R.A.I.S.S.” system has autonomous robot-based cleaning options

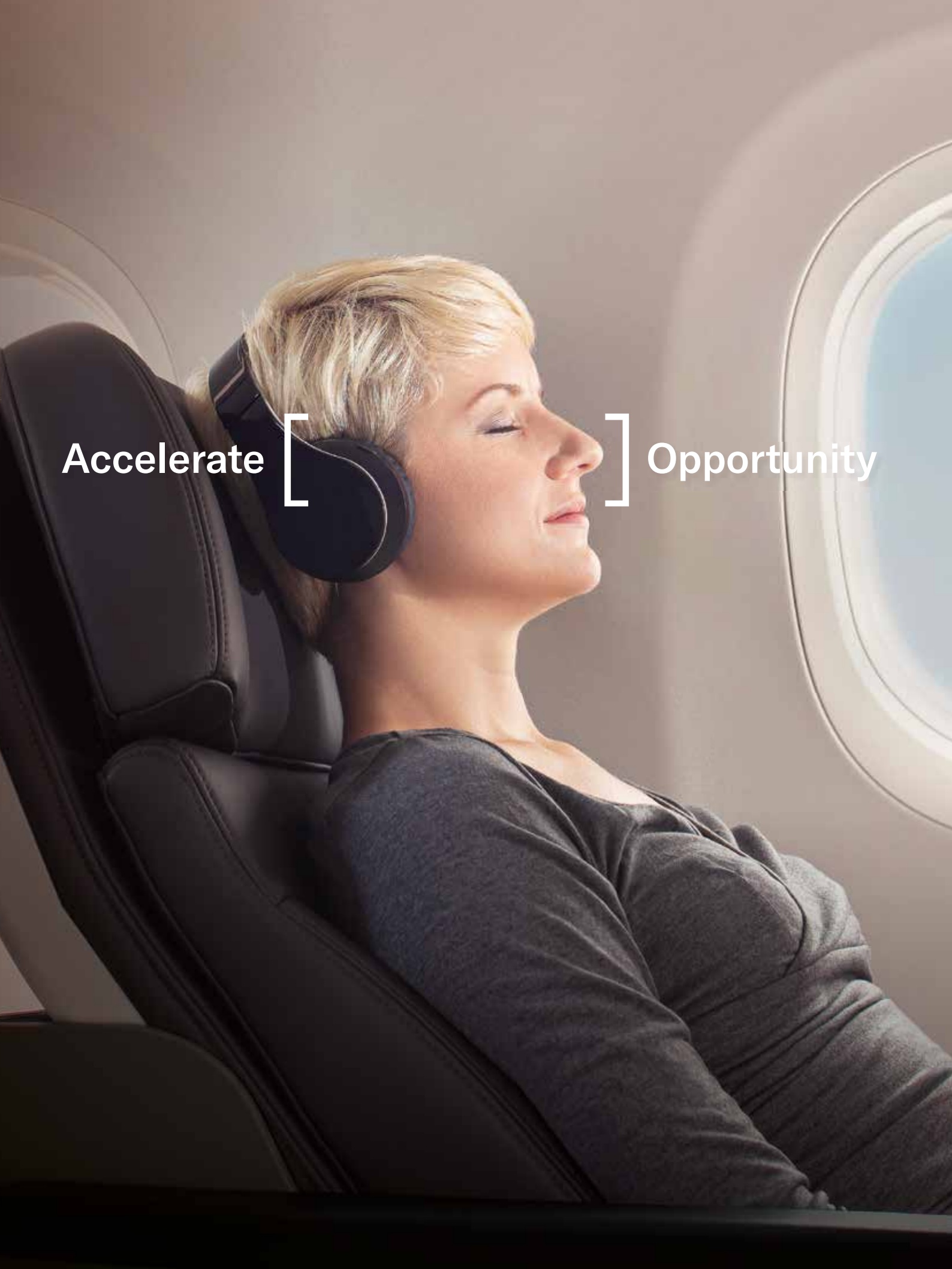
3. Tongji's “Ultra-lightweight Display System” uses miniature projectors and gesture recognition

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RACE TO THE SUN

Holiday airline SunExpress has ambitious expansion plans, but has supply and training issues to resolve first



“Yes, our customer service has lagged. We’ve been very transparent about this and we do need to beef it up”

MAX KOWNATZKI
CEO of holiday
airline SunExpress

“We don’t have lie-flat first class with a compartment that closes up, but we have a spirit and a warm heart that you’ll feel in the cabin.” These are the words of CEO of holiday airline SunExpress Max Kownatzki, speaking to an audience of around 200 people from the tourism industry around the carrier’s base at Antalya in February.

He has every right to be in an ebullient mood. The airline, which is now 35 years old and a joint venture between Lufthansa and Turkish Airlines, has grown substantially from its days as a simple holiday airline ferrying tourists between bases in Europe and Turkey. Today it operates 200 routes across 35 countries and connects most countries in Europe with Turkey. It carries 1.5m passengers a year, with a split between seats booked by tour operators and those booked directly by passengers for point-to-point travel.

The airline has also won a Skytrax award for being the best holiday airline in Europe and has ambitious growth plans which involve flying to additional destinations, aided by an expanded fleet



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of up to 70 new MAX-8 and MAX-10 jets. However, there are several challenges that the airline will need to overcome to achieve this growth.

One-star ratings

While Skytrax is satisfied with the quality of the airline’s service, the travelling public, arguably a far more important jury, have not given SunExpress such a rapturous welcome. Currently the airline ranks 2.5 out of five on Tripadvisor and just 1.5 out of five on Trustpilot. Even on Skytrax’s own website the airline scrapes just four out of ten from passenger reviews.

The same complaint keeps coming up, namely a lack of coordination in dealing with problems when things go wrong. A lack of process to deal with lost bags, chaotic check-in counters and befuddling online operations have all conspired to make the airline unpopular with travellers.



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“
Offering premium classes needs to be a conscious decision
because it comes with a whole avalanche of cost
”



3

Asked about the issue, Kownatzki comments that the airline has grown significantly over the past couple of years but adds, “Yes, our customer service has lagged. We’ve been very transparent about this and we do need to beef it up.”

He continues: “There is a second part which is that the expectation level and the volume at which these topics are voiced differs from country to country. UK passengers are more vocal, although I’m not trying to shy away from the operational issues that we’ve had.”

Moaning Brits aside, Kownatzki also points to multiple air traffic control issues, both in Europe and in Turkey. “We’ve had significant delays which, coupled with high aircraft utilisation, had a ripple effect,” he explains.

“Last summer was like that. We’ve addressed this topic by creating a ‘Summer Task Force’, not only to avoid it happening in the first place, but also to have better customer communication.”

1. SunExpress has just celebrated its 35th anniversary 2. The public have given the airline mixed reviews 3. SunExpress carries 1.5m passengers a year 4. CEO Max Kownatzki is in ebullient form

Apart from training staff to manage customer situations and to “humanise when irregularities happen”, Kownatzki also mentions that he has been looking at ways to automate cabin operations in a bid to bring further efficiencies on board.

Premium economy

‘Pure play’ low-cost carriers traditionally haven’t offered anything other than the seat and a few add-ons such as extra luggage and chargeable snacks on board. SunExpress has never described itself as such, preferring the term ‘holiday airline’, but with a no-frills approach and an aircraft utilisation of 16.5 hours a day, it does not pretend to be a luxurious full-service carrier.



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FACT FILE: SUNEXPRESS

Foundation: SunExpress was founded in October 1989 as a joint venture between Turkish Airlines and Lufthansa.

Headquarters: The airline's main headquarters is located in Antalya, Turkey, with a secondary headquarters in Frankfurt, Germany.

Fleet Size: SunExpress currently operates a fleet of 70 737-family aircraft.

Destinations: The airline serves 90 destinations in 30 countries, including Europe, North Africa, the Mediterranean, Black Sea and Red Sea regions.

Firsts: SunExpress was the first private Turkish airline to offer international scheduled flights, starting with its Antalya-Frankfurt route in 2001.

Employees: The airline employs around 5,000 people.

Awards: SunExpress has received several awards, including being named the "World's Best Leisure Airline" by Skytrax in 2022, although the airline has experienced some customer dissatisfaction since its expansion.

However, some traditional LCCs now offer a 'premium' experience for passengers that want to pay to upgrade. While this option is something that is being looked at "continuously", offering extras is something that Kownatzki is wary about.

"We need to be sure that we don't inadvertently lose the DNA that we have," he states. "We have crew utilisation of 94%, even in the winter time. If you start changing things up, such as offering a lounge or a business class, you start diluting that, and there is an expectation to drive you into other service areas. That needs to be a conscious decision because it comes with a whole avalanche of cost."

With that said, Kownatzki is aware that there are many passengers, and golfers in particular, that are able and willing to pay more for a better flight experience with packages that include a pre-booked hot meal onboard, extra legroom, priority boarding and carriage for the golf bag.

He says, "I believe that we have hit a good compromise between offering a more premium, more seamless offering while not diluting our low-cost production capability. I think that's kind of the balance we're trying to strike."

Aircraft pipeline

The airline is one of a small number that has come out the other side of the pandemic and immediately expanded operations to a significantly higher level than before the crisis.

Plans have been made to expand still further, with scores of MAX jets on order to both update the existing fleet and to expand into new markets. However, the airline's expansionist dreams are

1. SunExpress promises passengers will enjoy a warm welcome in the cabin 2. The airline has a large order with Boeing, but has become frustrated with the airframer's delivery schedule

being hampered by the well-publicised problems at Boeing.

"We're not happy with the delivery schedule, and you can quote me on that," states Kownatzki. "Would we like Boeing to step up the delivery process? Yes, of course. But as you know, Boeing planned an output of about 64 Boeing 737s per month. There's currently a cap in place of 38 aircraft. This cap by the FAA is also being upheld by the new FAA administrator under the Trump administration, so there's no movement on this, but right now they are not even close to the 38-unit cap – output is in the twenties."

For the record, Boeing plans to ramp up production of the 737 line to the FAA limit by mid-2025. However, there is a huge backlog to be worked through, with orders for over 5,500 aircraft valued at an eye-watering \$435bn. This includes an order for 100 aircraft for SunExpress's rival, Pegasus.

The airline currently has orders for 53 737 MAX-8 and 17 MAX-10 aircraft with options for 45 additional planes. "We are very happy with the aircraft and we have a trustful relationship with Boeing itself, so we're on good terms with a very open dialogue and communication with the company on this topic," Kownatzki concludes. ●

2



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CHINA CALLING

Bruce Andrews and Connor Bernard of
Alderman & Company explain why aerospace companies
should embrace Comac despite trade war fears

The arrival of the Comac-designed C919 is potentially disruptive to the current duopoly of Boeing and Airbus in the commercial aerospace market.

Let us first give you a brief history and some design details and then we will discuss how we see the evolution potentially accelerating.

Fifteen years after its initial development, China's state-owned Commercial Aviation Corporation of China (Comac) C919 completed its maiden commercial flight on 28 May 2023, from Beijing to Shanghai, marking a significant milestone.

It had been a long road for the C919. In 2009, Chinese state media reported that its maiden flight could be expected as soon as 2014, but various delays due to production issues kept the C919 grounded until 2017.

The C919 faced further issues after the first Trump administration added Comac to a military blacklist, barring all US investment in the company.

However, in November of 2021, the Biden Administration removed Comac from the blacklist, paving the way for the C919 to receive its type certificate from the CAAC.

What followed was a period of accelerated progress for the aircraft after many years of issues and delays. In November of 2022, Comac received 300 orders of the aircraft from seven different state-owned leasing firms.

Conservative design

The design of the current C919 is a conservative one, similar to the 30-year-old design of the Airbus A320 than the more efficient A320neo and 737 max. The structure consists of 8.8% third-generation aluminium-lithium alloy and 12% composites.



“There is no doubt that the C919 and its derivatives will rapidly evolve to be fully competitive with Boeing and Airbus aircraft”

BRUCE ANDREWS

partner at Middle Market aerospace and defence mergers and acquisition bankers Alderman & Company

Currently, the base model of the C919 can fly up to 2,200nm, compared to around 3,500nm for both the A320neo and 737 max.

The centre wing box, outer wing box, wing panels, flaps and ailerons are built in Xi'an, while the centre fuselage sections are built-in and aircraft and assembly are done in Shanghai.

Though Pratt & Whitney offered its PW1000G engine, Comac ultimately chose to use CFM International's LEAP-1C engine for the C919.

Comac would like to integrate the Aero Engine Corporation of China's (AECC) CJ-1000 engine, which the AECC expects to be certified by 2025.

The C919's catalogue price is \$99 million per aircraft, which is lower than the Airbus A320neo (\$111 million) and Boeing 737 MAX 8 (\$121 million).

These prices are often heavily discounted in actual sales and the C919's competitive pricing is intended to attract budget-conscious airlines, especially in China's domestic market.





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Although list prices are not published, estimates put the C919 at around \$90-\$100m, around 20% less than the duopoly

◀ While good value, the C919 aircraft remains uncertified in much of the world outside of China

The lower production costs are partly attributed to government subsidies and the use of established, less advanced materials and technologies.

We believe the C919 is unlikely to disrupt the dominance of Boeing and Airbus in the immediate near term.

Government support

However, with its government support and substantial orders from Chinese airlines, along with the production delay problems at both Airbus and Boeing, we believe the C919 may have an opportunity to gain market share from the powerhouses – Boeing and Airbus.

As for breaking into Western markets, the C919 first needs certification from the FAA and EASA. Comac is steadily advancing toward EASA certification for its C919 aircraft.

In mid-2024, EASA conducted on-site evaluations, including tests of the C919's Level D flight simulator, as part of the third phase of its certification process.

With positive feedback from these assessments, flight testing under EASA's supervision is expected to begin in early 2025. Securing FAA certification, however, has proven more challenging.

Comac began aligning the C919 with US Federal Aviation Regulations in 2018, but progress has been hindered by delays, not the least of which includes

the potential for a Trump administration trade war with China.

The aircraft remains uncertified for US operations, with experts estimating it may take several years for approval.

These are significant hurdles, not to mention geopolitical challenges, but if and when Comac can clear them, it could then potentially position itself as a serious competitor in the global market.

As middle market A&D experts, we have already seen the impact of companies in this sector in the US and Europe, because of Comac's ability to rapidly grow the C919's production rate.

Backlog issues

As the C919 backlog increases and demand for US and European components also increases, Comac has begun setting up sales offices in other countries and has landed its first non-China based customer with Indonesia's carrier Trans Nusa.

With Chinese resources and its well demonstrated military aircraft advanced designs and production rates, there is no

doubt that the C919 and its derivatives will rapidly evolve to be fully competitive with Boeing and Airbus aircraft.

While a potential Trump administration trade war with China is of concern, our view and recommendation are for the US and European middle market commercial aircraft supply base to take the Comac C919 seriously.

Both Boeing and Airbus are having difficulties delivering sufficient numbers of aircraft to their customers and Comac will likely represent a viable alternative (especially for airlines in developing nations) and enable them to receive aircraft long before Boeing and Airbus can deliver.

The time for American and European middle market aerospace companies to strengthen their business long-term is now by embracing Comac as a customer, despite the potential trade war uncertainties associated with this approach.

We believe that having Comac as a customer may enhance the value of middle market A&D suppliers. ●

“OUR RECOMMENDATION IS FOR THE MIDDLE-MARKET AIRCRAFT SUPPLY BASE TO TAKE THE COMAC C919 SERIOUSLY”



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1. F/LIST has previously been a supplier for private jet interiors, but is now preparing to scale up for commercial airline production levels

2,3 & 4. The technology of the Stone Inlay product piqued the interest of an industrial design house for a major airline client



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“THE MARKET IS HUNGRY FOR NEW MATERIALS, ESPECIALLY FOR NATURAL MATERIALS”

MAKING THE LIST

Wellbeing is at the heart of one firm debuting at AIX

As you'll read elsewhere in this edition, there are scores of companies making their debut appearance at AIX.

Among them is Austria-based interior supplier F/LIST. While it will be new to the show, it isn't new to the industry having been a certified interior supplier, mainly for private aircraft, for decades. In more recent times, it has added commercial aviation to its portfolio.

A highlight of the products exhibited at the show will be the Stone Inlay, which has been designed in-house at the firm's R&D facility known as F/LAB.

“At first, commercial aviation wasn't our focus,” explains customer relations director Anita Gradwohl, when we ask why the company has chosen to enter the competitive commercial aviation space, “but instead the market came to us.”

Industrial design

Gradwohl explains that F/LIST were approached by an industrial design consultancy back in 2017 with an idea for an airline interior project. “The designers were interested in our thin stone technology,” she says.

The technology she refers to is an inlay of natural stone, which can be used on surfaces in the aircraft cabin. It provides an interesting and attractive alternative to the veneers and simulated wood often associated with aircraft interiors.

F/LIST were excited by the project, although it needed to get up to speed with the different requirements needed in the commercial aviation sector. “We did all the testing and on completion

the first airline was delighted with it,” Gradwohl explains. Since then, the company has constructed thousands of pieces and is in talks with manufacturers about further implementation of its products.

Stone is not a normal product to find onboard, and to Gradwohl that is part of the attraction. “We like unusual things as they create something new. We like to push boundaries and together with our customers we like to try new things.”

Attendance at AIX will mark the firm's wider appearance in the commercial market, of which Gradwohl says they have only scratched the surface so far. “Manufacturers of business and first-class seats are getting interested, so we will not only show the Stone Inlay product in our own booth, but there will be four or five seat manufacturers who will also have this product implemented, as well as some of our other products.

“I'm super excited for the show and the market is hungry for new materials, especially for natural materials,” she continues, explaining that cabin designers are now alive to the fact that passengers need a sense of wellbeing, and non-synthetic materials are a part of that.

Production volumes are clearly going to be different for supplying commercial airlines vs bespoke orders for private aircraft, but F/LIST are ready for this, with a greenfield space near the existing workshops where additional production space can be added on.

“We are absolutely ready, and we have commitment from C-level to grow this market,” Gradwohl concludes. ●

STARS OF THE SHOW

Seating manufacturers are preparing to show off their latest innovations at major events throughout 2025. **Bernie Baldwin** learns what's on the horizon and how challenging it is to deliver new products

How much can still be done with commercial aircraft seating? The answer, of course, is “plenty”. The choices of materials for structure, weight, comfort and feel are each numerous, creating a vast plethora of combinations. The task for manufacturers to get the right mix is therefore considerable.

A winning combination for one user, however, many not be the best for another; so the ability to develop options for customers is crucial. And the range of options is continually expanding, as will doubtless be seen with the upcoming concepts and innovations for 2025,

many of which will be on display at the upcoming Aircraft Interiors Expo (AIX) in Hamburg in April.

Mark Hiller, CEO of Recaro Aircraft Seating, is looking forward to the opportunity that AIX presents to explore trends and advancements benefiting aviation. “Research and development (R&D) has played a significant role in seating and sustainability advancements at Recaro, which we will showcase during AIX,” he remarks. “Visitors can expect to see our anticipated seating trends and experience our full line of seating options and services for current or future advancements for their aircraft.”

**“R&D HAS PLAYED A
SIGNIFICANT ROLE IN SEATING
AND SUSTAINABILITY
ADVANCEMENTS AT RECARO”**







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Dozens of seating and trim suppliers will be at AIX 2025 in Hamburg

Following last year's seat rebranding to the R1-R7 series, the focus of the Recaro booth will be updated for 2025 and will include a special edition booth to showcase the future of seating.

Similarly, Marcus Williams, global director of sales and marketing at Mirus Aircraft Seating, says that the industry can expect to see his company's products "challenge the boundaries of what is possible" in terms of seat weight, comfort and passenger living space.

"At AIX 2025, Mirus will officially be launching two brand new seats that will be certified and go into production from the end of this year," he reveals.

"One of these seats, the Hawk Duo, is more than 20% lighter and offers significantly more passenger comfort and living space than its predecessor, setting a new standard in the single-aisle economy seat sector.

"In addition, we'll be giving the industry the very first preview of the latest seat we've been working on, which will take Mirus further forward in the cabin into a whole new seat class," he teases.

Safran will be demonstrating incremental product improvements in Hamburg, according to Arthur Glain, head of passenger experience and industrial design, Safran Seats. "We are continuously refining our existing product lines to adapt to market demands. This ongoing evolution ensures that our seats consistently meet the high standards and evolving needs of our airline customers," he confirms.

Innovations

Introducing something completely new in seating, where nothing similar has been certified before, presents many challenges. Although

atypical, there is the potential danger that airline customers may suffer from specifying seats from a BFE (buyer-furnished equipment) catalogue that are not fully tried and tested. At present, for example, one major airline is having issues with a business class seat that it chose for new widebody aircraft on order, thus affecting those aircraft entering revenue service.

Safran's Glain acknowledges the task. "Introducing entirely new seating solutions involves a rigorous certification and validation process," he states. "While launching innovative concepts inherently carries risks, we mitigate these through extensive testing and gradual certification phases, ensuring every new product meets stringent safety and performance standards before entering service.

1. Recaro's R7 business class seating
2. The Mirus Kestrel



2

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“NOVEL DESIGNS MUST ALWAYS COMPLY WITH STRICT SAFETY REGULATIONS”

Sounding good

“For new technologies like Euphony (our system designed to offer a seamless, immersive inflight experience), one key challenge is testing these systems in operationally relevant environments – such as inflight conditions – which are not always available due to cost constraints,” Glain continues. “Additionally, when it comes to certifying seats with complex or exotic layouts, only a few components may qualify for certification by similarity. This dynamic certification process can be particularly challenging.

“At Safran Seats, we address these issues by eliminating high-risk elements very early in product development and simplifying layouts to facilitate certification by similarity. This approach ensures a safer and smoother path to market for our innovations,” Glain emphasises.

Recaro’s Hiller agrees that introducing something completely new in the highly regulated aviation industry presents several challenges. “The certification of novel designs involves several steps to ensure compliance with stringent safety and regulatory standards. Our extensive simulation experience helps to identify potential risks very early in the process to make the design robust,” he notes.

“So on the one hand, there is a great demand for new, innovative solutions in the aircraft seating industry. The aim is to always offer a more comfortable seating experience with increased living space to the passengers, all while reducing weight and lowering costs,” the CEO continues.



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“This can create competitive advantages for airlines and seat manufacturers, reducing acquisition and maintenance costs. In addition, sustainability holds significant importance and brings with it further new approaches. All of these are drivers of innovation, constantly pushing for entirely new ways of thinking and solutions.

“On the other hand, passenger safety is the highest priority in the aviation industry. Certification regulations have become more demanding over the years, based on aviation incidents, to reflect the latest standards of passenger safety,” Hiller observes. “Novel designs must always comply with these strict safety regulations and require certification approval from aviation authorities, which can be time-consuming and complex if no precedent exists.”

Marcus Williams at Mirus sees the task from a slightly different angle. “The challenge airlines face when specifying proven and established seats in an aircraft OEM BFE catalogue is lengthy development-to-linefit approval processes. For a major airline selecting business class seats, taking an established seat runs the risk of it being out of

1. Safran mitigates risk in new seat designs by testing them in stages

2. Safran Euphony creates a sound ‘bubble’ where the user does not require headphones



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date by the time it enters service, let alone towards the end of the run," he says.

"With today's new aircraft order backlog and the high rate of innovation in aircraft seating, we are increasingly seeing airlines pushing airframers to offer the latest certified seats which are the most innovative, cost-effective and offer the best passenger experience.

"Of course, an airline inevitably takes on more risk when using seats which incorporate brand-new technology or unproven materials than with seats which are already or about to be certified, and which may not yet be in the BFE catalogue due to the time certification takes," Williams remarks. "Airline customers should consider if they have mitigation in place in the event of delayed delivery and whether they are willing to take that risk.

"However, by being able to certify seats in-house, Mirus expedites our already rigorous validation process. This process, which often exceeds industry requirements, involves lifecycle durability, environment testing and vibration testing as well as static and dynamic testing," Williams concludes.

There are likely to be many new or significantly upgraded seating products coming to market throughout the year. The comments from the executives from these companies are encouraging for the industry's next innovations in this area, but there is also a clear message advising customers to examine all options and to ensure that their discussions are thorough. ●

1. Mirus has the ability to certify seats in-house

2. All aircraft seats have a thorough validation process

CREATING SEATING'S HEALTHY OPTION

A relatively new name in the field of aircraft seating technology is Comfort Motion Global (CMG). Although not an OEM, CMG offers Healthy Motion Seating, a patented technology that it says "offers a major leap forward in comfort and wellness for first- and business-class passengers on long-haul airline flights".

A 2023 study by researchers from Cardiff Metropolitan University and Macquarie University showed that there are noteworthy psychological and physiological benefits to passengers in seats equipped with the technology.

The report says: "Passengers experienced improvements in mood, less discomfort and pain from prolonged sitting, and significantly better blood flow to the legs, in seats equipped with Healthy Motion Seating."

Amy-Ruth Hallett, business development, aviation sector, Comfort Motion Global, explains the potential adjustments to the passengers' seating position. "CMG's Healthy Motion Seating technology integrates seamlessly with an aircraft's existing seat actuation and ECU (environmental control unit) systems. Our system enables independent motion of seat elements, such as the back panel, seat cushion and leg rest during kinematic motion," she remarks.

"By gently slowing down actuation speeds, our patented technology ensures subtle, soothing transitions between comfortable seating positions, providing a premium experience akin to a gradual, effortless shift. We like to say it's like 'melting butter'," Hallett comments.

Discussing how the adjustments are driven, especially as there is no additional hardware and no extra weight, Hallett notes that CMG's proprietary design operates entirely within the parameters of the existing seat actuation and ECU hardware.

"AIRLINE CUSTOMERS SHOULD CONSIDER IF THEY HAVE MITIGATION IN PLACE IN THE EVENT OF DELAYED DELIVERY"



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GALLEYS GET THE SMART TREATMENT

The use of smart technology and design is increasingly being used in aircraft galleys. **Bernie Baldwin** reports on how it is being employed and the benefits accrued

In the current 'connected' world, we carry smart phones which have greater computing power than the famous original Apple Mac (itself a 'smart' design) had when it revolutionised personal computing. Meanwhile, at home we may have a smart speaker, which we can verbally command to play a favourite album or podcast. So many things are becoming smarter.

Onboard aircraft, the smart philosophy is being extended to galleys and galley equipment, both in the areas of design and through the introduction of information technology and connectivity.

Ray Hough, director of business development, interior structures at Collins Aerospace, believes such moves in the latter area are logical. "There has been an increased effort to introduce smart technologies into various systems all over the aircraft. Cabin interiors equipment, and specifically galleys, are no different," he argues.

Connected equipment

Hough goes on to explain the type of information derived from such technology, how it is used and how airline users can benefit from smart galleys. "Collins has been busy developing intelligent and connected solutions that could benefit the operations, efficiency and management of galley systems for our airline customers," he confirms.

"An example is our smart galley solution that was recently named a finalist for a Crystal Cabin Award. The system integrates advanced artificial intelligence (AI) and sensor technology into the galley ecosystem, providing valuable insights that can help streamline onboard meal service preparation, passenger communication and maintenance operations.

Hough continues: "The intelligent Collins system can track a variety of things, including meal orders, service requests and inventory status – and then use

1. Collins M-Flex self-service gives passengers access to a range of snacks and drinks
2. The M-Flex Duet utilises the aircraft doorway to extend galley space during flight but is stowed for take-off and landing
3. The A350 ICE rear galley makes more efficient use of space



2





that data to provide real-time updates to onboard crews to help ensure service continuity. The system also has the ability to keep passengers informed of key service information, milestones and updates throughout the flight.

“This functionality can help set passengers at ease while simultaneously allowing crews to focus on providing exceptional service,” he adds. “Intelligent systems like these also have the ability to alert onboard crews of malfunctions and send ground teams regular performance updates, thus helping with maintenance scheduling and reducing unexpected aircraft downtime.”

Maintenance is where Julie Imbert, marketing director for Safran Cabin, sees benefits being accrued by smart galleys. “Safran is bringing smart technology to the galley by integrating connectivity enablers that allow cabin products with sensors to communicate, enabling real-time health monitoring and maintenance optimisation. Our NUVO

commercial inserts, for example, generate real-time diagnostics, predictive maintenance alerts and usage analytics, giving airlines valuable, actionable insights,” she notes.

“By leveraging this data, airlines can streamline maintenance, reduce downtime and improve efficiency by addressing issues before they arise. Smart galleys also create a more connected, data-driven cabin environment that supports airlines’ operational goals. The key benefits? More reliable equipment, lower maintenance costs, improved crew workflow, and a better overall passenger experience,” Imbert remarks.

Smart technology

Michael Bauer, cabin & cargo architect at Airbus, says that while the company cannot speak for galley and galley equipment manufacturers, it has certainly contributed to the introduction of smart technology in this area. “As an example, the A350

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introduced galley equipment featuring smart functionalities thanks to Airbus involvement. At its core, the equipment is able to connect to aircraft systems based on an international standard, namely Arinc,” he reports. “These capabilities are built in, and able to support enhanced maintenance functions – with predictive maintenance approaches being one of the dominant examples.

Bauer continues: “Building on that, Airbus is driving the market (through initiating patents and innovations, for example) together with suppliers, adding to the wider ecosystem to extend smart capabilities to the galley for improving not only maintainability but also improving onboard service and reducing cabin crew workload. Additionally, we support initiatives to reduce cabin and catering waste, such as the use of a food scanner.”

Space is always at a premium on aircraft, hence the need to look at smart design. Companies have therefore been introducing developments to optimise the use of galley ‘real estate’. Bauer explains: “Airbus has worked in recent years on many different developments to optimise the galley footprint on aircraft. Prominent examples are [Safran] SpaceFlex galley/lavatory arrangements or the A350 ICE galley.

“Both developments support making the utilisation of aircraft space as efficient as possible to accommodate galley functionalities with reduced footprint, which means maintaining all the functionalities while gaining more space for seats. A re-arrangement of a galley cooling unit within the galley module allows additional optimisation of the footprint. Overall, Airbus is looking into this question very seriously and is continuously developing solutions to cope with this demand,” Bauer concludes.

As noted by the Airbus executive, Safran is greatly involved in space optimisation solutions. Julie Imbert picks up the story. “Solutions such as our SpaceFlex V2 are redefining galley design by making layouts more compact and efficient without sacrificing functionality. These innovations help airlines maximise cabin space while maintaining full operational capability,” she declares.



“Our catalogue features a range of galley configurations designed with the same efficiency in mind. As we continue exploring new optimisation opportunities, we remain committed to designs that not only save space, but also support our sustainability goals. In the same spirit, we have worked with Airbus to bring space optimisation solutions to the A320 as well, and these will be entering our catalogue soon,” Imbert reveals.

Making space

Collins Aerospace has also been active in this area, as Ray Hough explains. “Thoughtful space optimisation is imperative when it comes to galley design and development, largely due to two often opposing priorities. The footprint that a galley system takes up is significant and may come at the expense of seating – the revenue-generating real estate on any commercial airliner.

“The other side of the coin is that galleys must be equipped to accommodate the service needs of passengers on board as well as being ergonomically designed to allow crews to work quickly and efficiently during flight,” he elaborates. “Airline brands are inextricably tied to their onboard service models and how they deliver on their promises.

“Galleys play an enormous role in that effort as the central hub whereby most inflight service originates. Creating areas that are not only spacious, but functional and seamlessly integrated into the broader cabin layout, is an

▲ Safran’s cabin water dispenser allows passengers to rehydrate at any time during the flight

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1

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Maximum theoretical seating capacity of the A380, if one is ever configured for an all-economy seating layout

incredibly important task that requires a huge amount of creativity in design, engineering and geometry.”

Hough continues: “To that end, Collins has introduced increased modularity into its galley solutions, allowing airlines increased flexibility to not only choose the solutions that best fit their service models, but also customise layouts that better fit the onboard accommodation goals they have for individual fleets.

“We have also introduced more hybrid monument structures like the M-flex Duet which is installed in the door area of a cabin. This can be quickly deployed into a crew work area or passenger self-service zone after the aircraft has reached altitude,” says Hough. “The door area is seldom used during flight and essentially amounts to unused space once the door is closed. M-flex Duet takes advantage of this space, providing extra service areas to airliners without worrying about the impact on revenue-generating seats.”

Self service

Recent times have seen an increasing number of airlines wanting self-service galleys, particularly for premium classes. Developments in this area need to take into consideration a range of factors such as what is delivered, the space taken, the equipment used, airline branding and hygiene.

“While self-service areas are not necessarily new concepts, there does seem to be a growing trend of adding easily accessible bars or monuments to cabin layouts, allowing passengers to help themselves to snacks or refreshments,” Hough notes. “These may take the form of dedicated self-service monuments or hybrid monuments – a multi-functional structure combining the functionality of a galley with the flexibility to be used as an extra meal preparation area or a self-service zone.

“Airlines, of course, must run their own cost/benefit analyses on implementing these solutions to their aircraft – with the ‘cost’ being the footprint an added structure may take up compared to the benefit of providing passengers an added amenity that may reflect positively on

the travel experience. This is really the beauty of a system like the M-flex Duet product line – the solution provides an additional passenger experience perk with minimal, if any, impact to existing cabin layouts and accommodations,” Hough affirms.

Airbus’s Bauer confirms the increase in interest from customers for such facilities. “This trend has been observed for a while already and we do see airlines playing with it. Our understanding is that our customers are trying to bring another level of passenger experience by utilising self-service or bar areas,” he reports.

“As this trend is very much driven by customer demand and the airline’s individual understanding of hospitality offerings on board, we as an OEM are supporting airlines to integrate these kinds of concepts safely into their own and specific cabin layouts, ensuring that all the functionalities and regulations are met. It is very much driven by our customers though, and less by us as an OEM,” Bauer emphasises.

Simple unit

Safran’s Imbert notes how a simple self-service unit can make a difference. “Innovations like Safran Cabin’s onboard water dispenser highlights how self-service solutions can improve travel experiences while addressing key airline needs. The water dispenser allows passengers to easily access water and refill bottles at any time – especially beneficial on long-haul flights,” she comments.

From delivered service to self-service and considering space optimisation, smart technologies such as AI and connectivity will continue to win their way into the galley environment. And why not, when it is clear from the examples given that everyone – the passenger, the airline and, yes, the environment – can be a winner. ●



2

1. Collins’ ‘Galley.AI’ concept uses smart technology to streamline onboard processes
2. In the A350 ICE galley, “ICE” stands for “Increased Cabin Efficiency”

TRAVEL AGENCY RESURGENCE

Lee Hayhurst attends an event where experts predict major changes in retail

Airlines are distributing more of their inventory through travel agencies, according to a senior manager at credit card scheme Mastercard. Speaking at the Airline and Travel Payments B2B summit in London in February, Esperanza Fernandez, Mastercard director of airlines, said the sector has seen growth in the 'merchant of record' model with airlines more inclined to support agencies to transact directly with their customers.

This is due to agents being better positioned to offer local payment methods, higher payment approval rates and better anti-fraud protections.

"The US is where this is growing most, which is interesting and exciting," she said. "In other regions like the Middle East it's slower progress, but it's happening; the trend is already there."

Fernandez added that in 2024 nearly a fifth (19%) of transactions in aviation were completed with a B2B payments model, up from 15% in 2023.

She noted that another recent trend is airlines combining their sales and distribution and finance functions so they can better control their payments strategy with agencies. She also made the point that airlines are looking for more 'transparency' from their acquirer partners and they are embracing virtual card payments to pay out to their partners.

This unification of pay-in and pay-out functions reflects how airlines are seeing payments as central to their retailing effectiveness as well as revenues and profitability. Fernandez described this as a "win-win situation" for travel agencies and their airline partners.

Innovations and credit concerns

Innovations in direct bank-to-bank B2B payments and the use of artificial intelligence and blockchain will underpin a future of smart

"UP TO 94% OF PLAYERS IN THE TRAVEL SECTOR BELIEVE VIRTUAL CARDS WILL BE ESSENTIAL PAYMENT METHODS IN THE FUTURE"

connectivity and automation. According to Fernandez, Mastercard is looking at how to roll out account-to-account payments flows due to demand from airlines to provide an alternative to card payments.

"It's challenging for the travel industry to make it work because it has high transaction values, which means it requires credit," she explained.

"With debit cards, which is like account-to-account, the number of declines due to insufficient funds is double [that of credit cards]. With account-to-account in the B2B scenario, someone must provide credit. Mostly it will be the airlines.

"There are a lot of technicalities that must be explored. We do not know when we'll have a robust solution, but we do know there are a lot of airlines willing to explore it."

The summit heard that the vast majority of airlines now see virtual card payments as part of a balanced approach to payments due to their flexibility and transaction success rates.

Greg Toussaint, director of consultancy Edgar Dunn & Co, said up to 94% of players in the travel sector believe virtual cards will be "essential payment methods in the future".

However, concerns remain about inability to control costs. IATA estimates that the overall cost of payments is \$22 billion or 2.3% of the aviation





2



COMPLEXITY REDUCED BY TECH

Technology that solves the “nightmare of complexity” of B2B supplier payments is key to supporting airlines transitioning to become tour operators to drive higher yields.

Charles Tandonnet, vice president of growth programme at travel technology developer Travelsoft said the firm had expanded into payments because it is a business critical area.

One of its clients is easyJet Holidays, the tour operating arm of the British low-cost pioneer that is core to its strategy of taking annual pre-tax profits to £1 billion.

Tandonnet explained that, due to the layers of consolidation in the travel supply chain, there is a

“nightmare of complexity” behind the scenes for tour operators.

Each consumer payment an airline holiday division takes sparks multiple contracts with suppliers and re-sellers, none of which are static.

“There are thousands of people every day thinking about how they should pay their suppliers,” said Tandonnet.

“Then there’s reconciliation, looking at why they did not receive the right amount of payment. We try to make this much more visible.”

In order to address this, Travelsoft has built an “OTA-as-a-software” orchestration layer to manage B2B payment flows that originate from a single booking.

Tandonnet said he believes airlines are set to become even more important in the leisure travel sector as they tap into established consolidators.

“We really believe airlines are key players in the future to be tour operators, and to be really efficient tour operators.

“Today it’s really simple to have access to hotels. It’s more and more simple to have access to activities and services around the trip,” Tandonnet concluded.



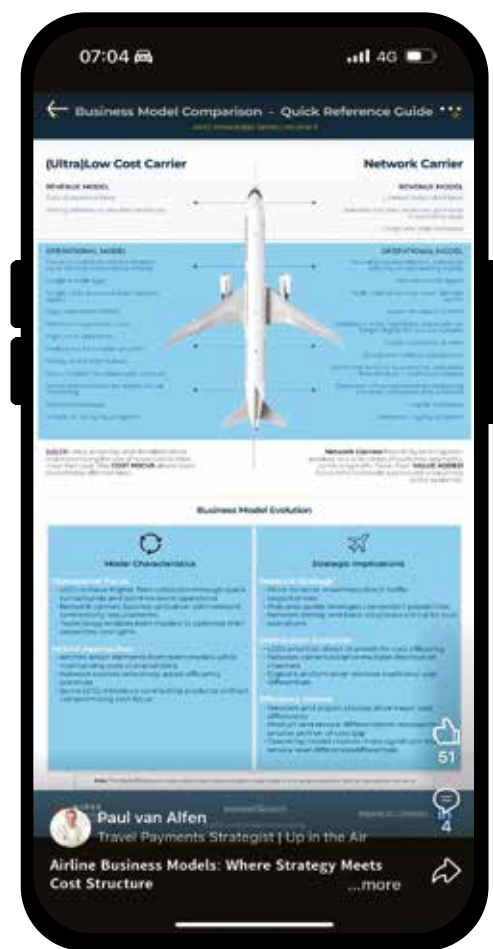
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1. Mastercard’s Esperanza Fernandez (second from left) in discussion about the future of B2B payments
2. A round table session looked at the key takeaways of the summit
3. Exploring managing payment risk and travel company onboarding
4. The travel agents CFO view of B2B challenges was the subject of the first session at the conference
5. Leeway’s Tal Dadia gave a presentation on payment barriers



5





▲ An airline business model comparison

industry's total payment value. "That's a high cost for airlines," said Toussaint.

IATA resolution 890, brought in prior to the Covid pandemic, did seek to introduce more transparency with airlines having to give written consent to agents permitting the use of specific cards.

Joachim Söderling, senior manager global business development at payments solution firm Discover Global Network, said the pandemic saw this "pre-consent concept disappear a bit".

But he added: "We do see a bit more engagement from airlines around transparency in payments. They use words like transparency, intelligence, productivity and insight.

"The concept is definitely out there and something that the airlines still focus on."

Söderling said a more balanced approach to virtual cards could be to turn the existing OTA or Travel Management Company model on its head.

"Why not provide airlines with the toolkit to run their own white label virtual card programme? There, the airline is in control of who gets the card."

Söderling concluded that airlines could then use extra payment rebates as an incentive to sell specific routes or departures "giving the feeling that airlines are in the driving seat completely".

REVENUE AWAITS AIRLINES WITH RIGHT PLAN

There is an untapped \$14 billion revenue opportunity for airlines if the sector gets its payments strategy right, the B2B Airline and Travel Payments Summit was told.

Tal Dadia, chief executive of multi-buyer split payments specialist Leeway, set out four pillars the sector needs to tackle to eradicate inefficiencies.

Payment Collection: how to reduce time from payment to collection and allow consumers and trade partners to pay easily and efficiently.

Dadia said streamlining the management of payments collection can save agencies seven days of work a year, the equivalent of \$11.5 million.

Of the 20% of transactions that are declined, 45% are due to insufficient funds. Dadia said an increase in the approval rate of just 2% can equate to \$1 million a month in revenue.

For example, high value group bookings where individuals want to use different payment methods requires an automated clearing system that can allow this.

Alternative Payments Methods: how flexible airlines can become to support more payment methods in a B2B2C context.

Only 11% of airlines accept

alternative payment methods due to legacy technology, said Dadia, and 30% say their number one challenge is enabling alternative and regional payments.

"Modern travellers expect modern payment solutions. Enabling more ways for your customers to pay and more ways for travel agents and OTAs to get paid will ultimately result in generating more revenue.

"There are other ways to allow payments to be done which are not being explored. Think about splitting payment with credit cards and loyalty points or travel agents through UATP."

Reconciliation Automation: how much money is being "left on the floor?"

Dadia said 2.5 million transactions a year are being handled manually by airlines and OTAs and \$1.5 billion is spent on reconciliation.

"This is one of the biggest problems that needs to be tackled. The solution is a streamlined automated process that gives real-time visibility."

A unified "central payment cockpit" can eliminate the need to impose credit limits and allow firms to minimise cross-border fees.

"The future of OTAs, airlines and payments should be a more simplified and centralised, and a more traveller-centric approach," Dadia told delegates.

"THE NUMBER OF DEBIT CARD DECLINES IS DOUBLE THAT OF CREDIT CARDS"



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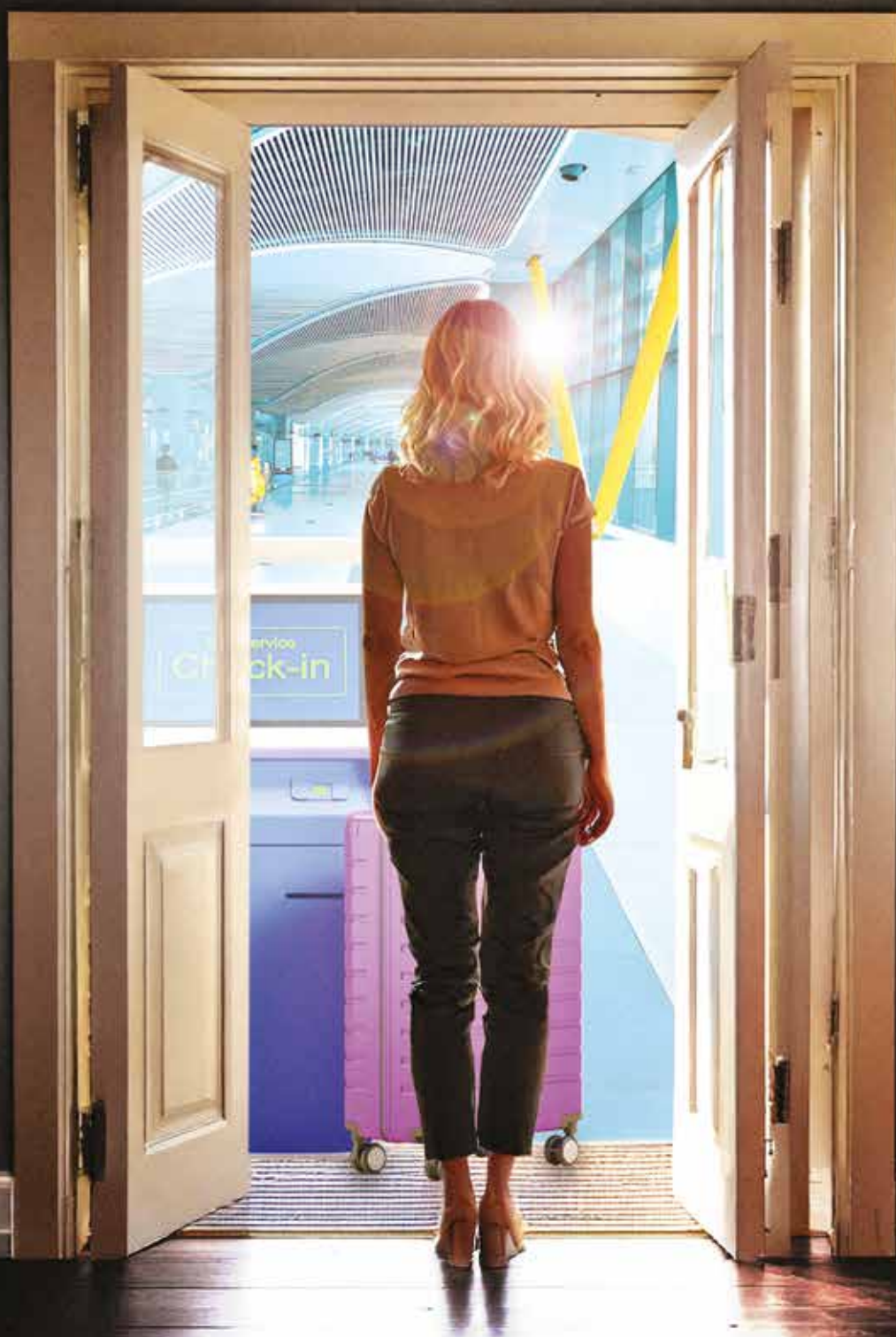
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SIGNED, SEALED, DELIVERED

Remote bag drop off services are gaining traction as airlines and airports look to reduce stress levels at check-in and baggage carousels.

Alex Preston unpacks some of the current initiatives





23%

While passenger traffic continues to increase, the number of mishandled bags in 2023 stood at 36.1 million – a 23% drop from 46.9 million in 2007

▲ TUI has been offering its home pick-up luggage service since with Bagpoint since May 2023

While most of the investment into the passenger experience has focused upon the infight environment, many airlines have realised the benefits of addressing the on-ground, pre-flight stage of the journey, adopting touchpoint initiatives that begin even before reaching the airport.

Passengers want more self-service options to gain more control over their travel experience and the industry is responding by giving passengers complete visibility and control over their baggage journey, which still remains a source of anxiety.

While passenger traffic continues to increase, the absolute number of mishandled bags in 2023 stood at 36.1 million – a 23% drop from 46.9 million in 2007.

According to SITA's Baggage IT Insights 2024 report, there is a significant push towards automating baggage processes. In 2023, two-thirds of airlines offered unassisted bag drop; another 19% had self bag drop-off site services; and 88% of airports introduced self-service bag drop technologies.

The research revealed passengers favoring more use of their mobile phones across the journey stages, including at bag collection. They rely on bag collection information sent directly to their mobile phones, with 32% of passengers surveyed using this feature in 2023.

Logistics power

SITA is the power behind a baggage service from French start-up Alltheway, enabling passengers traveling from Paris to check in and drop off their bags from their home or city centre hotel and deliver it directly to their destination.

Alltheway has partnered with Air France/KLM and hospitality group Accor to offer the service, which sees Alltheway agents arrive at a passenger's hotel or home, weigh and seal the bag and check it in with the airline. Using SITA Bag Journey, Alltheway integrates with an airline's tracking systems and

shares real-time baggage tracking information at every step of its off-airport journey. Alltheway also receives the baggage tracking data collected during the airport's handling operations. This information is then shared with the passenger through the Alltheway application so they can track their bags in real time.

Agents also leverage SITA's Flight Data Global which provides information on customer flight check-in and departure times. This helps agents plan pick-up times and make sure bags arrive at the airport on time.

Accor provided seed funding to Alltheway, making the service initially available in five Accor hotels located in the city centre – Novotel Tour Eiffel, Mercure Tour Eiffel, Novotel Les Halles, Mercure Montparnasse and Pullman Bercy. As part of an expansion to offer the service during major events, it was offered by Accor during the Rugby

“MANY AIRLINES HAVE REALISED THE BENEFITS OF ADDRESSING THE PRE-FLIGHT STAGE OF THE JOURNEY”



1

“WE HAVE SEEN A GROWING DEMAND FOR OFF-AIRPORT BAGGAGE SERVICES FROM A WIDE RANGE OF PASSENGERS”

World Cup in September 2023 and the Paris Olympics in August 2024.

Baggage drop-off is also available at the main exhibition sites for major trade fairs such as Paris Expo Porte de Versailles, Villepinte Exhibition Centre and the Palais des Congrès convention centre as well as Disneyland Paris.

Discussing Accor's relationship with Alltheway, Damien Perrot, global chief design, technical services & innovation officer for premium, midscale & economy brands explains that it was based on trials conducted by Accor, Alltheway and various partners.

“The Group wants to continue working with innovative companies in order to offer its customers a genuine hospitality ecosystem,” he says.

Emilie Gazeau, CEO and founder at Alltheway, says: “We have seen a growing demand for off-airport baggage services from a wide range of passengers, including families that have a huge number of bags to transport or business travellers that need the freedom to move across the city without being burdened by their baggage. With SITA, we can connect the dots between the airline and passenger so that we deliver the traveller the peace of mind that their bags are in safe hands.”

She adds: “We developed Alltheway based on a simple belief – baggage is a constraint and a source of stress for travellers. Removing this restriction allows us to rethink mobility – favouring more sustainable modes of transport,

improving intermodality and therefore helping to reduce carbon emissions. And to achieve this, we needed to create an ad hoc data platform.”

The airline service is available from 30 hours up to 4 hours before the flight's departure, depending on the baggage drop-off location, and costs €25 for one bag, then €10 per additional bag. It is available on all flights operated by Air France on departure from Paris-Charles de Gaulle.

Lufthansa has become the latest airline to cooperate with technology provider AirPortr, to offer a baggage collection and check-in service. In this instance, passengers departing from Frankfurt can have their suitcases and bags picked up at home or at their hotel, sealed, brought securely to the airport and checked in there.

Passengers are provided with real-time updates via a personalised tracking link and a digital baggage tag receipt confirming when the bags are physically accepted for the flight.



1. AirPortr aims to create a seamless, contact-free journey for passengers through the airport
2. Alltheway handles baggage for passengers travelling from Paris

"We aim to continuously improve the overall travel experience of our guests and further expand our premium services – both during the flight and on the ground," Heiko Reitz, chief customer officer Lufthansa Airlines has commented. "With the new pick-up and check-in service, we are offering our passengers another exclusive service that is unique in Germany. We are making the journey easier from the very first minute."

Lufthansa plans to expand the service in the near future.

Night-time drop

While Lufthansa makes the service available on its website up to 36 hours before departure, British Airways gives its passengers travelling from Heathrow Terminal 5 and Gatwick Airport the opportunity to have their luggage collected and checked in from their home or office up to 24 hours before their flight.

Since 2023, easyJet has offered three services for passengers at London Gatwick and Geneva airports. In addition to the departure service as offered

by Lufthansa and KLM, the low-cost carrier also allows passengers arriving at Geneva to book to have their bags delivered to their final destination. In addition, the airline offers a door-to-door service giving a seamless luggage experience whereby passengers can also check in their bags from home.

The same service is available for British Airways passengers travelling from London to Geneva, and Swiss passengers flying London to Zurich and Geneva and Zurich.

For all KLM-operated flights into and out of Zurich and Geneva airport, departure and arrival products are available. When travelling into or out of Zurich Airport, baggage can be picked up or delivered at any address within Switzerland.

The nature of the financial arrangements between these airlines and AirPortr has not been disclosed, making calculating the additional ancillary revenues difficult. AirPortr says the cost is dependent on a number of factors ranging from passenger location and the number of bags checked in to bag pick

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▲ Some airlines plan to allow passengers to skip baggage reclaim entirely

“WE LESSEN THE STRAIN ON AIRLINES’ RESOURCES, SO THEY CAN REDIRECT THEIR EFFORTS TO OTHER CORE AREAS”

up/delivery time and which airports are involved in the process.

Lufthansa is making its service available from €25, while British Airways charges from £19. easyJet, on the other hand includes the service in a bundle fare, meaning FLEXI fare customers flying from London Gatwick and Geneva have the service included in their booking. For other passengers on these routes the service will set them back £37. For KLM, the price of the first bag starts from CHF39, and an extra bag can be added starting from CHF10. For reference, a typical two-bag booking collected and checked-in from Zurich will cost around CHF60.

Decentralisation

Netherlands-based Bagpoint is also seeking to decentralise airport baggage check-in. The company offers two services: with its Bagpoint home bag drop passengers can check in and drop

off their hold luggage from the comfort of their home. If their hotel is registered as a Bagpoint HUB location, the Bagpoint hub bag drop service allows them to check in and drop off their hold luggage at a bag drop kiosk. According to the company, airlines and hotels receive kickback fees for providing the service. Bagpoint charges are dependent on the area in the world where the luggage transport will take place, but also on the number of bags to be transported and the distance.

In May 2023, Bagpoint picked up airline customer TUI. The baggage service is available for all flights booked via TUI that depart from Amsterdam Airport Schiphol and for which online check-in is possible. Recently Singapore Airlines expanded its relationship with Bagpoint at the airport where it already allows passengers to book a delivery service upon arrival, enabling baggage to be delivered directly to their homes.

Now, the two companies are introducing a home baggage pickup and check-in service for passengers departing from Schiphol. Singapore Airlines is reputedly looking to go further and eventually allow passengers to bypass baggage collection entirely, enabling them to proceed directly through customs to the arrivals hall while their baggage is collected by Bagpoint and delivered to their home/hotel.

Remote bag drop off services are empowering passengers, giving them real-time visibility of their bags across the journey, so they can enjoy a stress-free experience.

Looking ahead, the future is one with more and more baggage automation and visibility.

As SITA's Nicole Hogg, product management director, Baggage, says, “Putting control back into passengers’ hands, we lessen the strain on airlines’ resources, so they can redirect their efforts to other core areas. And it works.” ●

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ALL INCLUSIVE DESIGN

This article from the AIX team explores the latest in developments in aircraft interiors

Our era benefits from the privilege of widespread air travel, both domestically and internationally. However, this privilege is not universally shared. For many passengers with disabilities, air travel is not easy, convenient or comfortable.

To make flying more accessible for every passenger, there has been a huge amount of industry investment, design, development and collaboration focused on creating new features, equipment and infrastructure.

Making changes to address accessibility hurdles is a huge priority for many airlines and suppliers in the industry. Over the past five years, we've seen countless new industry developments, products, solutions and partnerships, which are helping to combat some of these challenges.

Boarding issues

One of the biggest challenges in aircraft accessibility is facilitating the boarding, disembarking and safe travel of wheelchair users and passengers with low or limited mobility. Previously, many airlines have required wheelchair users to transfer from their wheelchair to an aisle chair and then a plane seat. However, innovative developments in the industry are allowing passengers to remain in their chairs whilst onboard.

In 2024, Delta Flight Products (DFP) in collaboration with AirForAll – a consortium of design and disability advocate organisations based in the UK – announced the launch of several new accessibility-focus products for the airline industry. This included two seats that allow users to remain in their own wheelchair for the entire journey and an accessible toilet that accommodates entry of an onboard wheelchair and up to two attendants.

According to DFP, the seats include a first class and an economy version which both feature two modes: a standard seating mode and person with reduced mobility (PRM) mode. In 90 seconds, the seats can transform to accommodate wheelchairs which lock securely in place.

Similarly, in November 2024, Airbus revealed its new flexible concept for more accessible seating onboard. The 'Multi-Purpose Compartment' would facilitate a wheelchair tie-down feature, which would enable users to remain in



2

their own chair onboard the aircraft, also providing seating for their flying companions. Though the idea is still only in the concept phase – with Airbus currently gathering feedback from airlines – if followed through, it could have hugely beneficial implications for accessibility in the industry.

At AIX 2024, Collins Aerospace also unveiled its new Prime solution which allows wheelchair users to remain in their wheelchairs throughout their flight. The solution features a restraint system which is integrated into the floor – a concept which is already widely used across other accessible modes of transport.

While some countries are starting to implement stricter rules around accessibility in aircraft, this progress is not being mirrored across the board; more movement is certainly needed. Whether it's regulatory changes, the development of innovative new features and equipment, and investment from the airlines themselves, it's clear that improving accessibility for passengers requires stakeholder input from all sides of the industry.

To see sustained and effective action being taken to improve accessibility, the industry needs to work not only together but directly with the individuals who will be affected by the changes to create a vision for the future which improves the experience of flying for all. 🌐

1. Collins' Prime solution has a restraint system integrated into the floor to allow passengers to travel in their own wheelchair, housing all the amenities in its stowable monument.

2. DFP's accessible lavatory

3. Collins' 'Fly Your Wheels' suite concept is also aimed at allowing passengers to remain in their own power wheelchairs during the flight



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HEALTH CHECK FOR ONBOARD MEDICAL EQUIPMENT

Behind the seemingly straightforward task of supplying airlines with first aid kits and medical equipment lies a highly complex industry infrastructure

Navigating global regulatory approvals, monitoring complex compliance and interpreting arcane import/export procedures are critical to ensuring airlines of all sizes have the necessary medical supplies onboard. Steven Rowley and his team at Aeromedic play a pivotal role in this process, advising airlines and ensuring that vital medications and emergency equipment are always onboard.

“Increasing regulations and mandatory requirements are responsible for a complicated global environment, explains Steve Rowley, who leads AEM/AMETEK MRO’s Aeromedic division. “Changes to commercial air transport regulations around the world have resulted in airlines needing to review and update their onboard medical provisions.”

A significant proportion of the changes, primarily driven by EASA, have subsequently been viewed and adopted as best practice by other aviation regulators around the world. Most notably, the changes have resulted in a sizeable increase in the minimum mandatory medicine and medical equipment provision that an airline must carry on board their aircraft.

Resuscitation equipment including bag-valve masks and airway management devices, medicines available in paediatric forms and the addition of pulse oximeters are examples of just a few of the changes.

Compliance monitoring

Rowley says that for a task that at surface level appears to be a relatively straightforward ‘pick and pack’ activity, there are stringent and complicated regulation considerations when handling medicines, alongside important aviation and security specific accreditations.

“For airline supply companies to enter this market there are many barriers,” he explains. “A specialist combination of pharmaceutical/medical and aviation accreditations is required, as well as the expertise needed to deliver a professional and 100% reliable and traceable service, and only a few organisations worldwide can manage the sourcing, packing and supply of first aid kits (FAKs) and emergency medical kits (EMKs) on a large scale.”

It is hard for airlines to accomplish this task effectively themselves (although some do) because

Illustration by Phil Couzens



▲ Steve Rowley,
engineering director,
AEM/AMETEK MRO

“DATA IS OFTEN ANALYSED FROM FLIGHT INCIDENTS TO SHAPE FUTURE FIRST AID KIT CONTENT”

of complex compliance monitoring and unpredictable medicine supply chains.

“Airline fleets that have aircraft registered in various countries must abide by multiple regulations and this adds to the burden when developing a consolidated FAK that can be universally trained and used by cabin crew across the airlines’ fleets,” says Rowley.

It is particularly important to have in-depth knowledge and experience regarding the import/export of controlled drugs across global jurisdictions and Rowley points out that airlines that operate worldwide need to be reassured that they are compliant.

“In the commercial airline sector, global operators, low-cost carriers and regional service providers all have bespoke kit contents,” he explains. “These are developed by regulations, medical training protocols for the multi-national crews, base-station supply practices and much, much more.

“In Europe for example, the CAA and EASA mandate that commercial airlines must have kits on board every aircraft; they also dictate the number of kits required, which depends on the number of passengers onboard the aircraft, and the distance of routes flown.”

Rowley continues: “Whilst the provision of proficient FAKs or EMKs onboard an aircraft seems relatively insignificant, failing to have them onboard will prevent an aircraft from flying. Having a robust supply chain for the supply, refurbishment and logistics of FAKs and

EMKs is critical to airline operations. Airline cabin crews receive enhanced first aid training and will be fully aware of the kit contents and provisions available onboard the airline’s fleet of aircraft types.”

Companies in the UK that provide FAKs and EMKs need to be licensed by the MHRA for handling medicines and further approved by the Home Office for the possession and supply of controlled drugs contained within the specialist kits. Drugs are sourced in bulk and repackaged in smaller quantities and this work needs to be supervised/approved by a qualified medical professional.

“The right sizing of medications is an essential part of this process,” remarks Rowley. “It involves managing lots of products in suitably sized doses in order to provide airlines with kits containing all the mandatory requirements, whilst being as lightweight, accessible and easy-to-use in an emergency as possible.”

Supply and management

The way airlines look at the supply and management of their FAKs and EMKs also differs widely across the broad spectrum of operator types.

“Aeromedic deploys bespoke kit processing software which tracks the expiry date and batch number of every component we pack, and this adds up to hundreds of thousands of items every month,” explains Rowley. “This critical traceability allows for the ‘freeze and recall’ of any product installed to thousands of aircraft around the world, if the medicine manufacturer raises a product recall. Likewise, it also allows the remote tracking of each kit’s overarching expiration date.”

Rowley adds: “During the kit refurbishment process, strict recycling protocols are followed meaning that all unused items with sufficient shelf life remain in the kits as they are refurbished. Some kits can be used for multiple flights and have different ‘tamper evident seals’ installed to keep the contents safe.

“Other airlines refurbish immediately once a kit’s tamper evident seal is broken. Yet more have minimum equipment lists that need to be maintained to manage a kit’s internal content level. The options are extremely varied, every customer is different.”

Rowley explains that data is often analysed from flight incidents to shape future FAK content, but airlines can also drive changes

▼ Aeromedic provides
bespoke kits in line with
customer requirements



► Aeromedic's production facility is security-controlled and accessible only to the company's highly trained technicians

to suit their needs based on risk assessments, or regional drug preferences, which subtly differ around the world. For example, burn gel is a higher use item for crew due to galley accidents during turbulence, so an airline may opt to increase above the minimum mandatory requirement for their kit in response.

Smaller airlines and corporate jets tend to use off-the-shelf kits and rely on the experience of the provider to guide them through the minefield of regulations. "These operators look at size, weight and the mix of equipment very carefully and frequently appreciate guidance with compliance," says Rowley.

"There are dozens of kit variants – from basic and enhanced FAKs, EMKs, resuscitation (ERK) and universal precaution kits (UPK) – and it can be daunting to navigate the best way through this vital, but highly regulated product category."

The use of technology

Looking ahead, Rowley anticipates that airlines' onboard medical provisions will continue to advance with the use of technology to supplement the existing medicines and supplies already onboard.

"Much like automatic external defibrillators (AEDs) now being standard equipment on aircraft, I believe that airlines will increasingly look towards adopting new technology, with real-time telemedicine capabilities, such as mobile ECGs," he says. "For instance, misdiagnosing indigestion as a heart attack can lead to significant consequences. With real-time telemedicine, such critical conditions can be accurately identified, avoiding the need for emergency landings.

"The cost avoidance of diverting and landing an aircraft due to a non-passenger emergency represents a significant saving and maintains travel convenience for both airlines and passengers," Rowley concludes. ●



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Embrace the Space Race, urge **Bruce Andrews** and **Connor Bernard** from M&A specialists Alderman & Company

With the world growing ever more interconnected on a daily basis, satellite internet has quickly emerged from being a niche technology into being a global communication, defence and business mainstay.

As data multiplies and efforts are made to bridge the divide between the offline and online population, players like SpaceX's Starlink and Blue Origin's Project Kuiper have emerged as the primary players in the field.

But as the reliance on satellite-based connectivity grows, it is more and more clear that a single controlling force could stifle innovation, raise prices and even threaten national security.

Let's explore the situation now, including Starlink's controlling position and Blue Origin's status, and examine why robust competition needs to be maintained in order to safeguard

the future of satellite internet. In order for direct-to-consumer high speed/high quality internet to be deployed worldwide there are two significant challenges.

Design and deployment

The first challenge is the design and manufacture of thousands of small, affordable, technically sophisticated satellites combined with ground-based sender/receiver routers (the so-called "Dishy" by Starlink) to permit direct-to-consumer internet reception.

The second challenge is to deploy the thousands of satellites into their respective orbits to create the necessary constellation. Clearly, Starlink has had the advantage in deployment thanks to the incredible success of SpaceX and the Falcon series of rockets.

Starlink has quickly become a synonym for satellite internet innovation. The company's aggressive deployment

plan has resulted in a constellation of over 7,000 satellites in low Earth orbit and expansion plans for worldwide internet access with 42,000 satellites.

This large network already has offered real-world service to rural and underserved areas, revolutionising access to high-speed internet where the traditional infrastructure is not present.

Starlink's success extends past consumer markets; its technology has attracted significant government interest. Especially noteworthy are the Department of Defense contracts valued at approximately \$733 million.

These highlights not only refer to first-to-market advantage but also to iterative improvements that have positioned Starlink as the industry standard-bearer.

While Starlink has been developing at an enormous speed, Project Kuiper of Blue Origin has encountered a succession of setbacks that have kept it from deployable success.

Procurement problems

Delays in securing reliable launch vehicles, including United Launch Alliance's Vulcan Centaur and Blue Origin's own New Glenn rocket, have significantly pushed back its deployment schedule.

Additionally, the project has faced manufacturing and regulatory

"AS OPPOSED TO STARLINK, WITH ITS ENORMOUS REAL-WORLD EXPERIENCE, PROJECT KUIPER IS JUST STARTING TO DEMONSTRATE VIABILITY AT COMMERCIAL LEVELS"



challenges, compressing the timeline to meet FCC requirements that mandate at least half of its planned 3,236-satellite constellation be deployed by mid-2026.

These logistical hurdles have further postponed Project Kuiper's ability to begin providing commercial service, creating a widening gap between it and Starlink.

While Blue Origin remains committed to the initiative, the disparity in execution underscores how difficult it is to compete with Starlink's first-mover advantage and aggressive rollout strategy.

Project Kuiper's plans to manufacture satellites were initially envisioned for the first half of 2024 at a rate of five satellites per day but start-up issues delayed rate production to the end of 2024. Beta trials with paying users are envisioned in 2025.

Delays are indicative of the historic-sized issues with satellite mass production, management of complex supply chains and transition from development to operation on a large scale.

As opposed to Starlink, with its enormous real-world experience, Project Kuiper is just starting to demonstrate viability at commercial levels.

That delay in practical experience not only postpones Blue Origin's market entry but also weakens its position in a rapidly evolving industry. Competing against an established leader like Starlink, which continuously refines its technology and expands its reach, makes catching up increasingly difficult.

Illustration by Alan Bingle



1

A future where Starlink dominates satellite internet poses risks, as a single company controlling such critical infrastructure could dictate pricing, limit service availability and slow innovation.

Additionally, governments and industries relying on satellite connectivity may become overly dependent on one provider, creating economic and security vulnerabilities.

There is, however, significant good news and major progress achieved by Project Kuiper in recent months. Project Kuiper's new satellite manufacturing facility in Kirkland, Washington has been completed and is successfully



2

1. Amazon's Project Kuiper has faced hurdles but is beginning to demonstrate commercial viability
2. Project Kuiper aims to provide high-speed internet globally



1



2

1. Passengers now take onboard connectivity for granted
2. JSX was the first airline to roll out Starlink services

“PROJECT KUIPER IS NEAR COMPLETION OF A SATELLITE SUPPORT FACILITY ON SITE AT CAPE CANAVERAL”

STARLINK

Launch Date: Operational since 2019. On commercial aircraft since 2023.

Satellites in Orbit: Over 6,400 with plans to expand to 30,000

Speed: 20–220 Mbps

Latency: 20–40 ms

PROJECT KUIPER

Launch Date: Expected to start service in late 2025

Satellites Planned: 3,236

Speed: Projected speeds of 25–400 Mbps

Latency: Expected to be similar to Starlink

Both projects aim to provide high-speed internet globally using low Earth orbit (LEO) satellites, but Starlink has a head start with its already operational service.

producing higher satellite volumes. Project Kuiper is also near completion of a satellite support facility on site at Cape Canaveral.

This facility is designed to complete system integration, perform satellite maintenance and store completed satellites in preparation for charging its launch vehicles.

Significantly, Project Kuiper has also secured 83 launch reservations from its own Blue Origin rockets, United Launch Alliance, Arianespace and from SpaceX, its direct competitor.

Thus, Project Kuiper is on the cusp of success, having overcome the two key challenges of volume manufacturing and launch capacity. It should be in the competitively challenging position of its goal of creating its own satellite constellation of 3,236 satellites in three orbital planes by the 2026/2027 timeframe.

With new entrants such as Amazon's Project Kuiper and other potential start-ups, a more dynamic and resilient market awaits. These companies may well offer alternative technologies, new service models, and diverse approaches to global connectivity.

In a multi-firm market, consumers benefit from competitive pricing, improved service quality and innovation.

A diversified industry also reduces reliance on a single provider, enhancing security and reliability.

While SpaceX's Starlink leads with services in over 100 countries, competition drives advancements and prevents monopolistic control over critical infrastructure.

The satellite internet industry is at a crossroads. Although Starlink's success is significant, long-term sustainability depends on creating and maintaining a competitive market.

Having multiple competitors will lead to innovation and lower prices while assuring that the network is more resistant to single points of failure.

With global demand for connectivity increasing relentlessly, it is not merely a question of economic efficiency to level the playing field for all contestants – it is a matter of strategy.

Opening ourselves to competition now is a gateway to a healthier, more dynamic and safer satellite internet world tomorrow.

As specialists in the selling of middle market aerospace and defence companies, we believe that it is advisable for company owners to ensure they participate in those companies and technologies that support the growing space sector.

The sector is not only rapidly expanding but contains many areas in which to participate from launch vehicles to payloads to space infrastructure projects (e.g. debris detection and removal, ground support equipment, communication equipment, etc.).

We strongly encourage embracing the space sector for future growth and success. ●

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THE RESURGENCE OF LONG-HAUL LOW-COST AIRLINES

There are five strategic elements for success, according to
Felix Ackermann and Arvind Chandrasekhar

In the ever-changing world of aviation, one of the most notable developments is the surprising resurgence of the long-haul low-cost (LHLC) airline business model post-Covid. The model struggled through most of the 2010s, and many experts had written it off. Now, however, changes in passenger demand and behaviour, along with innovations in cost management, have allowed the LHLC airline model to once again carve out a new space within the aviation industry.

Long-haul renaissance

The short-haul low-cost airline business model has seen robust success in nearly every part of the world.

However, operating a low-cost model on medium- and long-haul routes (defined by Eurocontrol as routes exceeding 3,000km) has proven to be more challenging. Past failures have ranged from Laker Airways in the 1980s – the original LHLC airline – to Wow air, Primera Air and others in the late 2010s.

However, the Covid-19 pandemic has changed the playing field. Recovery in corporate traffic has been sluggish, while demand for leisure travel – including in premium classes – has surged. LHLC airlines have seized this opportunity to capture a growing share of the market. In fact, while the world has only recently reached pre-Covid available seat kilometers (ASK), LHLC airlines

are offering 30% more long-haul ASKs compared to 2019. This is even more remarkable given that LHLC airlines saw a steeper drop in capacity through the pandemic compared to the industry as a whole.

What will make long-haul low-cost airlines work this time?

LHLC operators appear to have learned from past errors and are putting in place five certain key strategic elements to improve their chances of success:

1 Efficient cost management

Among the key challenges for LHLC airlines has been managing the high operating costs of long-distance travel. To address this, many are turning to modern and efficient aircraft like the Boeing 787 or Airbus A350, A330neo and A321XLR, which help to reduce one of their largest and most volatile expenses: fuel. For instance, Cebu Pacific is operating A330-900s, which replace its older A330-300s. Edelweiss Air, with

“CHANGES IN PASSENGER DEMAND, ALONG WITH INNOVATIONS IN COST MANAGEMENT, HAVE ALLOWED THE LHLC MODEL TO CARVE OUT A NEW SPACE IN THE INDUSTRY”

a long history of operating A330s and A340s, plans to transition to A350s in the near future. Beyond fleet upgrades, airlines have adopted multi-crew basing to reduce layover-related costs and better manage schedule disruptions. Such adjustments are critical in helping carriers to maintain their low-cost advantage on long-haul routes.

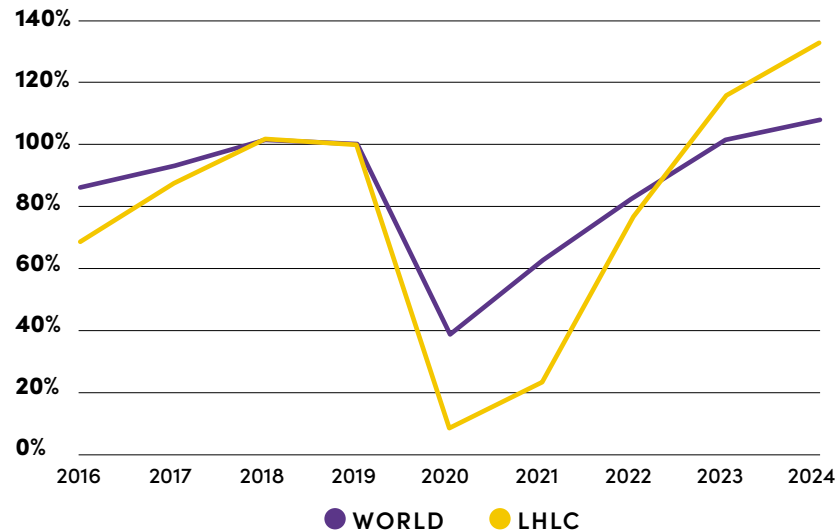
2 Managing seasonality

Unlike business travellers, leisure passengers plan trips around holidays and favourable weather conditions, leading to fluctuating demand throughout the year. To remain profitable in an industry known for slim margins, LHLC airlines must adapt their capacity to counter these seasonal peaks, for example by finding customers to wet-lease their aircraft outside of peak seasons. Another solution to the seasonal nature of the leisure business involves finding routes with strong seasonal demand in the typically less-busy seasons and adapting their schedule in order to maximise aircraft utilisation and revenue.

3 Synergies from larger airline groups

Many LHLC airlines benefit from being part of larger airline groups. For example, Discover, Scoot and Level are subsidiaries of the Lufthansa Group, Singapore Airlines and IAG, respectively. This affiliation provides access to economies of scale, such as lower procurement costs for aircraft. It also allows LHLC airlines to tap into

Global ASKs vs. LHLC ASKs (indexed to 2019)



Source: IATA Airports, OAG, Lufthansa Consulting

the broader networks of their parent companies, offering passengers more connectivity and therefore feeding their long-haul flights. AirAsia, which has long struggled with its LHLC airline AirAsia X, has learned from this and intends to become a network carrier to feed its long-haul flights.

4 Demand for premium classes and services

Although the core customer base of LHLC airlines is budget-conscious travellers, there is growing demand for premium travel features or cabins on long-haul flights. The inclusion of a business class or even a premium economy cabin (the latter of which can be up to 40% more profitable per square

foot than the former), allows airlines to capture additional revenue from its traditional passenger base while also eating into legacy airline market share.

LHLC airlines are also increasingly offering premium services such as lounge access for an additional fee, allowing for yet another revenue stream. Examples include French Bee, WestJet and Vietjet Air.

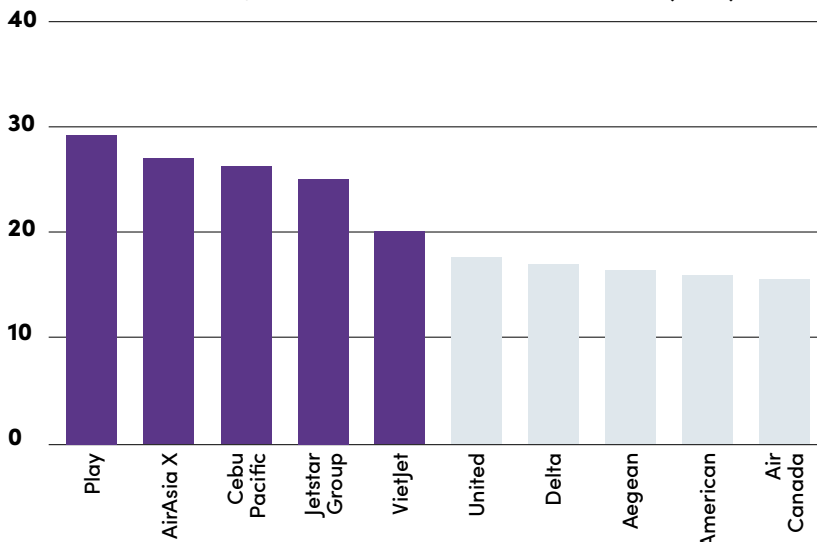
5 Greater focus on ancillary revenue

Ancillary revenue streams such as baggage fees, onboard meals and seat selection are critical to the success of LHLC airlines. These unbundled services allow for low base fares while offering passengers the flexibility to pay for the services they want, boosting profitability.

LHLC airlines are significantly more dependent on ancillary revenue than full-service network carriers (FSNCs), with ancillary revenue accounting for much more of the total revenue in comparison. For example, in 2023, ancillary revenue accounted for 29.3% of total revenue for Play, and 27.0% for AirAsia X. This represents a substantial difference to the biggest full-service carriers, with United Airlines earning 17.7% of their revenue through ancillaries.

The long-haul low-cost model has often flattered to deceive. This time around, however, the measures detailed above provide LHLC airlines with the tools to succeed where previous attempts have failed. Thanks to LHLC airlines' efforts to get the fundamentals right, it is likely that the LHLC model is here to stay. ●

Ancillary revenue share of total revenue (in %)



Source: 2024 CarriFlew Yearbook of Ancillary Revenue

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NEW 'BOOM' FOR SUPERSONIC TRAVEL

Jennifer Coutts Clay discusses the return of ultra high-speed travel

On Tuesday 28 January 2025, aviation enthusiasts watching the amazing Boom Supersonic livestream presentation witnessed the dawn of second-generation, civilian, supersonic operations.

With special permission granted by the FAA to fly high above California's Mojave Desert and across the designated Bell X-1 supersonic corridor, chief test pilot Tristan "Geppetto" Brandenburg broke the Mach 1 sound barrier not just once but three times during his 33-minute test flight in the Boom Supersonic XB-1 demonstrator aircraft, registration N990XB.

The XB-1 test flight was a unique event that will live on in the aviation history books. Boasting a beautiful, slender fuselage designed and built in America, the XB-1 is the very first civilian aircraft to fly supersonic above the United States continental landmass and the first civilian jet to break the Mach 1 sound barrier since the Anglo-French Concorde, which operated supersonic passenger services for British Airways and Air France at Mach 2 from 1976 to 2003.

The company explains that the XB-1 is setting the foundation for the Boom Overture. This will be a second-generation supersonic jet which is designed to fly over water at Mach 1.7, approximately twice the speed of today's fastest commercial aircraft.

The proposed flying time from Washington DC to London is approximately four hours, and about three hours from Los Angeles to Honolulu. Billed as being environmentally viable – it will run on sustainable aviation fuel – Boom Overture will have a range of 4,250nm (7,871km) and be built to carry 65 to 80 passengers at Mach 1.7.

Back after a break

After a hiatus of more than 20 years, Concorde loyalists – and all other air travellers – can thrill to the idea of making long-haul flights in about half the time normally taken by subsonic aircraft, enjoying a turbulence-free onboard environment and without the problems of jetlag.

The livestream presentation of the XB-1 test flight was accompanied in real time by expert commentary from a panel of specialists. Clear-language explanations were provided to make the details of the unique technical achievements comprehensible to outside viewers. All aviation

“THE XB-1 IS THE VERY FIRST CIVILIAN AIRCRAFT TO FLY SUPERSONIC ABOVE THE UNITED STATES CONTINENTAL LANDMASS”



1

enthusiasts are strongly encouraged to access the video recording of the historic event on www.boomsupersonic.com.

The XB-1 commentary and the follow-up question and answer session were anchored by Captain Mike Bannister, former chief Concorde pilot, British Airways. He emphasised that, over millennia, the human race has always wanted to move faster, citing the domestication of the horse, followed by the development of ships, trains, cars and, eventually, subsonic aircraft. He praised Boom Supersonic for launching the first-ever independently developed supersonic aircraft – designed, built and flown by an independent American organisation.

Blake Scholl, the founder & CEO of Boom Supersonic, outlined his corporate mission to introduce commercial supersonic travel to the world, to bring humanity closer together and to make the world a smaller place.

With commitments from American Airlines, Japan Airlines and United Airlines, Boom Overture has already secured 130 orders and pre-orders. Scholl asserts that there could be a market for 1,000 economically viable supersonic jets serving business hub routes with passengers paying standard, affordable business-class fares.

The current advertising display for the cabin layout on the Boom Overture shows a comfortable looking business class ‘recline-and-stretch-out’ seat.

“AFTER A HIATUS OF MORE THAN 20 YEARS, TRAVELLERS CAN THRILL TO THE IDEA OF MAKING LONG-HAUL FLIGHTS IN HALF THE TIME TAKEN BY SUBSONIC AIRCRAFT”



2

1. The Boom XB-1 cabin seats will have a large IFE touchscreen and a generous tray table/work-desk surface
2. Boom Supersonic's CEO, Blake Scholl

These seats would be configured 1-1, on each side of the aisle. The curved seatback shell would provide a considerable amount of personal privacy for the passenger and feature a large IFE touchscreen plus a generously sized extendable tray table/work-desk surface.

Interestingly, the livestream made no mention of the unavoidable sonic boom. But Boom Supersonic's website states unequivocally that Boom Overture will fly supersonic only over water and will remain subsonic when over land. So, the disturbing decibel levels will not be heard in populated areas.

Concorde's legacy

During the era of first-generation supersonic transport (SST), Concorde's glory years evolved concurrently with the glory years of the large size, widebody Boeing 747. Following the US Airline Deregulation Act signed into law by President Jimmy Carter in 1978, carriers had to compete ferociously on the transatlantic routes during the 1980s and 1990s to fill the hundreds of seats on each of their 'Jumbo' jetliners.

By contrast, Concorde, seating just 100 passengers in all-one-class service, was marketed as the exclusive preserve of the great, the good and the unusual – a 'halo-type' travel experience closer to that of the private charter aviation sector than to the everyday operations of the multi-class subsonic fleets that had been developed to serve mass affordable air travel.

At the Concorde operating airports, SST passengers checked in at dedicated Concorde desks and waited for their flights in super-elegant Concorde lounges. Onboard, regular SST flyers often greeted each other using their first names, and during the meal service it was customary to have cocktail-party-style conversations with neighboring passengers (note: there were no seatback TV screens in the cabin).

At British Airways (when I was privileged to work as controller corporate identity, with responsibility for the implementation of the airline's visual design programmes across the network, including the interiors and exteriors of both the supersonic and

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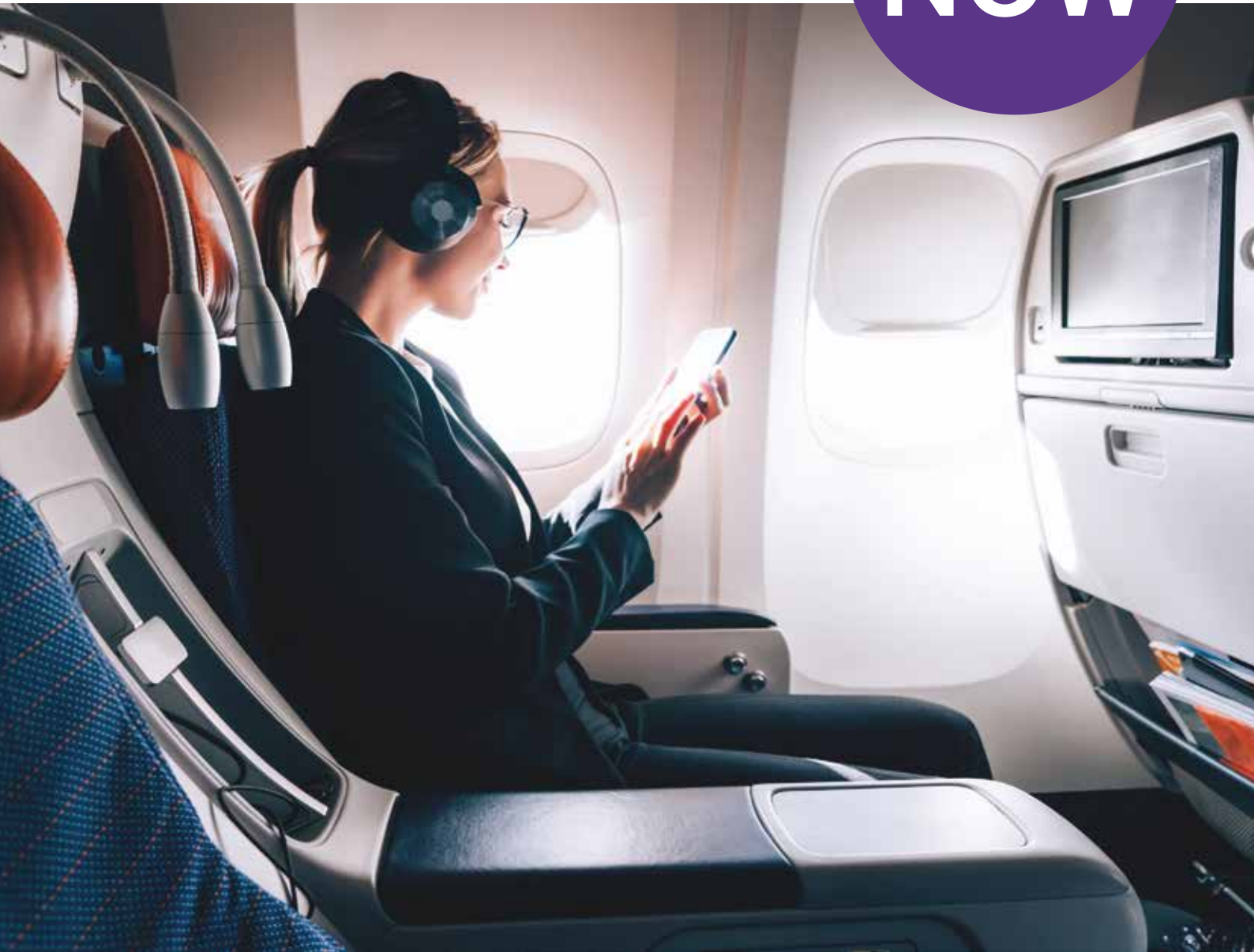
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1. The ribbon-cutting ceremony at the Overture Superfactory in June 2024
2. XB-1's manufacturers hope to bring supersonic travel to everyone



2

1

subsonic fleets), a key question arose frequently in our travel agency and customer focus group meetings: why were Concorde fares always priced at the level of the top-net-worth passenger market segment? The extra payment was typically set at 20% above the level of the published first-class fare for a particular route. Wouldn't Concorde be suitable for passengers paying the published first class and business class fares?

The response: having considered a range of options, both British Airways and Air France had decided that Concorde should cater specifically to the top-net-worth market segment. The argument: for a start, top-tier passengers were clearly happy to pay top-level fares for SST, and many of the affluent Concorde passengers were well accustomed to signing expensive contracts with private charter aviation companies that offered 5-star hotel-style dining options and ultra-luxurious passenger service standards.

Additionally, if Concorde fares were pegged at the normal first class or business class levels, there could be a seriously adverse effect on the first class and business class sections of the airlines' subsonic fleets. These premium cabins could have been rendered obsolete if large numbers of first class and business class passengers had migrated to Concorde – in effect, the airlines would have been poaching from or cannibalising their own high-revenue market segments. Furthermore, how would the airlines have been able to make a profit if their subsonic widebody flights were filled entirely with low-fare economy-class passengers?

The future of supersonic travel

Will Boom Supersonic spark the renaissance of supersonic flight? Will its Overture supersonic jet become the aircraft of choice for certain airlines on the 600-plus business hub routes identified as

potentially profitable by Blake Scholl? For airlines competing on the same business-hub routes and utilising their traditionally configured subsonic fleets, there would be an immediate need to review and adjust their 'jugular marketing' strategies and associated fare levels to counter the attractions of their rival newcomer's SST operations.

And what about those airlines that might be planning to add Boom Overture supersonic jets to their existing, multi-class subsonic fleets? The key challenge would be to analyse the potential revenue streams and establish new business models with compatible fare-pricing structures to encompass the full range and differentiation of product features and customer benefits across all the classes of service on offer, including second-generation SST.

Yes, we're looking at you, marketing gurus — it's your turn now. In boardroom meetings, marketing strategists at leading airlines might well already be contemplating the long-term strengths, weaknesses, opportunities and threats associated with the advent of second-generation SST. If the hubs are going to be served by supersonic aircraft, how should airlines plan the developments for the cabins of their subsonic fleets?

Just think of the number of airlines that have hundreds of units in their single-aircraft-type or mixed-aircraft-type fleets. Because of the lead times to implement programmes that cover aircraft interior reconfigurations, product upgrades and retrofits, it is essential to make major marketing decisions many years in advance. ●

Provided with permission from copyright owner Jennifer Coutts Clay, author, Jetliner Cabins: Evolution & Innovation E-Book. The Fourth edition is out now, available for Apple, Android and Kindle devices

**“WILL BOOM SUPERSONIC
SPARK THE RENAISSANCE OF
SUPERSONIC FLIGHT?”**

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Registration is now open for entries for the Best Places To Work In Aviation 2025. Winning one of these awards will put your business out in front as you meet the challenge of people and talent.

At our inaugural ceremony last year, seven firms were named Best Places winners including Dublin-based EirTrade Aviation. Receiving the accolade, chief executive Ken Fitzgibbon said: "Every single member of the team at EirTrade Aviation is involved with ensuring that the company works to the highest levels of efficiency and professionalism, and we take great care to ensure that everyone is mentored and supported in their role.

"The more experienced managers are wholly engaged with our philosophy of training 'on the job' and share their knowledge and expertise to build technical and commercial wisdom.

"We are therefore delighted that our positive workplace culture has been recognised by receiving the Aviation Business News Best Places to Work in Aviation award. This award will show the industry that EirTrade is not only a great place to work, but also a great place to build a career."

Looking forward to this year's entries, Lee Hayhurst, ABN editorial director, says: "The battle for people and talent is one which the aviation sector must engage with and earning the right to use a Best Places badge when recruiting shows that your business is valued as a place to forge a long and rewarding career.

"We're looking forward to hearing about more fantastic employers in the sector this year who are doing their bit to ensure that the industry is attracting and retaining the sort of skills that it desperately needs to ensure it has a vibrant and successful future."

There are three different ways companies can participate. You can be an individual organisation with a registered company number, or you can be the parent or holding company of more than one organisation, with one registered company number for all subsidiaries. The parent or holding company must register with all employees employed by it.

Alternatively, you can be a subsidiary of a parent or holding company but register separately if each subsidiary has a different registered company number. If you have more than one facility, branch, factory, office or store, you must include all locations that operate under your registered company number in the survey. ●

"WE'RE LOOKING FORWARD TO HEARING FROM FANTASTIC EMPLOYERS DOING THEIR BIT TO ATTRACT AND RETAIN TALENT"



HOW DOES IT WORK?

What we ask from you is simple. Employers are asked to fill out an in-depth questionnaire about their company, while employees are asked to take a survey.

These elements allow us to collect direct information and honest feedback about your workplace.

We need both pieces to conduct a thorough analysis of your organisation and complete a professional assessment to determine if you are one of the best.

We'll take the data we collect and use it to produce company rankings and your individualised employee feedback data dashboard, which includes the information gathered from the surveys of your employees.



ARE YOU ELIGIBLE TO ENTER?

There are a few requirements companies must meet to be eligible for our programme. You are eligible to participate if you:

- Have at least 15 permanent employees, either full or part-time
- Are a publicly or privately held organisation
- Operate in the aviation sector (60% plus of revenue generated from aviation)
- Predominantly supply services or products to the aviation sector
- Have been in business for at least one year, at the programme registration deadline

1. Employees will give feedback about their experiences at work
2. The dazzling evening reception at the 2024 awards ceremony
3. Ken Fitzgibbon, EirTrade CEO
4. EirTrade Aviation's positive workplace culture netted it one of last year's awards



2



Our special ABN Best Places To Work In Aviation winners supplement profiles the seven inaugural winners of the award. To view it go to aviationbusinessnews.com

ENTER NOW

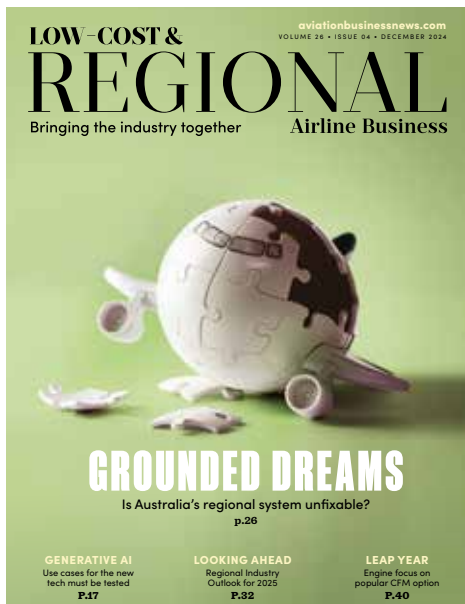
Firms have until 13 June to register and employee surveys will be completed by 8 August. This year's winners will be revealed in October. Enter now at bestplacestoworkaviation.com



3



4



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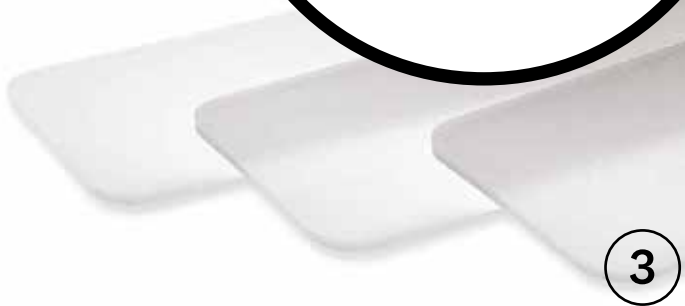


JUST LANDED

A look at some intriguing lighting products at this year's AIX



2



3



4

1

Who: IFPL

What: Cobalt Spectrum

Web: ifpl.com

Cobalt Spectrum is engineered to meet the needs of all commercial airlines. Class-leading LED lighting units deliver stunning cabin scenes and seamlessly integrate with OEM systems, requiring no changes to existing wiring. Featuring the brightest, LED technology, the interactive Colour Clinic tool helps airlines create bespoke colour scenes.

2

Who: SELA

What: Clematis dimmer system

Web: sela-light.com

Founded in 1920, SELA started specialising in aeronautical lighting in the 1950s. Its innovative Clematis system features an app that seamlessly integrates into a principal network allowing users to adjust the colour or brightness of cabin lights to suit their preferences. The network controls a dimmer sequencer box for several lights.

3

Who: Rehau

What: Lighting Covers

Web: rehau.com

Elsewhere at AIX you'll find these modern, minimalist cabin light covers from German firm Rehau. The transparent, translucent light strip and lighting covers combine elegant design with sophisticated functional details. All materials used meet the FST requirements for cabins. The manufacturing processes are also qualified by Airbus.

4

Who: Polystone Creations

What: Shade for JetBlue

Web: polystonecreations.com

Concrete is neither a popular material in aviation, nor is it a common choice as a lampshade. However, Polystone Creations has created a shade simulating the aggregate's rugged beauty. With custom lenses and filters seamlessly integrated into both the top and bottom sections, these lampshades not only enhance aesthetic appeal but also ensure optimal lighting quality and distribution.

UK SAF mandate takes effect

The UK government introduced the 'SAF mandate' at the start of 2025, but what is it exactly and how does it work?

The SAF mandate is the UK's key policy mechanism to secure demand for sustainable aviation fuel (SAF). It aims to deliver greenhouse gas emission savings by encouraging the supply of such fuels within the aviation industry.

The mandate will set a legal obligation on fuel providers in the UK to supply an increasing proportion of SAF over time. They will then receive certificates for the fuel supplied. The number of certificates issued will be in proportion to the level of greenhouse gas emission reductions generated. The greater the reductions, the greater the number of certificates received.

The government has predicted that the mandate could deliver up to 6.3 megatonnes of carbon savings per year by 2040.

How does the SAF mandate work in practice?

The SAF mandate has two obligations – the 'main obligation' and a 'power-to-liquid obligation'. The power-to-liquid (PtL) obligation is designed to accelerate the development of power-to-liquid fuels, which are less reliant on scarce feedstocks and also less subject to other potential negative environmental impacts.

For 2025, the main obligation has been set at 2% of the total fossil jet fuel supplied, approximately equal to 230,000 tonnes of SAF. This will increase annually, reaching 10% in 2030 and 22% in 2040. The power-to-liquid obligation will be introduced from 2028 at 0.2% of total jet fuel demand and will reach 3.5% of total jet fuel demand in 2040.

To demonstrate compliance against meeting their obligations, fuel suppliers must apply for certificates and provide sufficient evidence that the fuel is eligible and sustainable. They can either use these



certificates to show they have met their obligation, trade them to other parties, or pay a buy-out price.

Buy-out mechanism

Both obligations will include a buy-out mechanism. This will provide a method of compliance in situations where suppliers are unable to secure a supply of SAF. The buy-out prices are set at a level to encourage the supply of SAF over the use of the buy-out and effectively set a maximum cost for the scheme, thereby delivering greenhouse gas emissions reductions at an acceptable cost.

HEFA cap

The SAF mandate will also include a cap on the amount of fuel made from hydroprocessed esters and fatty acids (HEFA) that can be used to meet the main obligation. HEFA can contribute a maximum amount (100%) of SAF demand in 2025 and 2026, decreasing to 71% in 2030 and 35% in 2040.

The scheme will be overseen by the Department for Transport. They will be responsible for enforcing the scheme and supporting fuel suppliers to comply. If necessary, they can revoke certificates or issue civil penalties.

To ensure the mandate reflects the latest technological and commercial developments, there will be continuous monitoring of trends and impacts of it, including on consumers. 

6.3

MEGATONNES

The government predicts that the mandate could deliver up to 6.3 megatonnes of carbon savings per year by 2040

THE OBLIGATION WILL INCREASE ANNUALLY TO REACH 10% IN 2030 AND 22% IN 2040

The business of connectivity is not a "one for all" scenario

AirFi Founder Job Heimerikx weighs in on the decision-making process behind IFC selection.

Has the buzz around high-bandwidth inflight connectivity, powered by Starlink, Kuiper, or Viasat, convinced you that the future of air travel lies in ultra-fast internet in the skies? You're not alone. The hype is real, and the allure of cutting-edge satellite systems is hard to ignore, especially for the big, well-funded carriers. But before declaring these vendors the end-all solution, it's worth taking a step back.

For airlines with deep pockets and an eye for prestige, high-bandwidth internet may seem like a no-brainer. But for the vast majority of carriers, especially those focused on lean operations and cost efficiency, the high-bandwidth reality is starkly different. The numbers don't add up.

Think of it like buying a Tesla. Yes, it's sleek, fast, and makes you feel like you're part of an elite club. But does it make sense financially? With high costs, limited range and reliability issues, a Tesla is more about status than practicality. High-bandwidth inflight connectivity providers, in many ways, follow the same script: an expensive and flashy option that may not be the best business move for most airlines.

High fixed monthly fees, restrictions on monetising the service, expensive equipment, installation, maintenance and de-modification costs, long lead times to get to a unified customer experience across fleets, aircraft out of service, weight, drag and fuel penalties, are the hidden features of free high-bandwidth connectivity for all.

Was buying my first Tesla a sensible decision? Given the higher purchasing cost, range that tops out at 350 km (under the best conditions) and hassle of waiting while it charges on a long trip, I'll acknowledge it was not! But I weighed the facts, marketing drew me in and did it anyway. I'm the "cool dad" in the street when I pick up my daughter from school, and I liked that.

So the real question airlines should ask is:
What do my passengers actually need, and what makes sense for my bottom line?

For most travellers, especially those flying on low cost carriers, inflight messaging access alone is game-changing.

With multi-billions already invested globally in seat-back systems and premium IFE content, how does the "full, fast & free" business case stack up? Do passengers need streaming services at 35,000 feet? And more importantly, we know that many content distributors are concerned about the infringement on licensing rights this service may cause.

"Apparently we need to compete with High-bandwidth inflight connectivity providers, so I bought ourselves a rocket," says, AirFi CEO Job Heimerikx

The ability to stay connected with loved ones or colleagues and enable a personalised, data-driven onboard experience is delivered affordably through low-bandwidth solutions.

The truth is, airlines can offer valuable connectivity without breaking the bank or buying into the high-bandwidth frenzy.

Low Earth Orbit (LEO) systems, like AirFi's low-bandwidth offering, provide an efficient, cost-effective alternative, allowing airlines to keep passengers happy without the hefty price tag and operational headaches that come with high-bandwidth systems.

In a world where connectivity is essential but budgets are tight, the real winners will be those who select the right and sustainable solution for their business not those chasing trending tech.

Not every family buys a Tesla, and not every airline is in financial position to justify the extravagance of high-bandwidth solutions or its drag. The future market will turn to be black and white; either spend the money and project yourself being cool or remind yourself that there is a business to be ran and that making money should be the goal. It's about meeting the needs of passengers and staying competitive...parameters that are different for each carrier.

The real winners in this space will be the airlines who select the right global service for their immediate needs, then use and expand it creatively.

Everything else is just fancy rockets.

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