

Aircraft

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CABIN

Perfecting the passenger experience

Management

WAY OF THE FUTURE

eVTOL cabin design for the next century, today

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MAINTENANCE

Tech can bring new efficiency to cabin repair operations

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SCREEN TIME

Seat-back IFE seems here to stay, but what's next?

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BRANDING

Getting your name and values into the customer's head

p.26



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Management

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Panasonic



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A BUZZ ABOUT NOTHING

Is sustainability just a buzzword? I recently attended the general assembly of the European Airline Association. During the conference, one of the speakers showed a slide with a picture of a supermarket aisle with a tent card above the goods on sale. The card read 'Sustainable' with no explanation or other context, making it utterly meaningless.

Graphics like this are often used in retail stores as a particularly cynical way of reinforcing the 'values' that the store owner wants to impress on its customers without them being aware that they are being marketed to. The question that the presentation at the ERA was raising was: Are we guilty of doing something similar in aviation?

For all the talk of sustainability, what is actually happening? Ignoring the issues around SAF for a moment, we as an industry are still trying to persuade passengers that even though tonnes of laundry are generated and mountains of food wasted on every flight, it's somehow OK because the forks are made from bamboo. Worse, the airlines will send out press releases saying how environmentally friendly their cabin is because of it.

Branding and marketing certainly has its place (and we speak about it at length in this issue), but the industry has to be authentic in putting its words into action, or face being called out on it by consumer



▲ 'Sustainable' or meaningless?

groups or environmental protesters. In the age of social media, such campaigns can very quickly spiral beyond what the original complaint was, causing the industry even more problems.

In order to move on from talking a lot but doing comparatively little, all major airlines need to work together to find a way that they can make substantive change.

Greg Whitaker

Greg Whitaker

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P.S. Being reasonably new here, I'd love to get to know you better. Please don't be shy in dropping me a note about what you'd like to see more (or less) of in the magazine. You can reach me at: greg.whitaker@realresponsemedia.com

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Aviation Business News

BUSINESS BRIEFING



INTERIORS

JAL releases renders of upcoming A350 interiors

Japan Airlines has revealed its premium economy, business class and first class seats that are fully customised with Safran Seats for 13 Airbus A350s.

The airline will be the first to offer the latest technologies from Safran on both first and business class suites: Euphony, a headset-free sound product developed with acoustic engineering firm Devialet; and Active Backrest, a mechanism which offers more backrest support in all flight phases and suits all passengers' profiles.

The first class cabin will have six suites, each with a wide seat for the passenger, with a side seat for use when

the primary seat is in bed position. The primary seat converts to an 80" bed with high shells and doors for privacy. The suite holds up to three people with both the primary and side seat paired with the adjacent ottoman. Multiple stowage spaces include a wardrobe, a large under-ottoman space and an insulated drinks compartment. Passengers can enjoy a large 43" in-flight entertainment screen paired with Euphony and an individual wireless suite.

The business class cabin features 54 suites in a staggered configuration. The seats offer an improved in-flight experience thanks to the overall space

available along with Euphony and the Active Backrest. The high shell and transparent door, signature style features of Japan Airlines, provide privacy. The meal table deploys from the console in a single piece, giving passengers more space, while the console paired with the meal table provides extra space for work or leisure activities. The under ottoman space allows passengers to store carry-on bags and belongings close to them.

In premium economy, the 24 seats have been designed to preserve living space and ensure privacy. They are equipped with a fixed backshell and a large divider between the seats. Additionally, the new seats are electrically actuated, providing passengers with complete control over their seating position.

Victoria Foy, CEO of Safran Seats, said: "Safran Seats and Japan Airlines have had a close relationship for several decades and it is an honour to be a key part of the journey from co-creation with Japan Airlines for their brand new A350-1000. It is also an important milestone for Safran Seats and we're excited that passengers will experience our latest innovations with the launch of Euphony and Active Backrest, offering first and business class passengers a unique way of enjoying their flight."



CONNECTIVITY

Qatar selects Starlink

Qatar Airways is set to offer Starlink's service on specified aircraft and routes. The high-speed, low-latency broadband internet access will be complimentary for all passengers with 'One-Click-Access' onboard. Starlink will allow passengers to access a Wi-Fi speed of up to 350 megabits per second for gaming, VPN access, sports streaming and more.

The airline is currently the largest to collaborate with Starlink and, in the future, will roll out complimentary high-speed, low-latency internet connectivity

onboard specific aircraft and routes. Once the service is active, passengers will be able to enjoy fast Wi-Fi speeds.

Before his retirement, Qatar Airways Group Chief Executive, Akbar Al Baker said: "This exciting collaboration is not only in line with our industry-leading approach to technological adoption, but also serves as an unmissable opportunity to connect Starlink to our global passengers. We look forward to our passengers benefitting from this state-of-the-art addition to Qatar Airways' in-flight experience."

INTERIORS

Recaro gains exclusive supply contract for LOT Polish airlines

Recaro has been selected as the exclusive seat supplier for LOT Polish Airlines' (LOT) widebody fleet through 2030.

This contract award encompasses eight Boeing 787 aircraft and includes the installation of the CL6720, PL3530 and CL3810 seats in the business, premium and economy classes, respectively.

The delivery of more than 2,000 passenger seats is scheduled to commence in Q3 2026, which will mark the first time for the seat supplier to partner with LOT on a widebody project. Production of the economy class seats will take place at Recaro's facility in Świebodzin, Poland.

"The partnership represents a milestone for both LOT Polish Airlines and Recaro, marking the first time we embark on this widebody project together," said Izabela Leszczyńska, product director, LOT Polish Airlines. "With production of the economy class seats to be based in Świebodzin, Poland, we believe this collaboration sets new standards in aviation."

LOT Polish Airlines, founded in 1929, has emerged as a prominent carrier not only in Europe but on a global scale. With a fleet of 80 aircraft, LOT serves 10 million passengers annually.

BRIEFS



- Antenna manufacturer ThinKom says that it has produced a radome that reduces drag by up to 75 per cent when compared with flat-top ESA designs. That translates to millions of dollars saved in extra fuel expense across an RJ fleet and a reduction of tens of thousands of tons of excess carbon dioxide emissions.

- Cabin material supplier Bally Ribbon Mills has participated in a project with Sierra Space in which embedded fibreoptic sensors were woven into the firm's Vectran webbing and then later integrated into an inflatable test article that was tested at NASA Johnson Space Centre for potential use in future inflatable habitat structures for NASA Lunar Gateway and Mars missions.

- United is to update its IFE systems to adopt a Bluetooth standard that takes advantage of several features present on Apple AirPods Pro. These include 'Conversational Awareness' and 'Adaptive Audio' where the earphones can cancel out noise such as the plane's engines, but keep the listener aware of the people around them.

- Transavia has started a three month shopping and IFE trial using AirFi's 'Mall in the Sky' concept. The trial builds on an established relationship between the two companies, as the airline has been using AirFi software for years.

12

Aircraft initially fitted with Braille by United. The American carrier expects to equip the whole fleet by 2026

400

Delta B717s and regional jets to be retrofitted with the Hughes In-Flight management system

29%

YoY increase in revenue at LSG Group ahead of its transition to independent ownership



BUSINESS

Haeco Cabin acquired by Zim Aircraft Seating



Immenstaad-based Zim Aircraft Seating has acquired Haeco Cabin Solutions from Haeco Group. Terms of the deal have not been made public.

The combined organisations will be known as 'Zim Group' in order to reflect that the newco will produce Cabin Solutions' ranges including a full line-up of galleys, lavatories, Wi-Fi adapter plates and stowage products.

ZIM Aircraft Seating GmbH is headquartered in Immenstaad on Lake Constance in Germany, with production in nearby Markdorf. Since the end of February 2020, the company has been majority owned by the Aurelius Group.

Welcoming the acquisition, Zim Group CEO Sven Achilles said: "The advantage of risk mitigation by gaining access to another pool of highly skilled employees that will also benefit from this merger and to a broader supplier base is topped by the integration of a fully equipped testing facility and FAA Organisation Designation Authorisation (ODA) approval which will significantly help us speed up new product development."

Raffael Rogg, operating partner at Zim Group added: "With the takeover of Haeco Cabin Solutions, Zim Group becomes the world's fourth-largest aircraft seat manufacturer with a significantly expanded product portfolio as well as customer base."



BUSINESS

Waypoint Aerotec acquired by JETMS Completions



Aircraft interior and exterior completions company JETMS Completions has acquired Waypoint Aerotec, a certified Design Organisation. Terms of the deal have not been disclosed.

The acquisition means JETMS Completions will now possess UK CAA Part 21J Approval, enabling it to offer structural modifications, avionics and in-flight entertainment system upgrades, as well as streamline and expedite the certification processes, increasing the company's efficiency.

Gegams Hanamirjans, executive chairman at JETMS Completions, commented: "Along with the recent appointment of Stefan Chevalier as managing director, this strategic acquisition is set to strengthen our position as a seasoned, comprehensive provider of top-tier aircraft interior and exterior completion services."

"With our new status as a certified design organisation, we're primed to expand our service portfolio even further, ensuring our customers have access to a diverse range of aircraft interior and exterior solutions, all conveniently available under one roof."



CONNECTIVITY

‘NICE’ IFE deal for Lufthansa Technik and Pilatus

Lufthansa Technik AG and Pilatus Aircraft have announced a strategic cooperation regarding a cabin management system for the Pilatus PC-24 Super Versatile Jet. Lufthansa Technik’s Original Equipment & Special Aircraft Services segment has adapted its networked integrated cabin equipment (NICE) specifically for the popular jet aircraft type.

In the PC-24, the system is called ‘integrated cabin management system 4.0’ (iCMS 4.0) and features a 10” touch screen controller with 3D moving map, USB ports, media storage server and four high fidelity cabin speakers with optional sub-woofer, HDMI input and mood lighting.

In the past, such systems have only been installed in mid-size and large business jets, mainly due to the number of components, weight, performance and costs. For its new partner Pilatus, Lufthansa Technik is introducing an ethernet-based NICE in which the entire system is housed as a line-replaceable unit in a compact enclosure.

“Pilatus is proud to introduce the iCMS 4.0 IFE in collaboration with Lufthansa Technik,” said Ignaz Gretener, vice president of Pilatus’ Business Aviation unit. “Our modified system, more compact and efficient than ever before, features a fully customised interface tailored to Pilatus’ discerning customers. This innovation not only enhances the onboard experience but also reflects our commitment to pushing the boundaries of aviation technology.”

Andrew Muirhead, vice president OEM and Engineering Services, and head of the Original Equipment & Special Aircraft Services segment at Lufthansa Technik, added: “We are honoured to be part of this remarkable aircraft and to offer Pilatus service enhancements that will elevate the PC-24 passenger experience to an even higher level.

“We are proud of our technical achievements in integrating so much functionality into such a compact unit. Together with our valued new partner Pilatus, we are now making the PC-24 Super Versatile Jet even more versatile.”



CONNECTIVITY

Delta selects Hughes In-Flight system

Delta Air Lines has selected Hughes In-Flight to power passenger Wi-Fi service on more than 400 Boeing 717 and regional jets serving North America.

The product combines the Hughes In-Flight management system with a multi-orbit antenna and its Jupiter Ka-band satellite capacity to deliver in-flight connectivity.

“Hughes welcomes Delta and appreciates their collaborative approach to enabling an enhanced connectivity experience for regional passengers,” said Reza Rasoulia, vice president, Hughes. “Travellers expect reliable Wi-Fi wherever they go, including in the air; the Hughes In-Flight connectivity solution enables Delta to meet that expectation with fast gate-to-gate connectivity.

“Our partnership to create a low-weight, high-capability solution for our regional fleet brings us ever closer to fleet-wide connectivity at the speed and reliability our customers expect and unlocks our ability to elevate the experience further in the years to come.”

The programme is already underway and on schedule with initial installations expected to begin in mid-2024.

“Travellers expect reliable Wi-Fi wherever they go, including in the air”

CALIFORNIA LOVE

The APEX show in Long Beach raised plenty of industry topics to mull over

More than 3,000 of the top airline industry decision makers, including representatives from nearly 100 airlines, attended the APEX/IFSA Global Expo. Co-located with Future Travel Experience (FTE) at the Long Beach Convention Centre in California, the three-day record-breaking event saw nearly 250 exhibitors representing the end-to-end passenger experience.

Attendees experienced the latest airline-related technologies, products and services such as advanced connectivity, new inflight entertainment screens, an incredible assortment of airline food and beverage options, amenity kits focused on sustainability, biometrics, airport robotics and more.

“We are thrilled to have hosted our biggest expo ever. This truly speaks on the deep commitment of the entire aviation industry and their ongoing efforts to continue elevating

the passenger experience,” said Joe Leader, APEX/IFSA/FTE Group CEO. “Our event exclusively unites the industry as a relentless force and community as we look forward to future innovations, thought leadership progress and overall end-to-end passenger experience advancements.”

AWARDS

On the second evening of the show the organisers held a dinner and awards event. The ceremony was co-hosted by Joe Leader and BBC *Talking Business* presenter Aaron Heslehurst, along with Mary Kirby, founder, editor and publisher of *Runway Girl Network*. Outstanding airlines and suppliers innovating and improving the industry received awards and acknowledgement in various categories.

During the ceremony, Leader honoured the (now former) CEO of Qatar Airways Akbar Al Baker with the 2024 APEX CEO Lifetime Achievement Award for his “visionary leadership setting industry benchmarks, inspiring global trends and his dedication to the enhancement of the passenger experience.”

The last day featured a thought leadership conference, again hosted by Aaron Heslehurst, bringing together prominent aviation leaders who shared their insight on various topics.

Qatar’s Al Baker took to the stage to discuss his management style, the carrier’s approach to the pandemic, sustainability, and challenges airlines



2

face, while Dina Ben Tal Ganancia, CEO of EL AL, focused on the Israeli flag-carrier’s expanding route network and its recently unveiled partnership with Delta Air Lines, and shared her journey as a female CEO in the aviation industry.

Meanwhile, Spirit Airlines president & CEO Ted Christie provided his thoughts on the JetBlue merger, the importance of technology for passenger experience and air traffic control issues.

Saudia CEO Captain Ibrahim Koshy detailed the airline’s post-pandemic recovery and shared insights into the airline’s growth strategy, its commitment to sustainability and reducing environmental impact, and introduced several innovations and products.

On a similar topic of post-pandemic recovery, Fiji Airways managing director and CEO Andre Viljoen discussed the strategies of overcoming challenges, the leadership and the organisational culture changes that were critical in surviving the pandemic, and highlighted his personal leadership philosophy.



1

ATTENDEES TOOK PART IN SESSIONS THAT COVERED MANY CABIN-RELATED SUBJECTS



1. El Al CEO Dina Ben-Tal Ganancia and Xiamen Airlines' Chairman Zhao Dong
2. New passenger assistance technology on display
3. Akbar Al Baker received a lifetime achievement award
4. Spirit Airlines' CEO Ted Christie spoke at the event



2024 BEST IN AIRLINE AWARDS

Best Cabin Service

- Eva Air

Best Entertainment

- Singapore Airlines

Best Seat Comfort

- Cathay Pacific

Best Food or Beverage

- Qatar Airways

Best Wi-Fi

- Delta Air Lines

APEX WORLD CLASS AWARD

- Emirates, Japan Airlines, KLM Royal Dutch Airlines, Qatar Airways, Saudia, Singapore Airlines, Turkish Airlines and Xiamen Airlines

2024 APEX AWARD WINNERS

Best Inflight Connectivity

- Delta Air Lines: Bringing the Living Room to the Air

Best Inflight Entertainment

- FlightPath3D: FlightPath3D & Southwest Grab1/3 of Passenger Time Spent Inflight with Flight Tracking and Destination Exploration

2024 APEX/IFSA AWARD WINNER

Best Cabin Innovation

- Delta Flight Products: New Seat Prototype for Passengers with Reduced Mobility

2024 IFSA AWARD WINNERS

Best Inflight Food or Beverage

- SriLankan Airlines: SriLankan Flavors

Best Onboard Amenity

- Emirates: Sustainable Economy Class Amenity Kit

“WE ARE THRILLED TO HAVE HOSTED OUR BIGGEST EXPO EVER”

On the same day, the APEX/IFSA Board of Governors, an exclusive group of airlines executives including Ben Tal Ganancia, Christie, Viljoen and Koshy along with JSX CEO Alex Wilcox, SAS EVP & CCO Paul Verhagen and Xiamen Airlines chairman Zhao Dong, met to consider

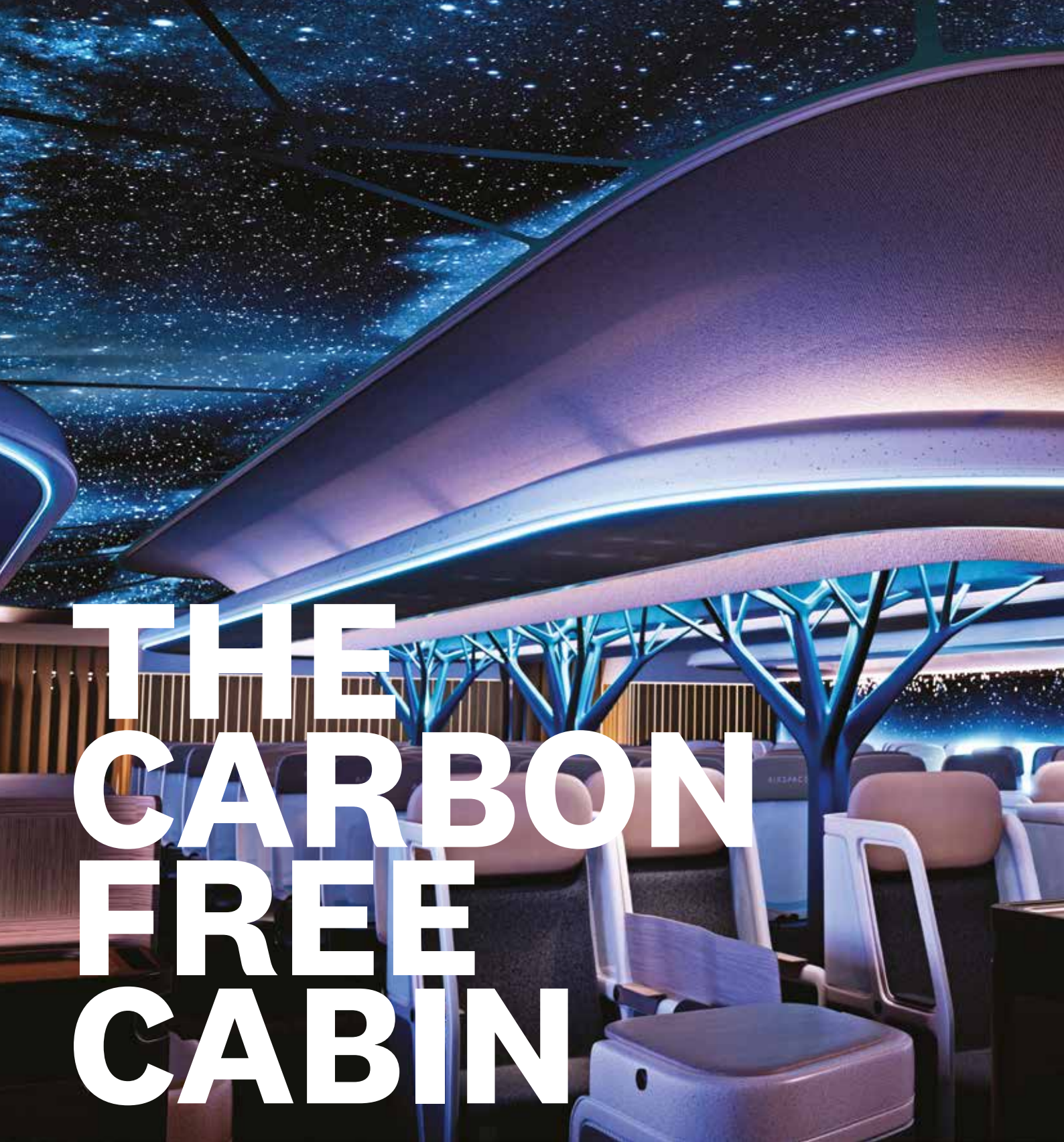
key industry priorities placed forward by the APEX board of directors and IFSA board of directors.

Afterwards, their top-level strategic guidance was presented to the membership of both associations with actions and accomplishment updates over the course of the year. Attendees also took part in breakout sessions that covered topics such as aircraft connectivity, customers and the passenger experience and content issues for IFE.

WINNERS

Hosted by Aaron Heslehurst from the BBC Talking Business programme, alongside APEX CEO Joe Leader and Mary Kirby from the *Runway Girl Network* website, the APEX Awards were attended by scores of industry experts, airlines and suppliers. A special address was made by Akbar Al Baker of Qatar Airways, who was also presented with an achievement award. See panel (right) for a full list of winners.



The image shows a futuristic aircraft cabin interior. The ceiling is a deep blue with a pattern of white stars, creating a night sky effect. The cabin walls and overhead bins are a light blue. In the center of the cabin, there are several stylized, blue, tree-like structures that branch out, resembling a forest. The seats are a light blue color. The overall lighting is a cool blue, giving it a high-tech, futuristic feel.

THE CARBON FREE CABIN

Much emphasis has been placed on the need for alternative powerplants and fuel sources, but what can be done in the cabin to reduce its carbon footprint?

◀ Futuristic Airbus concept

A NEED FOR NEW AIRCRAFT OPENS OPPORTUNITIES TO CHANGE CABIN DESIGN

Design opportunities

Multiple airline companies have announced programmes to try to become more sustainable in the coming years. Delta Air Lines has committed \$1 billion to become carbon neutral by 2030; easyJet pledged to get there by 2035, JetBlue by 2040, and United Airlines by 2050. Older aircraft remain the least fuel-efficient, and Wizz Air has estimated that if all other European airlines ran aircraft of a similar vintage, they would save 34 per cent on their emissions.

Speaking at the Green Aviation Event back in 2021, easyJet's David Morgan produced a startling statistic regarding future fuels, claiming that 18 tonnes of kerosene would enable an Airbus A320 to fly from London to Dubai; 18 tonnes of battery would get the same aircraft to Dover; and 18 tonnes of hydrogen would get it all the way to Sydney, Australia – but the volume involved would be impossible to carry.

If hydrogen is the saviour, it will require a complete redesign of new aircraft to carry the fuel in the mid-section – perhaps with passengers above/below/ alongside in a blended wing concept.

This need for new aircraft – be they conventional, SAF or hydrogen powered – in turn opens opportunities to radically change, modernise and improve the cabin environment.

Better cabins

In recent months increasing emphasis has been placed on the 'green' cabin, with many airlines realising that small changes go a long way towards their carbon footprint and the regard in which their customers hold them.

Supply chains are starting to take sustainability very seriously and many OEMs are demanding verifiable sustainability from suppliers and partners. For some years, business aviation giant Gulfstream Aerospace has mandated "environmentally conscious business practices" in its suppliers' code of conduct, and others are following suit.

Sustainable materials and manufacturing processes found in Gulfstream's cabins, such as the use of

Last year, Robert Courts MP (who was at the time UK Aviation Minister) pointed out that aviation was responsible for 5 per cent of global emissions but was getting more than 5 per cent of attention. Noting that the world needed a sustainable and highly profitable aviation sector, he emphasised the desire for what he called 'guilt-free' flying: "Flying is not the problem; emissions are," he said.

While much emphasis has been placed on the quest for alternative powerplants – be they electric, hybrid or hydrogen – and the development of sustainable aviation fuel (SAF) there is much more that the air transport industry can do to both minimise its impact on the climate and win the hearts and minds of the eco-minded traveller.



1. Lightweight composites are finding favour in modern interior design
2&3 Advanced Airbus Airspace design, reminiscent of a 1930s airship



2

3

renewable natural fibres like cotton and wool, are now becoming commonplace in airliners too. Likewise, many of the materials are recyclable.

Lufthansa Technik's Explorer cabin concept features a large-scale integrated projection system for virtual content, which extends from the window belt to almost the entire cabin ceiling in the multifunctional lounge area. Although similar features have often been seen in design studies, Lufthansa Technik had not found a suitable technology to implement them in a way that is both aesthetically convincing and certifiable. However, it has been working with Diehl Aerospace, Diehl Aviation and Thales to develop the technology that can realise large-scale virtual cabin elements.

The small, lightweight and passively cooled projectors have been integrated into the cabin sidewall and ceiling elements, which can generate large-scale virtual scenarios. The content of the projections can be configured to individual customer tastes – from seascapes to the galaxy or whatever they enjoy – via a software solution developed by Diehl.

Technological advances

The increasing use of 'intelligent' technologies is also opening opportunities to streamline the cockpit and the cabin. Integrated platforms work together to both improve operational efficiencies and

20%

Using composites instead of traditional aluminium to manufacture aircraft components has helped reduce the overall weight of aircraft such as the Boeing 787 and Airbus A350 by around 20 per cent

reduce the amount of wiring required for the cabin, galley and flight deck.

New materials could also help airlines 'go green' and researchers are investigating new composites and coatings that are lighter, thinner, less toxic and more environmentally friendly than those already in use.

Using composites instead of traditional aluminium to manufacture aircraft components has helped reduce the overall weight of aircraft such as the Boeing 787 and Airbus A350 by around 20 per cent. Now, research is being undertaken at the University of Alabama to enable carbon fibre composites to be embedded with nanoparticles and allow them to be cheaply and quickly produced by 3D printing. The latter would reduce material loss as parts can be produced in the exact size and shape needed instead of being cut from a larger piece of material, as is done with aluminium.

Whereas metal aircraft conduct electricity in the event of a lightning strike – the current passing directly through them with little or no damage – composites are not conductive. As such, lightning strikes can cause severe damage and manufacturers currently bond a copper mesh within the fuselage to conduct the electricity.

To improve conductivity and allow aircraft to dispense with the heavy copper layer, scientists are developing reinforced composites with nanographene or carbon nanotubes and conductive polymers.

The drive for sustainability has already seen a number of 'small' changes, which add up to create a significant difference. Airlines' initiatives include the reduction, re-use and recycling of plastics. In many cases the plastic packaging around blankets, headphones and toilet kits has been shed, plastic swizzle sticks for beverages have been replaced with bamboo ones and paper drinking straws have replaced plastic ones.

1



“NEW COMPOSITES AND COATINGS ARE LESS TOXIC AND MORE ENVIRONMENTALLY FRIENDLY”

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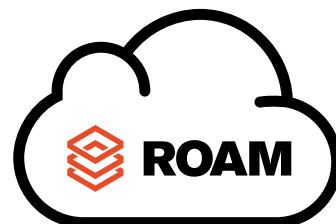
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◀ Airspace's Cabin Vision imagines how travel may look in the future

“WE BELIEVE THAT IF YOU INSPIRE A CORE GROUP, THEY WILL IN TURN INSPIRE OTHERS”

Food is slowly changing onboard as well. Earlier this year, Emirates introduced the option to pre-order inflight meals, which has proved popular with both passengers and the airline, which no longer needs to deal with as many uneaten meals. Other airlines, including Virgin, JAL and BA have also taken this approach.

Inspiring others

Crucial to any change within the industry is the mindset of the people who work within it. As part of its ongoing commitment to sustainability, wet lease operator Hi Fly has recently started a series of sustainability training workshops for its cabin crew.

The company has coupled with its sustainability arm, the Mirpuri Foundation, to ensure that its staff are fully up to speed with the important work that the airline and the foundation have been doing in the sustainability area.

Hi Fly and Mirpuri Foundation president Paulo Mirpuri says: “We always

believed that if you can inspire a core group, then they, in turn, will inspire others. It's important that our crews understand not only what we are doing, but why we are doing it.”

Mankind has put an estimated 2,000 gigatonnes of carbon into the atmosphere since the start of the Industrial Revolution and in recent years the aviation world has become a very visual target for climate change protestors.

It is worth remembering that although the industry contributes a relatively small amount of carbon, this is contrary to popular public perception. Therefore, anything the aviation world can do to win the hearts and minds of the eco-conscious traveller is a benefit. There is no doubt that airlines will have to continue using kerosene for some time, so it must become more efficient, burn less carbon per customer and do all it can to play its part in slowing climate change. 🌱

Book & Claim “is the only feasible path”

The annual COP28 conference will take place in Abu Dhabi at the end of November. However, transporting people to and from the event often causes some embarrassment for the hosts as most delegates must fly long-haul to get there.

An idea has been floated by Etihad to offset some of the carbon produced. The airline has signed a MoU with US-based SAF producer World Energy where the two organisations are looking to establish a ‘Book & Claim’ service.

This would displace approximately 26,000 gallons of petroleum-based jet fuel using net-zero equivalent gallons of World Energy’s SAF at Los Angeles International Airport. A similar scheme resulted in the elimination of around 250 metric tons of carbon related to Etihad’s Washington Dulles to Abu Dhabi route during last year’s COP27.

“We are making long-term commitments with leaders to decarbonise transport,” said World Energy CEO Gene Gebolys. “Our work with Etihad will drive innovation and accountability so we can scale sustainable fuels and make a real and impactful reduction, toward effectively decarbonising aviation.”

Mariam Al Qubaisi, head of sustainability at Etihad said: “Our NetZero flight proved Book & Claim is the only feasible path to net-zero commercial aviation with current technology and is the transition framework required until the supply of sustainable aviation fuel reaches its maturity and availability.”

This subject and much more will be discussed in a special sustainability supplement to be published by Aviation Business News to coincide with this year’s COP28 in Abu Dhabi.



eVTOL's bright lights

eVTOLs promise a completely new flight experience, and lighting is key to making science fiction, fact. *Alex Preston* looks at the challenges such low-weight, low-power consumption solutions face

Addressing the fifth Amsterdam Drone Week (ADW), held over three days in the Dutch capital in March this year, Vassilis Agouridas, leader of UIC2 (the UAM Initiative Cities Community of the EU's Civitas) and head of EU Public Co-Creation & Ecosystem Outreach at Airbus Urban Mobility, told delegates: "The time is right to start demonstrating service experiences. As the relevant technologies are getting ready to take off, Innovative Air Mobility (IAM) should be about experiencing a service, not about experiencing a technology."

Jan Petersohn, business development, Diehl Aviation agrees. "Such a new type of aircraft must convey 'build quality' in every respect," he says. "This is crucial for acceptance by potential passengers. Any detail, no matter how insignificant it may seem, may lead to doubt and rejection if it is not obviously built to the highest standards. Interior lighting systems, in combination with first-class interior components, can convey exactly this message. Even in small cabins, the interior must be elegant, high quality and as bright and inviting as possible, while being lightweight and robust."

In July 2022, Diehl was selected by Lilium to develop a comprehensive package, that includes cabin interiors and electronics, for the Lilium Jet.

The Lilium cabin is designed to offer maximum space and flexibility due to the unique architecture and the integrated seating rails – architecture the company calls 'Space Sphere Cabin'. Together with the panoramic windows, floating dome light, a generous seating pitch and by using sustainable materials, the cabin is designed to provide a highly pleasant experience to its passengers. "Overall, our fuselage is the perfect mix between a single seater helicopter cockpit and a private jet cabin," says a Lilium spokesperson. "This fusion has never been done before and is part of the reason that makes our onboard feeling so special."

Getting it right

As the Lilium spokesperson explains, eVTOLs' lighting requirements follow those similar to helicopter and smaller jet requirements. "From a customer perspective you will be able to approach our jet closer and more direct compared to a normal airliner," they state. "Therefore, the light is playing a crucial part to create a strong bond to the customer and bring our product to life even while the aircraft is parked on the landing pad."

According to Sean O'Kell, business unit manager at STG Aerospace, this bond and passenger experience must be carefully considered. Posting on the company's website, O'Kell stresses that the cabin design of eVTOL aircraft will need to reflect the wide range of passengers and operational scenarios form the utilitarian to the luxury journey.

"Cabin lighting is a critical part of the flight experience as it must work

1. The floating dome light is the centre piece of the Lilium cabin **2.** Adaptive light scenarios are planned for the Lilium Jet cabin, which is enhanced by panoramic windows



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“THE PILOT MUST BE ABLE TO DIRECTLY CONTROL THE CABIN IF NECESSARY”

to create a high quality, durable and functional environment, which will play a key role in getting passengers to buy into a new form of air travel,” he posits.

Diehl’s lighting systems for eVTOLs are full-colour and perfectly designed for indirect lighting even in relatively small cabins. As such, says Petersohn, they offer lighting designers complete flexibility to create an appealing and exclusive illumination experience during all phases of flight.

Lilium, says the spokesperson, is also planning to integrate adaptive light scenarios to provide a pleasant cabin experience to customers.

Diehl will supply state-of-the-art lighting systems with the latest LED technology and a special control unit tailored to the needs of the eVTOL. “On the one hand, it is important to reduce the effort for the pilot in an eVTOL with regard to the functions of the cabin. On the other hand, the pilot must be able to directly control the cabin, if necessary,” expounds Petersohn. “To achieve both, we have designed a control unit that allows automatic lighting scenarios depending on the flight phase of the

aircraft, but also has a direct control functionality for the pilot.”

The cabin will also be equipped with individual reading lights that will be optional and Diehl’s eVTOL variant of an emergency lighting system. eVTOLs benefit from a novel autonomous emergency light with power stored in capacitors in the light unit. This eliminates the need for a central emergency power supply and wiring through the cabin.

The Lilium Jet is designed to be configured as either a 6-seater or 4-seater cabin and, as Petersohn explains, “Due to our centre dome light all lighting elements in the cabin are designed to work perfectly with different seating configurations.”

Hyundai Motor Group’s Supernal unveiled its eVTOL vehicle cabin concept at the 2022 edition of the Farnborough International Airshow.

Supernal has partnered with the Group’s design studios to create the cabin concept as it works to certify its eVTOL vehicle for commercial use in the US starting in 2028 – and in the EU and UK shortly after.

The design embodies biomimicry philosophy, in this case a butterfly.

The team of engineers and designers have applied the automotive industry’s reductive design approach to create the lightweight interior cabin, which is made of forged carbon fibre. Ergonomically contoured seats offer a cocoon-like environment for passengers. Other features include deployable seat consoles that mimic the centre consoles found on cars, and which provide a charging station and stowage compartment for personal items.

Grab handles built into the cabin doors and seatbacks assist with ingress and egress. A combination of lighting – including overhead lights inspired by car sunroofs – adjusts with the various stages of flight to emulate a ‘light therapy’ effect. The cabin layout draws on automotive space innovation with a minimised bulkhead, which allows for generous headroom and package functionalities.

▲ Diehl Aviation is collaborating on the design and development of Lilium Jet’s cabin



Supernal

“THE STEADY VOLTAGE SUPPLY ON eVTOLS IS A RELAXATION COMPARED TO TYPICAL AIRLINERS”

“The Supernal eVTOL vehicle draws on the competence of the Hyundai Motor Group and the skillset of experienced automotive designers, which allowed us to develop a new air mobility concept that is not only safe and rational but also highly emotional,” said Luc Donckerwolke, chief creative officer of Hyundai Motor Group, ahead of the Airshow.

Charge of the light brigade

Weight and battery performance are important aspects when designing equipment for eVTOLs, as payload and

range determine the success of an eVTOL. Power has to cover the short vertical take-off (10 seconds for Lilium), low cruise power (for Lilium this is projected to be approximately 1/10th of hover power) to maximise mission range and the landing phase, which for Lilium is typically shorter than 45 seconds duration. The Lilium Jet is designed to spend minimal time in power-intensive low speed flight and, unlike conventional helicopters, is not intended to spend prolonged time in hover. Consequently, the stated landing phase is short in duration and only encountered in the very final phases of flight, when decelerating to a hover and descending to the vertiport.

So how does all this affect the lighting solution? “The steady voltage supply onboard eVTOLs is actually a relaxation compared to typical applications in airliners,” claims Petersohn. Here the generation of electrical power from the turbines leads to voltage variations that must be compensated by technical means in the equipment. Eliminating these requirements allows for a streamlined, lightweight design. However, since battery power for an eVTOL is prioritised for payload and

range, high efficiency of all other power consumers is a critical success factor.

Diehl’s eVTOL lighting system also keeps weight to an absolute minimum while maintaining high standards for light quality and brightness. “Having developed numerous generations of LED lighting for large aircraft, Diehl has strong partnerships with leading LED manufacturers and can rely on the best LED raw materials with the highest efficiencies,” Petersohn asserts.

In the long term, the new challenges in the design of equipment for eVTOLs and the results obtained will also be useful for large commercial aircraft, he believes.

As the Lilium spokesperson adds, “Light is elevating our cabin and is bringing it to life! We believe with the dome light – our cabin centre piece – and the infinite halo light around it, we found the sweet spot within our weight package.” ☺



Supernal

2

1. A combination of lighting helps to create a cocoon-like environment for passengers on the Supernal eVTOL which was inspired by the butterfly

2. eVTOLs radically change the way we perceive aircraft cabin design

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verb

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What's in a name?

1

Airlines can impress customers with service and price, but it is onboard branding that will help with recall when it comes to making a repeat booking

When it comes to differentiating one product from another, branding is everything. This applies to almost everything, from motor cars to packets of crisps and pretty much everything else in between. A recognisable brand and the way that it is presented on the product will reassure would-be consumers of its quality, and reinforce in the mind of the customer the values that the item upholds and the type of people it is aimed at.

This, of course applies to airlines as much as, if not more than, many other products and services. Bold branding both inside and outside the cabin can help customers remember what they liked about one carrier or another as much as comfy seats or a decent selection of content on the IFE screens.

While keeping aircraft looking clean and modern is not in itself new, there has been a flurry of airlines updating their brand and image since coming out of the pandemic.

One of these is avianca, which has restyled its name to be written with a lower case 'a' and updated the fonts used

in its written material. In addition, the brand has introduced the strapline 'The sky belongs to everyone' and modernised its website and systems.

"The more than 180 days that our planes spent on the ground due to the Covid-19 pandemic were dark days," says Adrian Neuhauser, CEO of avianca. "We knew that our airline was at risk of disappearing, as was the connectivity of the countries and regions where we operated and the jobs we generated.

"However, it was also during that time that we saw that it was not only possible but also necessary to achieve a

“THERE HAS BEEN A FLURRY OF AIRLINES UPDATING THEIR BRAND AND IMAGE SINCE COMING OUT OF THE PANDEMIC”

owns the airline has announced a major rebranding exercise which will cover both the airline itself and its subsidiaries. The new unified logo across the Saudia airline as well as the cargo, academy, technic, real estate and private divisions features a stylised and ‘flattened’ version of the historic crossed swords and palm tree logo. It’s part of a national plan that began back in 2015 to implement projects aimed at enhancing operational efficiency and improving the guest experience across all the places where there will be interaction.

Saudia implemented a programme called ‘Shine’ in 2021, which was an extension of this plan, and the rebrand is a part of that. Ibrahim Al-Omar, director general of Saudia Group, said: “This is an exciting time in the group’s history. The new brand offers much more than

an evolution of our visual identity, but rather a celebration of all that we have achieved. We are implementing a fully integrated programme that will enable us to play a driving role in advancing Vision 2030, in line with the targets of the Saudi Aviation Strategy.”

Air India is another interesting recent example of an airline reinventing its brand to help with customer perception, although the difference here is that customers generally liked the look and feel of the logo (which includes the popular ‘Maharajah’ character) and interior design. However, while the airline was in national ownership, customers often associated the brand with dirty, worn out interiors and poor service.

For that reason, new owner Tata appointed London-based agency FutureBrand to create branding which uses the same colour palette (more or less) but looks substantially different to what had gone before, sporting a modern new, flatter-looking design without so many fussy details.

The clean and futuristic design of the logo and brand elements hopefully reinforced the idea that the planes would also be clean and new. Interestingly, some of the new aircraft delivered didn’t carry the same design language into the interior as they were planes that had originally been optioned for Aeroflot, but never delivered due to sanctions. These already had interiors fitted.

different avianca, one that is more open, closer, more accessible and with more for everyone.” Neuhauser adds that the branding “honours our history and at the same time represents what we are today.”

Change of image

Also keen to move away from an old perception of the brand is Saudia. It wasn’t that many years ago that the airline, along with several of the other Middle Eastern carriers, had an image of a flight to be endured, rather than enjoyed.

Saudia hopes to consign that image to history as the holding company that

2



3

1&2. Air India rebranded under new owner Tata

3. Avianca will drop the old branding (pictured)



2

“THE BRAND IS HISTORICAL... IT HAS PROS AND CONS WITH SOME STUMBLING BLOCKS”

The void

There are occasions where a brand has to be created to ‘fill the void’ left where a company has split a division off and sold it, or there is another reason why the original name can’t be used for one reason or another. This was fairly common in the retail banking industry following the market crash in 2008 and newly nationalised banks were rolled

up and had to create new brands or revive long dormant names. It has also happened in the automotive component market where legacy manufacturers have attempted to sell off large divisions as the industry races to electrify.

It has been seen in the airline industry as well. Italy’s flag carrier Alitalia was a pretty sick patient even before the pandemic, but during the events of 2020 the government had enough and ‘sold’ the company in 2021 to a newly formed entity called ITA Airways.

When formed, there was no brand to speak of, only a large amount of hardware with the legacy carrier’s identity. Although the new entity had the rights to the Alitalia name, it was tarnished with failure. At the time CEO Fabio Lazzerini noted that ‘the brand is historical and well known, it has its pros and cons, with a glorious history and some stumbling blocks’.

ITA went to branding consultancy Landor & Fitch (the same agency that designed the logo for Alitalia). The

resulting redesign was more radical than most observers had expected. The aircraft now carried the green, white and red colours of the national flag, which was expected, but the colour ‘Savoy Blue’ now featured heavily inside and outside of the aircraft. It looked stylish and Italian. It manages to look somehow familiar and traditional, but is very clearly different to the airline that went before.

It’s interesting to note that even something as straightforward as changing the cosmetic look of a cabin can cause complications even before a single row of seats is replaced. In this instance, bolting logo emblem plates need to be certified for safety. 🇮🇹



1

1. The main Saudia Group brands are adopting a common identity

2. ITA went for ‘Savoy Blue’ when it rebranded the Alitalia interiors



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Screen Renaissance

1

Once written off as being obsolete, seat-back entertainment has enjoyed a resurgence thanks to new technology

Not that many years ago, airlines, including some so-called 'full-service' carriers on long haul routes, said that they were planning to axe the seatback screens for inflight entertainment.

The rationale was that seatback screens had become a thing before most people had a smartphones and tablet computers. In more modern times, the airlines argued, the built-in screens added a significant amount of weight and a fair cost both in terms of the hardware and of the various licensing deals to provide content. Passengers could amuse themselves on their phones, presumably while paying for wifi, or they could just read a book.

United was one of the first to start removing the hardware on its North American medium-haul routes, while American Airlines as well as Alaska Air made similar announcements back in 2019.

However, the world of aviation before the pandemic might as well be a different planet, well out of the orbit of today. Five years ago, passengers might have grumbled about the lack of entertainment, but it was other factors (and mainly ticket price) that drove their decision to choose one carrier over another.

Today though, something interesting is happening. Airlines are not only retaining the screens, but are actually expanding the choice of content available on them. But why?

1. Generous IFE screens are here to stay
2. Aerq's vision of the future



2

In the case of United, which has in the last year been retrofitting new IFE into narrowbody aircraft where seatback equipment had previously been removed, the decision to put the IFE back really came down to demand from passengers. In a video message to employees, Toby Enqvist, CCO said: "Our competition is really, really stiff, especially in the hubs. Our customers actually have a choice. They don't have to fly United, so we have to make them want to choose United."

Enqvist also made clear that the overall experience for passengers would be improved in the refit, with the addition of larger overhead bins (See our feature on p44) and the option to pre-order food.

Another reason is a reduction in weight. The screens and associated hardware of today offer significant weight saving compared with older technology and will support airlines' efforts to reduce fuel burn and operate more sustainably.

"THE ENGAGEMENT IS HUGE WHEN PASSENGERS ARE SITTING IN FRONT OF THE AIRLINE'S BRAND ON THE IFE"

\$3m

Providing a modern, large screen IFE system is useless if there is nothing on it. Licensing, said to cost up to \$3m per widebody aircraft, is one of the main sticking points

Ancillary revenue

Perhaps the biggest reason for the screen's comeback is that airlines have twigged the devices can be used to make money. Panasonic Avionics estimates that the fully connected seatback offers as much as 30 times more passenger engagement opportunity than other channels, such as web or mobile apps.

Andy Masson, vice president of product management, explains that the modern IFE system provides airlines with a previously untapped channel right in front of the passengers' eyes.

"You hear from airlines about how important their web application is," he says. "People may spend 10 minutes on their website before logging off. They may then go into the mobile app and spend five minutes checking in before logging off, but how long do they spend on a flight staring at the seatback monitor?"

"On an ultra-long-haul flight it could be up to 20 hours. That engagement is huge when they are sitting there in front of the airline brand on its IFE. The more tech savvy airlines are realising this."

Masson adds that over the lifetime of an aircraft, the investment in the technology on a 'per item' basis starts to look cheap, even before potential add-on revenue opportunities are worked in.

Content

Providing a modern, large screen IFE system is useless if there is nothing on it though. Licensing, said to cost up to \$3m per widebody aircraft, is one of the main sticking points, as is finding something that passengers will want to watch. Various airlines have tried different content, each to give its brand a point of difference. Air Canada, for example, has signed up to put Amazon's talking book stream Audible on the system.

"We're thrilled to announce Audible as the latest global brand to work with Air Canada as we continue

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1. Larger and lighter modern screens
2. Some customers prefer to use their own device

and functionality from the kit, similar to updating apps and the operating system of a smartphone. Continuous software releases mean that the aircraft will constantly have the current software, rather than embedded hardware dating from the time the aircraft was ordered.

Another entrant in the new era of IFE is a venture between Lufthansa Technik and LG known as Aerq. Its inaugural product Aerenia can have its application suite and user interface updated at will, and can also have the content

hosted on the system updated in a fraction of the time that it would take an airline with a legacy system. Verena Bintaro, comms manager at Aerq says, “The platform will facilitate greater passenger engagement onboard the aircraft, leading to a deeper understanding of passengers’ inflight behaviours and needs and thereby open new revenue opportunities for airlines and selected partners.

“Aerenia is designed to provide passengers with the right content at the right time. This can for example be flight-phase-based content like the catering menu or order-to-seat information at the beginning of the flight, or information on public transport or guided tours at the destination just before landing. This is all enabled by state-of-the-art fully digitalised cabin touchpoints such as an in-seat system and cabin digital signage.”

While it seems that on-board screen-based IFE has had a reprieve, it’s interesting to note that it’s a technology that not everyone values. Anything that needs to be touched in order to work is almost by definition going to need cleaning at the very least, and there is evidence that a new generation of passengers actually prefer to bring their own tablet and headphones on board.

New technology

Posting on the viewfromthewing.com website about American Airlines removing IFE screens, one user comments: “I prefer American’s I-Flight (bring-your-own-device) entertainment system. AA offers access to Apple music, countless TV shows and movies. All

“AIRLINES HAVE BEEN DEMANDING A MORE FLEXIBLE APPROACH TO IFE MANAGEMENT AND UPGRADE FOR SOME TIME”

to expand the in-flight entertainment choices we offer our customers,” says John Moody, managing director, product design at Air Canada. “Entertainment is an important part of the in-flight experience and, with a growing interest in audio stories, the addition of inspiring and engaging articles and interviews in audio format complements the diverse range of content available in our unparalleled in-flight programming.”

Modular

Another reason, no longer valid, on why IFE started to drop out of favour is to do with its lack of upgradability.

Airlines have been demanding a more flexible approach to IFE management and upgrade for some time and this is one area in which Panasonic’s ‘Astrova’ system, launched at AIX this year, scores highly. A device manager will enable airlines to either add or remove applications

2



MANY CUSTOMERS WILL BE HAPPY TO USE THEIR OWN DEVICE, PROVIDING THERE IS AT-SEAT POWER

complimentary, not to mention that it is cleaner.”

The user adds, “I prefer to watch content on my own personal device – it’s much more sanitary than a dirty screen where so many have coughed, sneezed etc.”

This position is not an unusual one. There’s evidence that many customers would be satisfied to use their own device, provided that there was content available at no extra cost and at-seat power installed to charge the devices.

A popular option in this space is a system known as Everhub, from developer Inflight Dublin. Users can connect to the service on their own devices and access TV shows and movies as well as shopping and games, just as you might on a traditional IFE system. Popular in Europe, the Everhub system has recently been chosen by Tallin-based start-up airline Marabou among others.

However, designing such a system wasn’t without its challenges, as CTO David Miller explains: “When we developed our own Everhub server we were able to learn from our experiences with other systems – what worked well and what didn’t. This allowed us to deliver a low-maintenance experience to our airline clients

when it comes to implementation and operational management. For example, features like the swappable batteries without any downtime in-flight and the touch screen interface makes life that bit easier and more efficient.

“On the software side, we have focused on rolling out a single product architecture and feature set which can be reused across all clients and on all supported platforms (including portable and fixed wireless systems). So, as we add new capabilities, we can make these available to everyone. Over the past two years, we have been building out Everhub as a platform for partner integrations, including games, advertising, destination services and payments. All these integrations have been modularised, allowing clients to ‘pick and mix’ as required.”

A word of caution though: if you want to use these systems, don’t forget your USB charging cable as running video will quickly exhaust the battery.

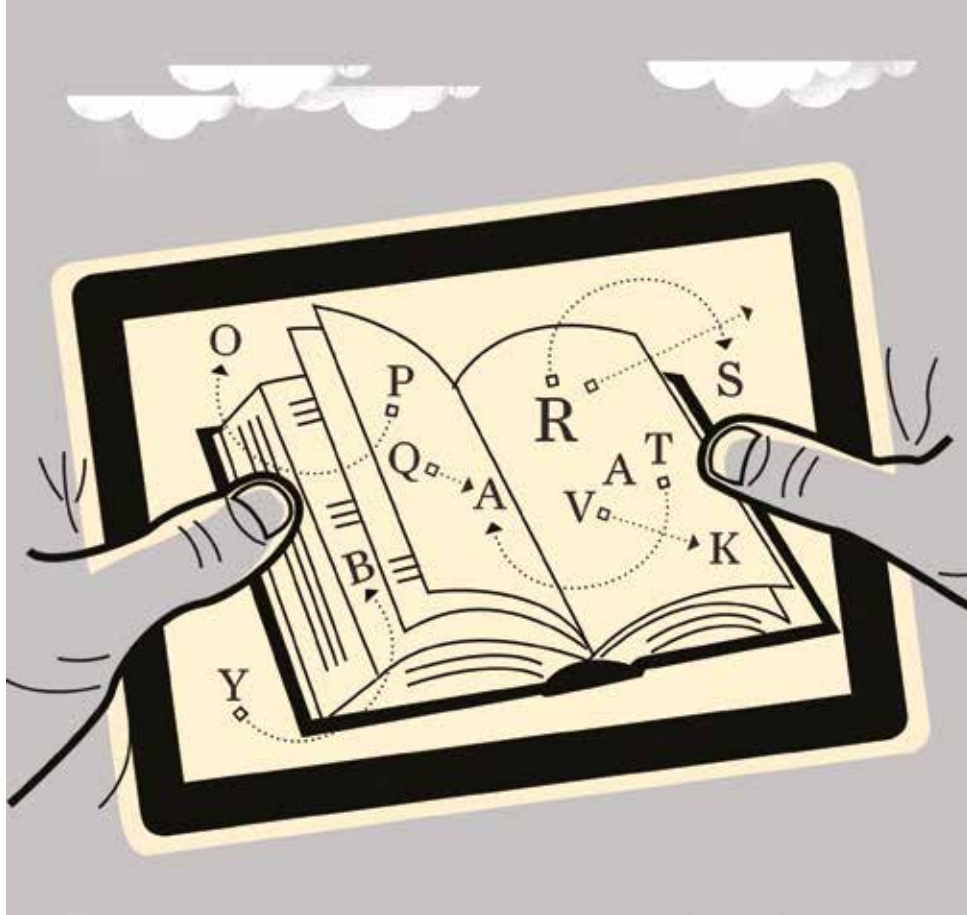
There are a number of reasons why many low-cost carriers don’t want to get involved with any aspect of IFE, one being initial cost, content licensing fees being another. Overall though, it seems the death of in-flight entertainment has been greatly exaggerated. 🍷

▲ First Class passengers enjoy the benefits of larger screens

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Digital detectives

The days of manual, paper-based cabin defect reporting is coming to an end as computer-based maintenance tracking ushers in a new era of efficiencies, as *Alex Preston* discovers

In 2017, a British Airways flight from London Gatwick to the Caribbean Island of Barbados was delayed by more than five hours due to an inadequate stock of toilet rolls and a lack of headphones. Although it cost the airline a reported £290,000 (US \$352,000) compensation bill, these issues are at the pithier end of cabin defects.

More serious is the claim from independent Russian investigative news outlet *Proekt* that Aeroflot sent a letter to senior members of its cabin crew in March 2022 advising them to stop directly documenting cabin defects to avoid aircraft being delayed on the ground or making unscheduled stops.

The edict is a result of Russia's invasion of Ukraine and the subsequent Western sanctions which have seen the Russian aviation industry cut off from accessing the global supply of spare parts.

Fix(es) and fittings

During a typical flight, cabin crew become aware of aircraft defects. These defects can be technical and cosmetic in nature or a combination of both. This includes furnishings, such as tray table damage, up to and including items that may impact airworthiness, for example lights inoperative.

The level of technical defects increases with airlines that have mixed cabins and/or offer in-flight entertainment

systems. Often there is a separate IFE defect logbook.

According to Steve Crabb, partner at Irish software company Output42, in terms of the most common types of cabin defect by volume, damage to passenger seats and faults to IFE equipment comes top with 22 per cent, followed by lavatories (12 per cent) and galleys (11 per cent). "However, because there are far fewer lavatories and galleys, then per item lavatories and galleys suffer the largest amount of damage," he states.

"In terms of 'No-Go' items, 10 per cent of damage falls in this classification with 'Inoperative' items being 14 per cent; 74 per cent of items are not classed as 'Go' items."

ILLUSTRATION: PHIL COUZENS

10%

10 per cent of cabin damage falls within the 'No-Go' classification

Currently, these defects rely on a paper-based reporting process, usually a multi-copy paper book with serialised pages enabling the cabin crew to record defects during the flight.

"This requires crew to first look up the fault code in a manual before passing the paper form to the flight deck where the captain reviews before entering in the tech log," explains Joe McGoldrick, CEO of Flightman, whose Cabin Defect Log is part of the company's Connected Aircraft software platform which provides airlines with the opportunity to efficiently manage their aircraft fleet, drive additional revenues and improve overall compliance.

"Prior to arrival at the destination airport, the paper cabin logbook is shared with the cockpit crew and any perceived technical faults are transcribed onto the aircraft's technical logbook (TLP) and become tech log defects," adds Conduce managing director Paul Boyd. "This process is very manual and often requires the re-transcribing of cabin defects onto the paper technical logbook resulting in errors and omissions."



1



2

"RE-TRANSCRIBING OF DEFECTS ONTO THE PAPER TECHNICAL LOGBOOK OFTEN RESULTS IN ERRORS AND OMISSIONS"

However, as Crabb points out, cosmetic and dirty items often do not make it into the cabin log.

Paperless process

But this inefficient and often error-prone manual process can now be fully replaced electronically, with solutions that can work in offline environments with full data synchronisation with back-office airline systems such as AMOS (from Swiss-AS) and other maintenance systems.

For example, eCabinLog8 from Conduce utilises QR code validation to ensure that the cabin device is 'paired' to the correct eTechLog8 device. The 'peer to peer' connection means that there is no reliance upon a traditional internet connection, thus giving a fully functional application even when in an offline environment.

eCabinLog8 is an integrated module of Conduce's Electronic Technical Logbook (ELB) solution and can be deployed via the cockpit eTechlog8 device or onto a dedicated cabin device as a companion application.

According to Boyd, the ELB solutions provide a complete replacement for the aircraft journey, technical defect logbooks and deferred defect logbooks, providing increased efficiency and cost savings alongside faster turnarounds.

Under eCabinLog8, cabin defect recording functionality is extensive and

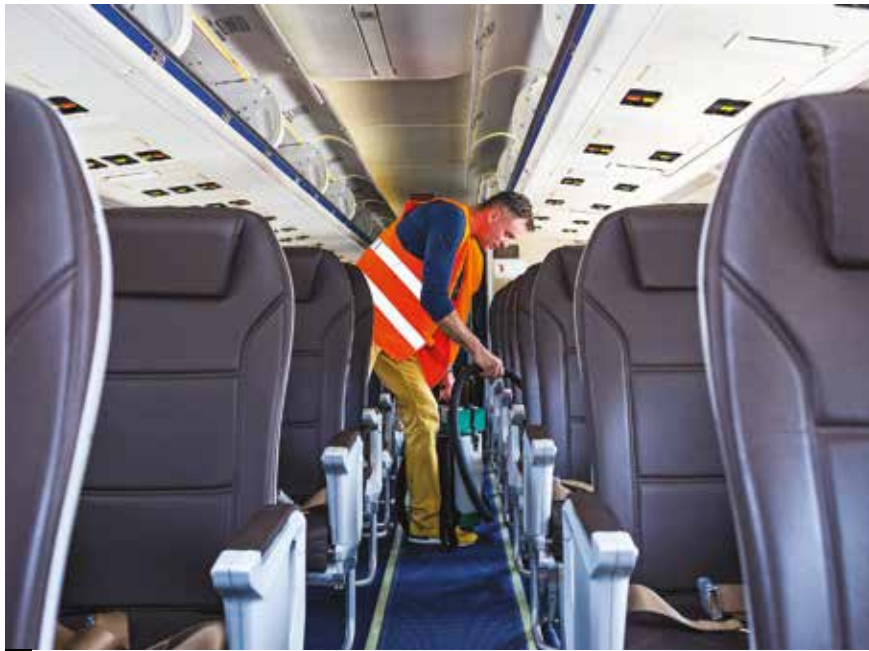


3

makes use of standard data classifications for defect types, defect locations and so forth, including the ability to attach photos directly to the defects being reported. "Many Conduce customers utilise the interactive LOPA chart feature," states Boyd. "The interactive LOPA chart feature allows one or more areas to be selected and will also display any previously recorded open or

1&3 Output42's Cabin Survey puts a very simple-to-use app in the hands of the cabin attendant or ground team

2. Access panels open for maintenance



2

“STREAMLINING THE PROCESS OF RECORDING DISCREPANCIES LEADS TO HIGHER REPORTING RATES”

carry forward cabin defects registered, thus preventing the user accidentally duplicating an existing defect.”

Cabin Survey from Output42 also allows crew to quickly record damage or cosmetic items with exact location and pictures if required, allowing for very simple or very complex location maps. Part numbers can also be associated with locations, so a parts list can be provided with a damage report. As Crabb says,

“It’s possible to go down to nuts-and-bolts detail or simply show the whole seat assembly.”

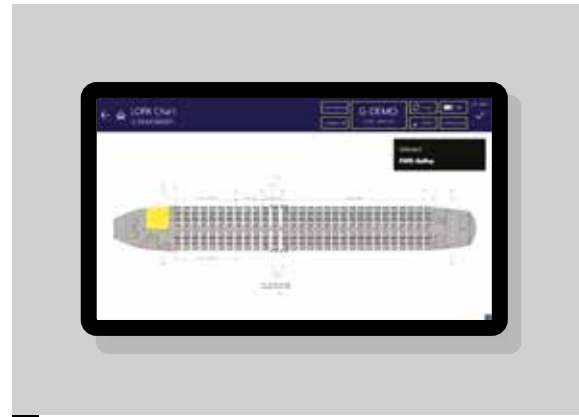
This information is synchronised back to the Cabin Survey database and a web application, which can provide heat maps of damage for an aircraft or across the fleet, is used by the cabin team to manage the damage items.

It’s a similar scenario with Flightman’s Cabin Defect Log which, as McGoldrick explains, allows crews to see the current open discrepancies for the aircraft on registering for the flight, via their phone or tablet. Inflight, cabin crew record an issue by selecting from the possible discrepancies for that specific aircraft. The report is automatically sent to the captain who will review and, if accepted, it will be automatically entered into the aircraft Technical Log. The cabin crew’s device will reflect the updated status.

Via the App, crew see their upcoming flights together with a list of open cabin discrepancies for the aircraft. A graphical interface allows the crew to record defects and automatically forward the data to the flight deck. Where inflight connectivity is available, the information is also sent directly to the ground MRO system. The system is currently live with a large US carrier.



1



3

A better resolution

According to Boyd, the overall feedback from crew and engineers has been very positive. “The main advantage is that all airline personnel are working with the same data set and there is full visibility of defect status across the business.

The improvement in data accuracy also gives the airline better information when reporting against internal business KPIs. This is of particular importance for the full-service carriers using eCabinLog8 due to cabin serviceability having a direct impact on customer satisfaction.”

Volotea are currently implementing Output42’s Cabin Survey. Pre-pandemic, HiFly were the first users. Crabb also says the response has been wholly positive, “with much more accurate reports and a lot of time saved simply by being able to correctly identify a location needing rectification. The cabin team is aware of items that need attention much quicker and can react accordingly.”

“Streamlining the process of recording discrepancies leads to higher reporting rates,” asserts Boyd. “On aircraft with in-flight connectivity, the discrepancy can be sent immediately to the ground ensuring high priority items, such as an inoperative business class seat, can be resolved during the turnaround. In addition, having the discrepancy data available on the crew’s mobile devices allows crew [to] proactively engage in service recovery.”

1. Flightman’s Cabin Defect Log allows flight attendants to report defects easily
2. Cabin maintenance can be tackled more efficiently with exact location maps
3. Conduce’s eCabinLog8 has fully interactive LOPA charts that can be used to pinpoint the defect location

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1

Can Live TV fill seats?

Live TV onboard an aircraft:
A technical perspective

If you've flown in North America, you might have noticed something offered on the IFE system that you are unlikely to see anywhere else, namely linear live broadcast television. While on the ground we might be moving away from watching traditional TV, it seems that up in the air, passengers can't get enough of it... But why is this the case, and how does it work?

Evolution

Back in the days before there were IFE screens on full-service airlines, passengers had to make do with watching in-flight movies on big screens in the cabin, reading paperback novels or simply gazing out the window at the clouds. They couldn't surf the internet or watch TV because they were on an aircraft and this was something that people simply accepted.

However, this started to change in the late 2000s when major airlines

began offering wireless internet connections on flight. In the US, the Federal Communications Commission (FCC) helped make airline internet feasible by auctioning off blocks of the frequency spectrum previously used for seatback in-flight analogue telephone service. This made it possible to use ground-based cellular towers to connect airline passengers to the internet via several antenna fins attached to the plane, which detect the network and send and receive signals.

Implementation

JetBlue was one of the first airlines to utilise a satellite system to provide up to 24 TV channels to its passengers back in 2000. American Airlines announced last September that it will provide free live TV as well as high-speed internet on many of its aircraft, with 12 channels available for streaming to customers' laptops, phones or tablets.

But what do passengers want to watch while in the air? According to Vincent Caruolo, BDM for Aviation at DirecTV for Business, the content that gets attention isn't soaps or children's programmes, but news and live sport.

"Offering it gives passengers a sense of ease and it sort of lets them relax when

1. TV: a reason for passengers to rebook

2. IFE content is constantly evolving

2





“WE’RE LOOKING AT LICENSING GEOGRAPHIC-SPECIFIC CONTENT BASED ON THE AIRLINE’S HOME COUNTRY”

they’re booking a flight or making travel plans, because they know that if there’s any late breaking news, sports or whatever’s on, they’ll be covered and they’ll have it in addition to their stored content that they might bring on with them,” he explains.

He adds that while airlines might be coy about sharing metrics about usage, what was clear from passenger surveys was that the addition of live TV even on a relatively short flight was a contributory factor in many passengers choosing to fly on one airline over another.

Licensing issues

One problem is that planes constantly cross borders and it is for this reason that you are only likely to see live TV on a plane inside the borders of the US as there is currently no way of licensing the content in two places at once.

However, this could change. “We’re looking at licensing geographic-specific content based on the airline’s home country,” explains Caruolo. “Right now though, we are in the infant stages of licensing content overseas so it’s something that is continuing to evolve and something that we want to bring to both domestic and international airlines alike. However, for the moment, our rights are only for flights leaving the United States, but not on the return.”

Once these licensing rights are settled, and when airlines are comfortable that they have the bandwidth to allow most of the aircraft to watch streamed content at the same time, then we could see broadcast TV becoming commonplace on flights outside of the US as well. 📺

1. Passengers using their own headphones can improve TV viewing
2. Delta’s IFE offering

Live TV now on Delta widebody aircraft

In the past month, Delta Air Lines along with Viasat and DirecTV have announced the launch of a domestic 18-channel TV lineup on select Boeing 767-400 aircraft flying select long-haul domestic routes. This offering marks the first time a US-based airline has integrated live TV into seatback screens onboard its widebody planes.

“Live TV is a critical part of the connected living room experience we aim to offer on Delta no matter the customer’s destination,” said Ekrem Dimbiloglu, managing director of In-Flight Entertainment and Connectivity at Delta Air Lines. “We see the aircraft as the ultimate platform for entertainment and discovery, and this milestone brings us ever closer to ensuring that vision is a reality on as many routes as possible.”



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A photograph of an airplane cabin interior. A man in a dark suit and glasses is seated in the foreground, looking towards the right. Above him, several overhead luggage bins are filled with various suitcases and bags. A hand is visible reaching into one of the bins. The title 'MAKING SPACE' is overlaid in large, white, bold, sans-serif capital letters on the left side of the image.

MAKING SPACE

1

Overhead locker space is a problem for cabin crew trying to keep things on schedule, but do improvements in design hold the answer?

Back in those long-ago times before the pandemic it was all but unheard of for airlines charge for carry-on baggage. Most had strict dimensions for how large the bag could be, and Ryanair weighed cabin bags, but there was no question that you would be allowed to put an item in the storage bins.

This changed in early 2021 when easyJet began charging for the carry-on.

In Europe, Wizz, Norwegian and Ryanair quickly followed suit. In the US, some airlines including Frontier, Spirit, JetBlue and Allegiant also started charging; by the end of the first quarter of 2021 it had become an industry norm. Even some of the legacy carriers now charge for cabin luggage on domestic and regional routes.

Strictly speaking, most airlines haven't been so crass as to literally charge for the bag to come on board. Instead,

they have invented a new fare structure where you pay a 'basic' rate and get no allowance, but the 'standard' fare allows you to carry a bag into the cabin.

Far be it from us to question how some airlines wish to increase ancillary revenues, but this practice has been questioned by many travellers on social media as the 'basic' price is now the same or more expensive than what the 'standard' price would have been before the new structure was brought in.



2

1. The amount of luggage seen in the cabin has increased
2. Modern design for larger bags

Decoy option

In sales terms, this is often known as ‘decoy marketing’ where a second or third option is introduced to make what might be perceived as a poor deal to look more attractive.

It isn’t simply a matter of extracting more money from passengers without them realising it though. The crush load of bags on budget flights needed to be reduced as there was never quite enough room for all of them to fly. This often meant that some carriers had to bribe passengers into checking bags into the hold anyway, and this was usually achieved by offering free speedy boarding or similar although this is an option that generally isn’t popular with either party.

“Passengers carry more and larger carry-on luggage into the cabin nowadays,” noted Matthias Haas of Diehl Aviation on the last occasion that we spoke to him. “On the one hand there

are business travellers who do not want to wait at the luggage belts and have optimised their cabin luggage to be their only piece of baggage. On the other hand, there are budget-conscious passengers who want to save on extra fees on checked-in bags and max out the amount and size of carry-on luggage.”

All of this means that pressure has been placed on aircraft designers over the past decade to come up with cabin storage options that are both larger and lighter than what has gone before. They also must work hard on making sure said bins can be reliably opened and closed tens of thousands of times over a period of many years.

Perhaps the best-known answer to this problem is Boeing’s Space Bins. First demonstrated in 2015 and now flying in B737 cabins everywhere (and sold either as an option when the aircraft is new, or available for retrofit), the firm says it increased storage space by 50 per cent at a stroke. The design also meant that the storage was easier to open and close than conventional pivot bins.

As with any engineering development, the pay-off was that the bins are around

“PASSENGERS CARRY MORE AND LARGER CARRY-ON LUGGAGE INTO THE CABIN NOWADAYS”



“SOME LOW-COST CARRIERS WILL ‘NUDGE’ CUSTOMERS INTO BUYING CHECK BAGGAGE”

60%



Safran Cabin bins offer a large increase in capacity over previous storage bins for certain aircraft types

5cm lower than they were previously, which the airframe manufacturer said would make the vent and light controls easier to reach. Nonetheless, it did restrict headroom slightly for taller passengers.

Making space

“Space Bins answer the call for more space to stow carry-on bags,” a press statement from Boeing explains. “Each of the larger Space Bins will hold six standard sized bags, two more than the large Boeing Sky Interior pivot bins installed on many Next-Generation 737s.

“Airlines can expect quicker boarding and turnaround processes at the gate and passengers will benefit from decreased concern about finding a spot for their carry-on bag when boarding a flight.

The statement continues: “With a lower bin lip height, Space Bins provide increased visibility into the back of the bins and make bag loading even easier. They’re also easier to close than the current pivot bins.”

Boeing’s option isn’t the only product for LCCs wishing to magic up a bit more space for bags. Safran Cabin’s ECOS overhead pivot bins are designed to take

cases wheels first. The system has one bin bucket per seat.

Paul Neary, VP Sales and Marketing at Safran Cabin notes: “In the product, we provide a large stowage solution with minimum penetration into the cabin in an ‘open air’ cabin concept. This brings a real advantage in providing new bin technology for narrow body and regional aircraft, for both new aircraft and retrofitting existing fleets.”

He adds that the bins increased stowage space by up to 60 per cent, mentioning that demand from business travellers on some types of regional aircraft to bring their carry-on from a long-haul flight onto a connecting aircraft was one of the motivations behind developing larger bins for Embraer E-Jet and Bombardier CRJ aircraft types.

Making larger and more efficient cabin bins is obviously one answer to the problem of too much luggage carried into the cabin. An interesting point to note is that since LCCs started to charge for hold luggage in the early 2000s, boarding time and delays actually increased. While it’s inconceivable that carriers will simply include a hold allowance in the price of a regular ticket, it is possible that they will ‘nudge’ willing consumers into buying a ticket that gets them the check baggage as well as a few other perks.

As an example, easyJet’s current premium Flexi fare product includes a full weight (23kg) check bag as well as an onboard meal, fast track security where available and lounge entry if travelling from its Gatwick hub.

If more customers avail themselves of an offer like this, then the problems with overloaded lockers and slow boarding can be avoided. However, if bundled luggage, in flight meals and lounge access becomes the norm, doesn’t the future of the LCC look a lot like what came before? 

▲ Safran storage cut-away

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Details of a glittering awards ceremony in 2024 will be revealed in due course, but

employers have until December to apply before registrations close.

Lee Hayhurst, editorial director of Aviation Business News, said: "The battle for talent is undoubtedly the most pressing issue the aviation sector faces today, whether that's in the cabin, the cockpit or behind the scenes in the engineering facilities that keep the world's aircraft fleet flying.

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CARBON COMES AT A COST

There's a bill to pay for modernising aviation, but who will pick up the cheque asks **Greg Whitaker**

We often talk about the need to decarbonise aviation, but it is less often that we write about the cost in terms of cold, hard currency.

That isn't to say that it hasn't been researched in detail by many industry analysts, and the one thing that they all agree on is that the cost will be huge.

One European Parliament report, titled 'Investment scenario and roadmap for achieving aviation Green Deal objectives

by 2050' doesn't exactly make for light reading, but the figure that sticks out is that 'significant investments' of €378bn (around \$400bn) will be required to replace aircraft and introduce new technologies by 2050.

Remember that this money just covers aircraft, not upgrades in infrastructure, distribution or the fuel cost in itself. Also, if I know anything about the European Parliament, I'll bet that they have forgotten to add anything to do with regional and sub-regional island aircraft into the equation.

The report does suggest that to incentivise investment in aviation decarbonisation the 'Taxonomy Regulation', essentially tax breaks for making

\$400

BILLION



significant investments' of €378bn (around \$400bn) will be required to replace aircraft and introduce new technologies by 2050

the greenest choice, should be expanded to include activities such as the sale or lease of more efficient and low-carbon emission aircraft as well as manufacturing and new technology development. The development, production, distribution and storage of SAF should also be considered for tax reduction, says the report.

Rare Earth

A point that I didn't see in the report was that of fuel scarcity. It is possible, just, that the aviation industry can meet its green goals by growing SAF, but what is less often considered is that other industries are likely to need the same farmlands to grow their own fuel crops. If this happens, the price of SAF could see sharp peaks and troughs, mirroring the concept of 'peak oil'.

Even with generous tax breaks, the cost of flying is only ever going to go one way from now on. Last year, Ryanair's outspoken boss Michael O'Leary noted that the cost of airfares have had to rise and that the days of flights for a few Euros "are behind us".

While he remains confident about the future of the low-cost model, he said: "The whole purpose of the European Union is to enable the free movement of travel, but we need to move to make it more sustainable and less environmentally damaging. Our tourism depends on people flying in here, but as an industry we have to be more sustainable."

If even the cheapest seat on an aircraft is to double in price, don't expect any aspect of aviation to get cheaper anytime soon. ☹

The price of SAF could see sharp peaks and troughs, like the concept of 'peak oil'



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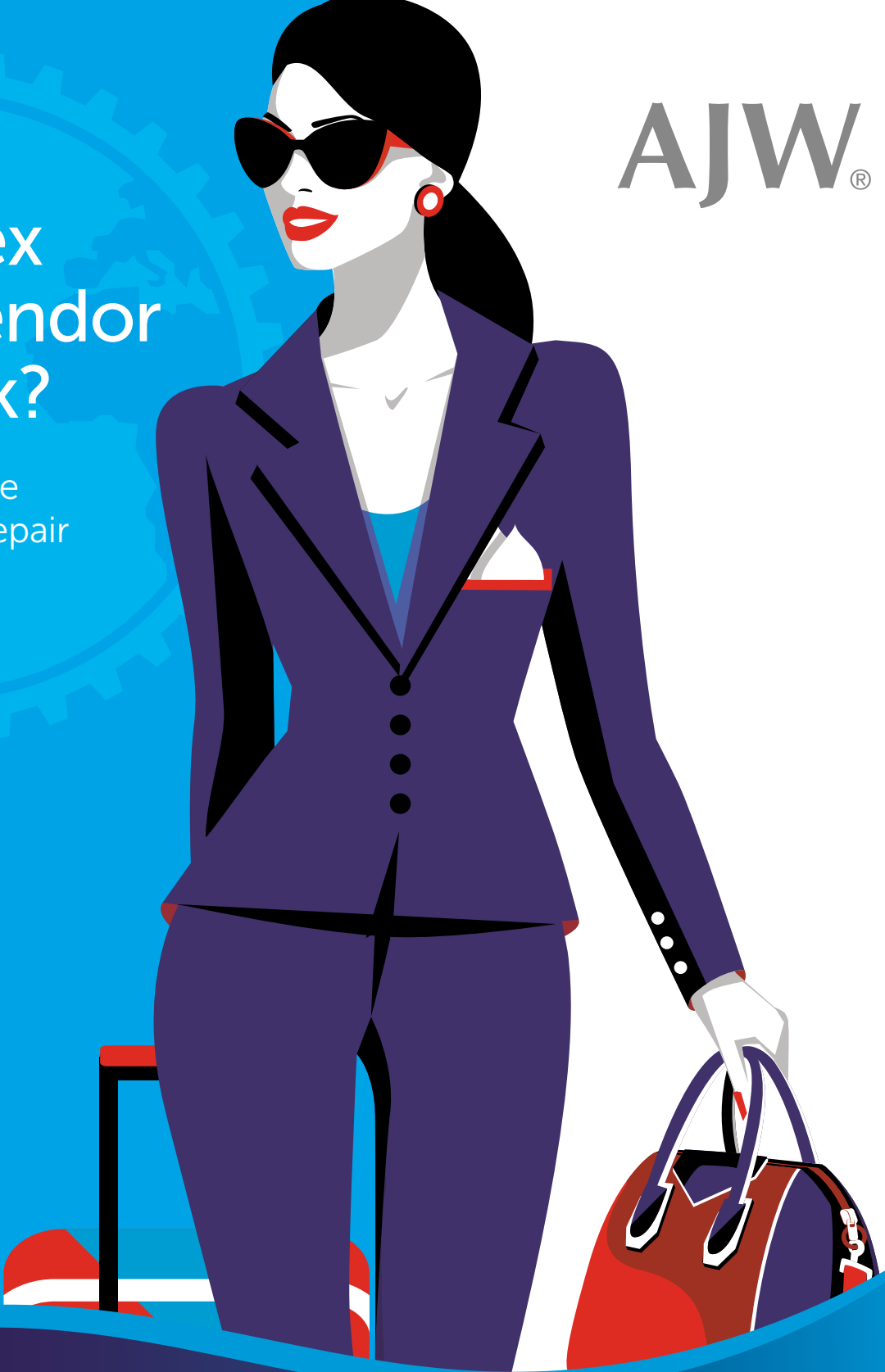
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