Aircraft CABIN Management

aviationbusinessnews.com

VOLUME 15 • ISSUE 05 • OCTOBER/NOVEMBER 2026

Perfecting the passenger experience



IN THE ROUND

Is 'circularity' ever more than a buzzword?

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SYSTEM CHECK

A deep dive into Diehl's CANSAS cabin platform

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OVERHEATING

The latest methods to combat thermal runaway onboard

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Designing premium experiences



for every premium cabin



ROSEN

AVIATION



CLEARING THE AIR

This month I attended the Cabin Air conference at Imperial College London.

It wasn't my first visit. When I last covered the event in 2024, much of the discussion centred on an upcoming UK court case, changes in lubricant formulations and a widespread sense that meaningful progress might happen soon.

Two years later, the mood feels rather different. That court case now appears unlikely ever to reach a courtroom, while the broader debate around cabin air quality seems no closer to resolution. Yet one fact remains difficult to ignore: fume events are real. While rare, there have been numerous documented cases of crew and passengers becoming unwell following exposure to contaminated cabin air.

What struck me most at this year's conference was the sense that many of the technical solutions already exist. Alternative lubricants and hydraulic fluids are available, yet adoption appears slow and uneven. Meanwhile, China has taken a different path. The COMAC C919, often regarded as a clone of the Airbus A320, features an electrically driven environmental control system rather than relying on conventional engine bleed air.

Like the Boeing 787, this architecture significantly reduces the route through which engine oil contamination could enter the cabin air supply. It does not eliminate the possibility entirely, but it does reduce the risk.

As far as I am aware, the C919 (which has not been certified for use in Western markets) remains the only production narrowbody aircraft to employ this approach.



▲ The C919 has technology we could all benefit from

A design philosophy that places prevention ahead of mitigation

Yet there is a broader lesson here. In the West, we are often quick to dismiss Chinese aerospace technology as derivative. But when it comes to cabin air quality, China's newest airliner demonstrates a willingness to embrace a design philosophy that places prevention ahead of mitigation.

Whether others choose to follow may be one of the more interesting questions facing the industry over the coming decade.

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On the cover: Design by Phil Couzens



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Business Briefing.

NEWS FROM ACROSS THE INDUSTRY



Airlines

QANTAS OPENS PRODUCT INNOVATION CENTRE IN ADELAIDE

Adelaide's central business district is the location for Qantas's new purpose-built technology and innovation centre, created to accelerate the development of onboard and off-board digital services.

The first 50 employees have already begun working from new offices, with Qantas currently recruiting for a further 40 roles. The airline remains on track to grow the centre, supported by the South Australian government, to more than 400 digital and technology roles over the next three years.

The airline is also partnering with Adelaide University to recruit graduates to work in the facility. Hundreds of applications were received for the first intake, with graduates starting in February of next year.

Qantas Group chief technology, AI and transformation officer Rachel Yangoyan (pictured above with South Australian premier Peter Malinauskas and minister Chris Picton at the opening) said South Australia was the right place to grow the airline's long-term technology capability.

"Adelaide gives us access to world-class universities, a thriving tech community, and the ability to scale our in-house capability. It's an investment in Australian innovation that will deliver real benefits for our customers into the future."

> **"It's an investment in that will deliver real benefits for our customers**



Airlines

Edelweiss new A350 cabin available to book

Seats in the new Edelweiss A350 cabin are now available to book.

The carrier confirmed details of the fit-out at the RedCabin conference earlier in the year. Passengers will be able to enjoy Thompson VantageXL suites in Business Class, ZIM seating in Premium Economy and Geven product in Economy.

Lantal, Botany Weaving and Muirhead are among the fabric suppliers chosen to provide the airline's custom shade of blue across the cabin.

"The new Premium Economy offers our guests significantly more space, comfort and an enhanced travel experience. At the same time, we are increasing the number of premium seats from 30 to a total of 60. This allows us to better meet our standards as a premium leisure airline," said Bernd Bauer, CEO of Edelweiss.

> **"We are increasing premium seats from 30 to a total of 60**



Cabins

EUROWINGS EXTENDS PREMIUM CLASS

Following a successful trial, Eurowings is to extend its 'Premium Biz' class across its entire fleet of A320neo aircraft.

The front end of the aircraft has been reconfigured to accommodate the new class. The first two rows replace the 2x3 configuration with a 2x2 layout. Other rows in the forward section of the aircraft have had the number of seats has been reduced from 18 to eight, offering significantly more personal space.

For this new cabin concept, Eurowings has opted for the 'Comoda' model from the Italian manufacturer Geven. The premium seats feature a reclining mechanism, an adjustable leg rest and USB in-seat power.

The class also benefits from catering and a welcome drink and a refresh towel on all routes. On the medium-haul route to Dubai, this is complemented by a pillow and blanket, an amenity kit and in-flight dining served on porcelain.

Seating

NEW PLATFORMS FOR THOMPSON

Northern Ireland-based Thompson Aero Seating has produced a new corporate website and brand film as part of an ongoing brand development programme designed to highlight the company's people and local heritage as well as its expertise in aircraft seating.

The manufacturer said the film showcases the craftsmanship and engineering behind its business class products, drawing inspiration from the landscapes of Northern Ireland while featuring employees involved in the design and production of its seats.

The redesigned website includes updated imagery, improved navigation and expanded content covering the company's design philosophy, sustainability initiatives and Vantage family seating portfolio.

The launch builds on a marketing campaign that focuses on the people behind the company's premium business class seating products. Becca Shou, head of marketing, said: "Our brand has evolved significantly over the years, but the foundations of TAS remain the same: our people, our engineering expertise and our Northern Ireland heritage."



BRIEFS

- Copenhagen Airport has launched the CPH Air Lab, (pictured) a research facility designed to assess how filtration technologies can reduce exposure to aircraft-related air pollution.

- UK interiors specialist Starling Aerospace has delivered crew and passenger seating for the first Britten-Norman Islander assembled entirely in the UK from detail-component level.

- American Airlines has enhanced its booking app with a new functionality allowing eligible AAdvantage members to specify preferred seat characteristics, such as aisle or window positions.

- Safran has appointed Elysabeth Da Silva Jaslier as executive vice president of Safran Seats France.

- Design studio PriestmanGoode has worked with Avianca to redesign the carrier's Insignia business class with greater comfort, privacy and a wider colour palette.

- Recaro Aircraft Seating Polska has expanded its production and office facility in Świebodzin, Poland as part of a "double-digit million Euro" investment. The total area of the site has more than doubled in size.

DIEHL
Aviation





IMAGINE THE FUTURE OF AVIATION.

With our eco-efficient innovations, we want to contribute to the industry goal of net-zero carbon emissions. A key example is our innovative air distribution technology, which combines lightweight materials and advanced manufacturing methods to reduce weight, lower costs, and improve ecological efficiency for our customers.

Discover
ECO Particle Foam
Air Outlet

IN NUMBERS

94%
Installed base of seatback screens projected to almost double by 2032 according to research by APEX

900
Commercial aircraft delivered so far in 2026, the highest since 2018, as airframers work through backlogs

12
Fleet size of British Airways' A380 programme. Each will be refitted with completely new cabins



Safety

BOEING 737-MAX SEAT SAFETY INSPECTIONS PROPOSED

The FAA has proposed an Airworthiness Directive (AD) affecting Boeing 737-MAX aircraft after reports that passenger seat assemblies may not have been correctly installed in cabin seat tracks.

The directive, affecting 737-8, 737-9 and 737-8200 planes, would require operators to carry out detailed inspections of track-mounted passenger seat assemblies and take corrective action where installation discrepancies are found.

The action follows reports that aft fitting shear plungers on some seat assemblies were not correctly lowered and engaged in the aircraft seat tracks.

According to the FAA, an improperly installed seat assembly could disengage from the floor track system during periods of increased loading, turbulence or an emergency landing. The regulator warns that such a failure could result not only in injuries to passengers and crew but also in obstruction of cabin aisles during an evacuation.

The FAA has reviewed Boeing Special Attention Requirements Bulletin 737-25-1927 RB, which outlines inspection procedures and corrective actions for affected seat installations. On-condition actions include correctly reinstalling any seat assemblies found to be improperly secured.

This proposed AD would affect an estimated 453 aircraft on the US register. The FAA notes that aircraft configurations may include as many as 69 track-mounted passenger seat assemblies, each requiring around one hour of MRO time, meaning compliance could involve a substantial inspection programme for some operators.



Seating

Deliveries begin of Recaro R4 Premium Economy seat

Recaro has announced that its new R4 premium seat has received the necessary certifications and has started to be delivered to clients, with entry into service expected soon.

As a successor to the long-running PL3530 seat, the R4 was revealed as a concept at AIX in 2023, but it was at the 2025 show that ANA was announced as the launch customer for the platform with an order for its B787-9 fleet, showcased by ANA's Hiroyuki Miyagawa (pictured).

While the Premium Economy seat is broadly similar to its predecessor, enhancements such as a six-way adjustable headrest with neck support, privacy wings, ambient lighting, an enlarged tray table, and provision for a 16-inch IFE screen are fitted.

"We are proud to introduce the R4, the latest addition to our Premium Class portfolio," said Mark Hiller, CEO and Shareholder of Recaro Aircraft Seating.



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4

RETAILING AT A CROSSROADS

At the T2RL Engage 2026 conference, airlines warned of the risk of falling behind when modernising e-commerce

The airline industry has spent the better part of a decade discussing NDC, offer and order transformation, dynamic pricing and modern retailing. Yet if there was one message that emerged throughout the T2RL Engage 2026 conference in September, it was that the conversation is finally moving beyond theory.

The question airlines now face is no longer whether retail transformation will happen. Instead, executives must decide when to move, how far to move and whether the expected benefits justify the cost and complexity of getting there... but therein lies the dilemma.

For many carriers, the business case for modern retailing is becoming increasingly compelling. Airlines that have embraced dynamic pricing, personalised offers and more sophisticated merchandising strategies are reporting measurable revenue improvements. Yet large-scale transformation programmes remain expensive, disruptive and fraught with implementation risk.

As one panellist observed, airlines today risk either moving too early and spending too much money, or moving too late and finding themselves left behind by more agile competitors.

Turning point

For years, discussions around airline retailing have focused on standards, architecture and future-state visions. At T2RL, however, the tone felt noticeably different.

Speakers repeatedly pointed to evidence that the industry is entering a more



5

1. Group discussions at the conference **2, 3 & 6.** Exhibitor displays inspired in-depth discussions with attendees **4.** T2RL's Richard Clark interviewed SAS CEO Anko Van Der Werff **5.** The conference featured a wide range of engaging panel discussions

"FOR MANY CARRIERS, THE BUSINESS CASE FOR MODERN RETAILING IS BECOMING INCREASINGLY COMPELLING"

practical phase of adoption. More airlines have completed detailed business cases. More carriers are experimenting with dynamic pricing and offer management. More executives are asking hard questions about revenue uplift, implementation timelines and return on investment.

Airlines have long understood the theoretical benefits of moving beyond traditional distribution models. What has been less clear is exactly how those benefits translate into measurable commercial outcomes.

The emergence of tangible revenue gains is beginning to change the conversation, with several examples shared during the conference from speakers including Suzanne Grimes from PROS, Greg Toussaint from Edgar, Dunn and Co, and Tye Radcliffe of Accelya all arguing that the industry is ready to cash in from modern retailing capabilities.

Waiting game

One of the most striking themes of the closing discussion was the growing tension between airline demand for innovation and the industry's ability to supply it.

Many airlines want to move faster. Technology providers, standards bodies and industry processes often struggle to keep pace.

The result is a growing risk that airlines seek solutions outside traditional industry ecosystems. In the wrap-up session, Ian Luck, T2RL president of distribution, took an optimistic view, stressing that the industry should not lose sight of tangible gains already achieved.

He pointed to encouraging signs from NDC adoption, including reports that some airlines and travel sellers are seeing better disruption servicing through NDC-enabled bookings than via traditional channels. This would have been difficult to imagine just a few years ago.

He also highlighted advances in offer management and dynamic pricing. Airlines are beginning to generate measurable revenue improvements from modern retailing initiatives, and examples shared during the conference demonstrated that some carriers are now seeing meaningful returns from these investments.

Balancing act

The closing panel ended on a note of cautious urgency. The benefits of airline retail modernisation are becoming increasingly visible. Dynamic pricing, enhanced offer capabilities and more sophisticated merchandising are delivering measurable results in some parts of the industry. At the same time, implementation remains difficult, standards remain incomplete and large-scale transformation projects continue to test budgets and organisational patience.

The challenge facing airlines is therefore not simply technological, it is strategic.

Move too early and the cost may outweigh the reward. Move too late and competitors may establish advantages that become difficult to close.

For airline leaders, that balancing act may prove to be the defining commercial challenge of the next phase of airline retailing. ●



6

BA'S SUPER JUMBO REFIT

British Airways bets on the A380 with a comprehensive cabin overhaul

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4

British Airways has revealed the redesigned cabins that will debut on its retrofitted Airbus A380 fleet, using around 75 different suppliers to keep the superjumbos looking modern.

The first upgraded aircraft is expected to enter service in the coming months and will feature new seats across all cabins, refreshed interiors and a range of passenger experience enhancements. The refurbishment forms part of the UK flag carrier's wider investment programme aimed at modernising its long-haul product.

Business class will feature an updated version of the airline's Club Suite, with 106 seats spread across the A380's upper deck, creating what the airline describes as the world's largest business class cabin. Premium economy and economy passengers will also benefit from larger entertainment screens, upgraded seating and new bedding.

First and foremost

A key element of the retrofit is the introduction of a new First suite, designed to offer greater privacy and comfort, alongside a refreshed First dining concept, new amenity kits and enhanced sleep products. The carrier is also updating its First Service Specialist training programme to keep the legacy carrier on par with rivals.

Importantly, the investment is not confined to the front of the aircraft. World Traveller and World Traveller Plus passengers will see larger entertainment screens, upgraded seating and new bedding, while premium economy travellers gain enhanced privacy features and updated amenity kits.

Consistent identity

What makes the programme noteworthy from a cabin-management perspective is its breadth. Airlines often concentrate retrofit spending on premium cabins where returns are easiest to justify. British Airways has instead used the A380 programme to create a more consistent onboard identity across the entire aircraft, extending design themes from economy through to First.

British Airways CEO Sean Doyle says the project represents "one of the most significant transformations we've ever undertaken on any aircraft".

He adds: "We've completely reimagined the customer experience, introducing new and updated seats in every cabin, all carefully considered to deliver greater comfort and an elevated customer experience."

The refurbishment extends beyond the passenger cabins to include redesigned galleys, stairways and service areas, while updated crew training programmes aim to support a more personalised onboard service.

For an aircraft many once considered an endangered species, the investment sends a strong message. British Airways is not merely keeping its A380s in service. It is positioning them as flagships, and using the largest passenger aircraft in the sky to showcase the next phase of its long-haul cabin strategy. ●

1. First Class will combine ultimate comfort and privacy in an elegant space
2 . Club World suites give passengers space to unwind with every amenity required
3. World Traveller Plus seats have privacy wings, larger IFE screens and quilted seat covers
4 . Snacks and sandwiches are available between main meals in the Club Kitchen

For more information visit: **greencabinalliance.org**

BEYOND THE BUZZWORD

Can aviation make cabin circularity a reality?

Try going for a walk today down a shop-lined street or through a mall and I'll bet you'll see the word 'sustainability' more than once.

Similarly in aviation, you'll see plenty of references to companies' credentials being 'green', 'carbon neutral' or a dozen other adjectives.

Yet while airlines and suppliers frequently speak about 'circularity', genuinely closed-loop cabin products remain rare.

However, there is a plan to change this. As the Green Cabin Alliance (GCA) works to bring airlines, manufacturers, designers and recyclers together, founder Elina Kopola believes the real challenge is not technology, but creating the systems needed to keep valuable materials in use.

For an industry accustomed to measuring sustainability through fuel burn, emissions and aircraft efficiency, aircraft cabins represent a surprisingly overlooked opportunity.

Interiors account for roughly 10% of an aircraft's empty weight and are typically replaced four or five times during an aircraft's operational life. According to GCA research, however, nearly half of cabin products by weight still fail to be recycled at the end of service.

That disconnect is increasingly focusing attention on circularity, but Kopola warns that the industry needs to be careful about how it uses the term.

"Recycling a material isn't necessarily closing the loop," she says. "The real test is whether we can recover a cabin product and retain its value, ideally turning it back into the same, or an equivalent, product."

While true closed-loop examples remain limited, there are a few examples that Kopola can cite.

One of the strongest examples that she points to is Monova PE, a padded textile dress cover developed by Studio ID and TrendWorks, together with Botany Weaving and Sabeti Wain Aerospace. The mono-material polyester construction allows the product to be chemically recycled back into polyester and potentially remanufactured into new dress covers. The concept won the 2025 RedCabin Trinity Award for Cabin MRO Concept.

Meanwhile, Lufthansa Technik's GuideU emergency floor-path marking system has introduced a take-back programme for used components, with efforts underway to recover and reuse materials at the end of their service life.

Encouraging as those developments are, Kopola believes they remain exceptions rather than evidence of a truly circular cabin ecosystem.

"That is where aviation still has a long way to go," she says. "The opportunity is to move from talking about circularity to designing the systems that make it possible."



> **"The word 'sustainable' can mean very different things to different people"**

ELINA KOPOLA
Founder, Green Cabin Alliance

Designing for what comes next

One lesson aviation can draw from other industries is the growing emphasis on designing products with their end-of-life pathway in mind. Historically, aircraft interiors have been developed around safety, durability, weight and cost requirements.

However, modern design briefs also include disassembly, reuse and material recovery.

As Kopola explains, "Other industries are increasingly asking not just 'How do we make this product?' but 'What happens to it when we're finished with it?'"

For aviation, this represents a significant cultural shift. Components approved for use on commercial aircraft are designed to survive years of operational use under stringent safety requirements, but far less attention has

▼ The GCA is focused on circularity



1



10%

Interiors account for roughly 10% of an aircraft's empty weight and are typically replaced four or five times during an aircraft's operational life

"The biggest blocker is not a lack of technology, it is a lack of alignment between airlines and regulators"

traditionally been paid to what happens when they are removed from service.

According to Kopola, end-of-service considerations should become a much earlier part of product development and procurement decisions.

"If I could change one thing tomorrow, I would ask every cabin RFP to include a clear requirement for what happens to the product at end of service," she says.

Questions such as whether components can be easily separated, reused or recycled should be considered from the outset rather than after removal from the aircraft.

"It sounds simple, but it changes the conversation from 'Is this product sustainable?' to 'What will we actually do with it when we're finished?'"

Regulation and collaboration

The industry's ability to advance circularity is also shaped by regulation.

Kopola argues that while regulators are increasingly engaged in sustainability discussions, certification frameworks have yet to fully incorporate product recovery and circular-design principles for aircraft interiors.

"The biggest blocker is not a lack of technology," she explains. "Rather, it is a lack of alignment between safety requirements, certification, procurement, manufacturers, airlines, recyclers and regulators."

As a result, even well-intentioned decisions can still lead to products ending up as waste. "If each makes a good decision independently, we can still end up with a product that goes to landfill."

This fragmentation is one of the key reasons for GCA's formation. The alliance brings airlines, OEMs, suppliers, MRO providers, designers and sustainability specialists together through working groups intended to develop practical, industry-wide solutions.

Beyond sustainability claims

As sustainability is often used as a marketing message, concerns around greenwashing inevitably arise. Kopola believes the larger problem is often confusion rather than deliberate misinformation.

"The word 'sustainable' can mean very different things to different people," she says. Instead of broad sustainability messaging, she advocates for a greater focus on measurable outcomes and transparency.

"We would much rather see an airline say 'We don't have the answer yet, but this is what we're testing' than make a broad sustainability claim that cannot be substantiated."

That emphasis on evidence-based progress may prove particularly important as the aviation industry looks for sustainability gains that can be implemented today rather than in the distant future.

While decarbonisation initiatives such as sustainable aviation fuel and future propulsion technologies continue to dominate headlines, cabin circularity offers something different: an opportunity where many of the technical solutions already exist.

"The opportunity is to connect them and make the cabin designed for its whole life, not just the next flight," concludes Kopola. ●

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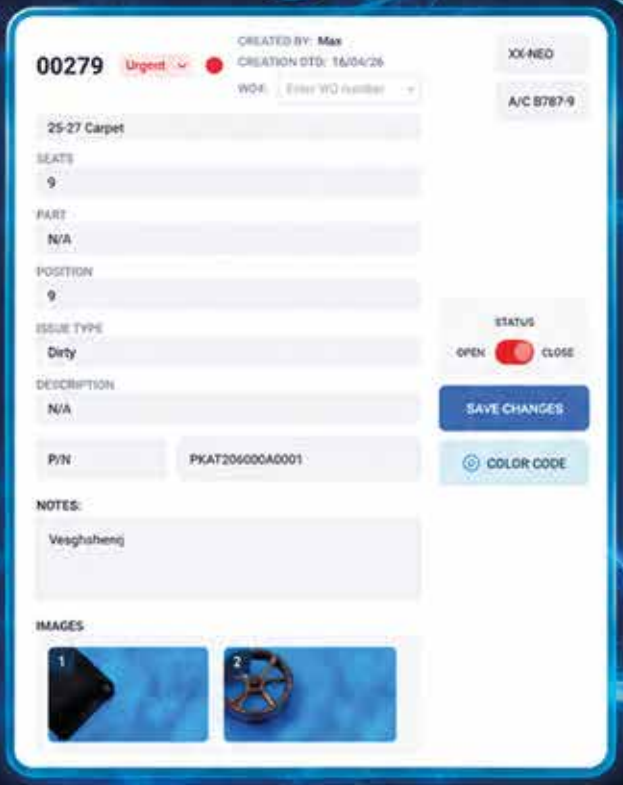
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WHO FEEDS THE NIGHT SHIFT?

Catering is the overlooked gap in aviation's 24-hour operations

Aviation is one of the few industries built around continuous operation. Yet across many airports and aviation facilities, staff food provision still operates largely on a daytime model.

Canteens often close in the evening and retail outlets shut even earlier. What remains available overnight is frequently limited, despite scores of employees remaining on shift.

In an industry that has spent decades designing systems around 24/7 demand, this raises an important question: are the facilities supporting the workforce as resilient as the operation itself?

Treating overnight provision as simply a scaled-down version of daytime demand risks overlooking how employees actually use facilities outside normal hours.

Managing chaos

The challenge becomes even more apparent during disruption.

Weather events, technical issues or rolling delays can quickly extend shifts well beyond their planned finish times. Employees expected to leave at 10pm may still be on site after midnight as operations recover. Break patterns change, staffing levels increase and demand for food and refreshments can rise rapidly.





> **"If disruption keeps an additional 100 people on site for several extra hours tonight, can existing facilities support them?"**

AMANDA PANTLING
Operations Manager at Connect Vending

Data from one 24-hour aviation site analysed by Connect Vending, the company where I work, found that over half of recorded overnight food-purchasing activity occurred between 10pm and 1am. Significantly, this demand peak occurred during hours when conventional catering provision is often reduced or unavailable.

These are also the periods when organisations rely most heavily on their employees to maintain operational performance, support passengers and restore normal schedules.

When food and refreshment options are unavailable, employees often leave their immediate work areas to find alternatives. Within airport environments, where security controls and restricted access add complexity, this can mean longer breaks, increased travel time and pressure on the limited facilities that remain open overnight.

The result is more than an inconvenience. It highlights a disconnect between operational requirements and workforce support infrastructure.

Plan for disruption

Aviation businesses routinely stress-test staffing plans and contingency procedures against disruption. The same approach should be applied to the facilities that support employees.

Rather than assuming, operators should use real-world demand data to understand how purchasing patterns can change according to what is happening at the airport.

For airport operators and airlines, the question is straightforward: if disruption keeps an additional 100 people on site for several extra hours tonight, can existing facilities support them?

If the answer is no, the issue is not simply one of catering. Aviation has adapted to round-the-clock demand. Staff support services should do the same. ●

◀ Airports run around the clock yet catering provision is often limited during off-peak times

Visit: **connectvending.co.uk**

BEYOND THE CHATBOT

Ajith Balakumar of Forthcode argues that AI's role is not simply task automation – it can embed intelligence into airline operating models

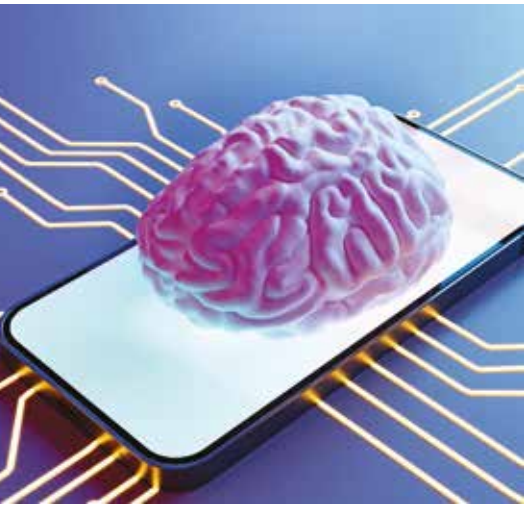
For the past two years, much of the aviation industry's conversation about artificial intelligence (AI) has focused on customer-facing applications.

Chatbots. Automated service. Personalised offers. Generative trip planning.

These applications matter, but they represent only the beginning of what AI could mean for airlines.

The more significant shift now taking place is behind the scenes. AI is moving from answering questions to helping airlines make and execute decisions across increasingly complex operational environments. That distinction is important.

An airline is not a simple business. Every flight depends on thousands of interconnected decisions involving crew, stations, aircraft, passengers, catering, commercial teams, partners and regulators.





> **"A copilot can help a member of staff understand what to do. An agent can potentially help execute the next step across connected systems"**

AJITH BALAKUMAR
CEO of Forthcode

Margins remain tight. Experienced frontline employees are increasingly difficult to recruit and retain. Passenger expectations continue to rise. Regulation grows more complex. And many airlines are still operating through fragmented legacy systems that were never designed for real-time decision-making.

This combination makes aviation unusually well suited to the next stage of AI. The opportunity is not simply to automate more tasks. Rather, it is to embed intelligence into the airline operating model itself.

From copilots to agents

The evolution is already visible. The first phase of airline digitalisation gave employees better access to systems and information. Automation followed, allowing repetitive processes to be executed through predefined rules. Analytics then improved forecasting and optimisation. Generative AI brought natural-language access to knowledge.

Now we are entering the next phase: AI copilots and agents. The difference is significant.

A copilot can help a member of staff understand what to do. An agent can potentially help execute the next step across connected systems, subject to the airline's business rules and human oversight.

Consider disruption management. Today, when a flight is cancelled, an employee may need to consult passenger policies, identify rebooking options, assess hotel or voucher eligibility, communicate with the customer and record the action across several systems. An AI assistant could retrieve the relevant rules immediately.

An AI agent goes further. It can potentially interpret the situation, propose compliant recovery options, interact with connected systems and prepare the appropriate action for approval. This is where AI starts moving from information retrieval to operational value.

Unglamorous ground operations

The strongest business cases may not be the most glamorous. There is a tendency when discussing AI to gravitate towards highly visible consumer applications.



“An airline is not a simple business. Every flight depends on thousands of interconnected decisions”

But in aviation, some of the strongest returns may come from far less visible areas. Our AI in Aviation 2026 report identifies many promising areas. The common thread is that these environments involve frequent, time-sensitive and knowledge-heavy decisions.

Take ground operations. Gate, check-in and station staff work in highly pressured environments where decisions frequently need to be made in minutes or seconds. Policies can vary by route, airport, passenger status and operational circumstance.

Giving frontline employees immediate access to the correct operating procedure is valuable. Giving them context-aware guidance based on what is happening at that moment is considerably more powerful.

Passenger disruption provides another example. When something goes wrong, travellers expect immediate answers. The airline must simultaneously consider availability, fares, accommodation, compensation rules, passenger status and operational constraints.

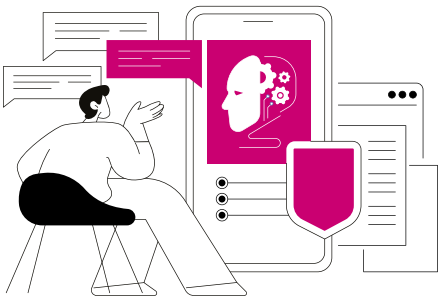
AI can reduce the amount of time employees spend navigating systems and searching for policies, enabling them to focus on solving the customer’s problem.

That is the type of application that can create measurable operational ROI: faster decisions, fewer escalations, greater consistency and better customer outcomes.

What airlines need is knowledge infrastructure, not another chatbot. This is also why airlines should be cautious about treating large language models as complete enterprise AI solutions. An LLM alone does not understand an airline.

It does not inherently know the latest standard operating procedures, station-specific rules, regulatory obligations, passenger policies or commercial conditions. Those elements must form a trusted knowledge layer around the model.

The enterprise AI stack therefore needs more than an LLM. Airlines need governed knowledge, rules engines, workflow integration, identity



and permissions, auditability and clear human oversight. This becomes particularly important in a safety- and compliance-sensitive sector.

The aviation AI winners will not necessarily be the airlines using the most models. They will be those that build the strongest governance and knowledge architecture around them.

Credible use case

The question for airline leaders has changed too. A year or two ago, executives were asking whether AI had credible use cases in aviation. That question has largely been answered.

The question now is how to prioritise, govern and scale them. My view is that airlines should begin where operational decisions are frequent, rules-heavy and commercially or operationally consequential. Build a reliable knowledge foundation while integrating AI into workflows employees already use. Clear human oversight will need to be defined, of course.

Measure outcomes in business terms – decision time, consistency, error reduction, escalation rates, customer recovery and revenue uplift.

Avoid the temptation to measure AI maturity by the number of tools deployed. The objective should not be to become the airline with the most AI.

It should be to become the airline whose operating model is most intelligent, resilient and responsive. Because the next chapter of aviation AI will not be defined by what an assistant can say. It will be defined by what an airline can do differently because intelligence is embedded throughout. ●

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HITTING THE GROUND RUNNING

He was planning on listening and learning but the new CEO at SunExpress found that events in the Middle East required decisive action

When Marcus Schnabel took over as chief executive officer at SunExpress in February 2026, succeeding Max Kownatzki, he immediately initiated an extensive internal listening tour.

However macroeconomic headwinds and geopolitical instability in the Middle East soon demanded decisive operational management.

"Starting as a CEO is special for the entire team," Schnabel explains.

"At the very beginning, my plan was to listen, listen, and listen. But alongside that, we had to manage the fallout from the regional crisis. It was a tough period, but it allowed me to see the resilience and dedication of the SunExpress organisation first-hand."

Rather than positioning SunExpress strictly as a no-frills budget operator, Schnabel defines the joint venture between Turkish Airlines and Lufthansa Group as a dedicated "value carrier".

Central to his operational philosophy is the execution of what he terms "brilliant basics", ensuring core touchpoints excel through authentic customer care, modern digital interfaces and consistent onboard service.



> "It was a tough period, but it allowed me to see the resilience and dedication of the SunExpress organisation first-hand"
>
> **MARCUS SCHNABEL**
> CEO, SunExpress

Balancing fleet flexibility and order books

Managing supply chain disruptions and aircraft delivery schedules represents a primary strategic priority. SunExpress maintains a firm order backlog exceeding 60 Boeing 737 MAX family aircraft, with 11 deliveries scheduled for 2027.

The carrier is also tracking certification timelines for the Boeing 737 MAX 10, expecting initial airframes between late 2027 and early 2028. Schnabel views this order stream as an operational shock absorber.

"Flexibility is an asset," he says. "If market expansion moderates, we can accelerate the retirement of older airframes and modernise our fleet faster. If demand surges, we retain the capacity to scale up."

During early 2026, proactive schedule adjustments saw SunExpress trim network capacity by 5% to 7%. This intervention protected operational integrity, allowing the carrier to maintain yield stability while competitors reacted late.

Market commitment and airport partnerships

Schnabel dismisses industry speculation about the carrier's network footprint.

He insists the United Kingdom remains the carrier's second-largest passenger market, with direct routes into Antalya, Izmir and Dalaman scheduled for sustained frequency growth.

"Rumours that we would pull back from the UK are unfounded," Schnabel says. "We adjusted capacity strictly to match seasonal fluctuations during the crisis, but our presence in the UK market is long-term."

To enhance end-to-end passenger processing, Schnabel is leveraging his previous hub operational background to deepen airport joint ventures.

With holiday booking volumes for the Turkish Riviera rebounding strongly through peak summer and autumn, Schnabel remains confident that SunExpress's structural agility, cost discipline and service standards will preserve its competitive advantage across the Mediterranean leisure sector. ●



◀SunExpress maintains a firm order backlog exceeding 60 Boeing 737 MAX family aircraft

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Integrating cabin systems into a single digital platform promises simpler operations for crew, greater efficiency for airlines and a more seamless passenger experience, writes **Bernie Baldwin**

For years, the aircraft cabin has been a collection of largely independent systems. Lighting, passenger information, connectivity, environmental controls and crew applications have typically operated within their own silos, each requiring dedicated interfaces and management.

Changes ahead

Across the industry, manufacturers are working towards the concept of the connected cabin, where systems share data through a common platform, reducing complexity while unlocking new operational and passenger-service opportunities. One example is Diehl Aviation's Cansas (Cabin Area Network System and Services), which has been developed to bring traditionally separate cabin functions into a single digital ecosystem.

"The idea behind Cansas was to move away from isolated cabin subsystems to a common digital platform that allows different cabin functions to communicate, share data and collaborate intelligently," says Michael Jirsch, business development manager at Diehl Aviation.

Rather than relying on a central server, Cansas uses a distributed architecture that allows functions and applications to be added as airline requirements evolve. The aim is not simply to connect existing systems, but to create a foundation capable of supporting future cabin technologies.

Common architecture

According to Jirsch, core functions such as lighting, audio, passenger information, attendant call systems and environmental controls were identified early as areas that would benefit from closer integration.

"Connecting these functions through a common architecture enables seamless data exchange and allows services to operate as part of a coordinated environment rather than as standalone systems," he says.

But the vision extends beyond traditional cabin management. Increasing connectivity, cloud-based services, over-the-air software updates and the growing use of smart devices are driving demand for a more flexible digital infrastructure.

1. Modernising cabin architecture has benefits beyond IFE
2. Integration helps cabin operations

"INTEGRATION WAS NOT ADDED AS AN AFTERTHOUGHT"

Michael Jirsch, business development manager, Diehl Aviation



1

The challenge for manufacturers is to avoid adding yet more standalone systems. Instead, the industry is increasingly looking towards open platforms capable of accommodating new technologies as they emerge. That principle shaped the development of Cansas from the outset.

"Integration was not added as an afterthought," says Jirsch. "From the beginning, we designed Cansas around the principle that cabin functions should be able to communicate through a common digital architecture and shared data infrastructure."

The company is also involved in wider industry efforts to improve interoperability through standards such as ARINC 853 Cabin Secure Media-Independent Messaging (CSMIM), which aims to enable secure communication between equipment supplied by different manufacturers.

Efficiency gains

The strongest argument for a connected cabin is operational efficiency.

Traditionally, different cabin systems generate their own data, often with limited ability to share information. Bringing those systems onto a common platform allows information to be collected once and used across multiple applications.

For cabin crew, this can mean fewer interfaces to manage and a clearer picture of what is happening throughout the aircraft. Information from multiple systems can be presented through a common interface, helping crews respond more quickly to operational issues and passenger requests.

For airlines, the benefits extend beyond the aircraft itself. Integrated cabin data can be shared with ground teams, supporting maintenance planning, fault diagnosis and operational coordination before the aircraft arrives at the gate. Earlier access to information can help airlines position resources more effectively and reduce disruption.

A common platform can also simplify the introduction of new capabilities. Instead of installing dedicated hardware every time a new function is added, airlines can potentially deploy applications through infrastructure already in place.

"A connected cabin allows information to be collected once and used for multiple operational purposes," says Jirsch.

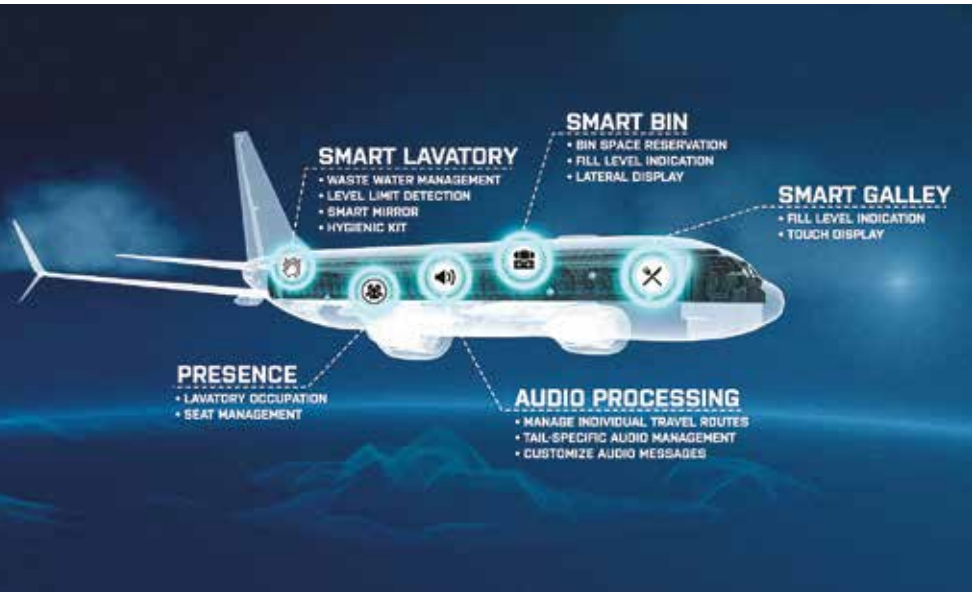
Smarter service

The connected-cabin concept is ultimately about improving the experience onboard. For crew, better access to information means greater situational awareness and more efficient workflows. Wireless connectivity and mobile devices allow authorised personnel to remain connected while moving throughout the cabin.

Passengers may never notice the technology itself, but they are likely to notice the results.



2



◀ Diehl's Cansas platform allows different cabin functions to communicate and collaborate

"WHEN THE CABIN OPERATES AS A CONNECTED ECOSYSTEM, TECHNOLOGY CAN FADE INTO THE BACKGROUND"

Faster responses to requests, more reliable onboard services and better coordination between cabin systems can all contribute to a smoother journey.

"When the cabin operates as a connected ecosystem, technology can fade into the background," says Jirsch. "The crew can focus on service, airlines can operate more efficiently and passengers can benefit from a smoother travel experience."

The next phase

While current applications focus largely on core cabin functions, future developments could push the connected-cabin concept much further.

One area attracting significant attention is the emergence of smart monuments. Connected overhead bins, galleys and lavatories could provide operational data that has traditionally remained unavailable to crews and airlines.

Diehl is already demonstrating Smart Bin monitoring technology capable of reporting overhead-bin utilisation and fill levels in real time. The broader opportunity lies in connecting a growing range of sensors and devices across the cabin environment. This could pave the way for advanced condition monitoring, predictive maintenance and increasingly sophisticated operational analytics.

A platform for the future

At the heart of Cansas is a combination of scalable computing hardware and open software architecture. The platform supports both wired and wireless connectivity, enabling integration with cabin equipment, sensors, and future IoT applications.

Combined with industry standards such as ARINC 853, the goal is to create an environment in which data can move between systems regardless of supplier.

The wider significance is that connected-cabin platforms are moving beyond simple cabin management. Increasingly, they are positioning themselves as the digital backbone of the aircraft interior.

As airlines seek new efficiencies and passengers continue to expect a smoother travel experience, the ability to connect systems and deploy new services without hardware changes could become one of the defining characteristics of the next generation cabin. ●



WHAT A CONNECTED CABIN CAN DELIVER

One platform, multiple functions
Lighting, passenger information, environmental controls and crew applications operate through a common architecture

Less complexity
New applications can be added without extensive new hardware and wiring

Faster decision-making
Data is collected once and shared across multiple authorised systems

Better maintenance planning
Cabin data can be transferred to ground teams before the aircraft arrives

Future-ready architecture
Designed to support new digital services throughout the aircraft lifecycle

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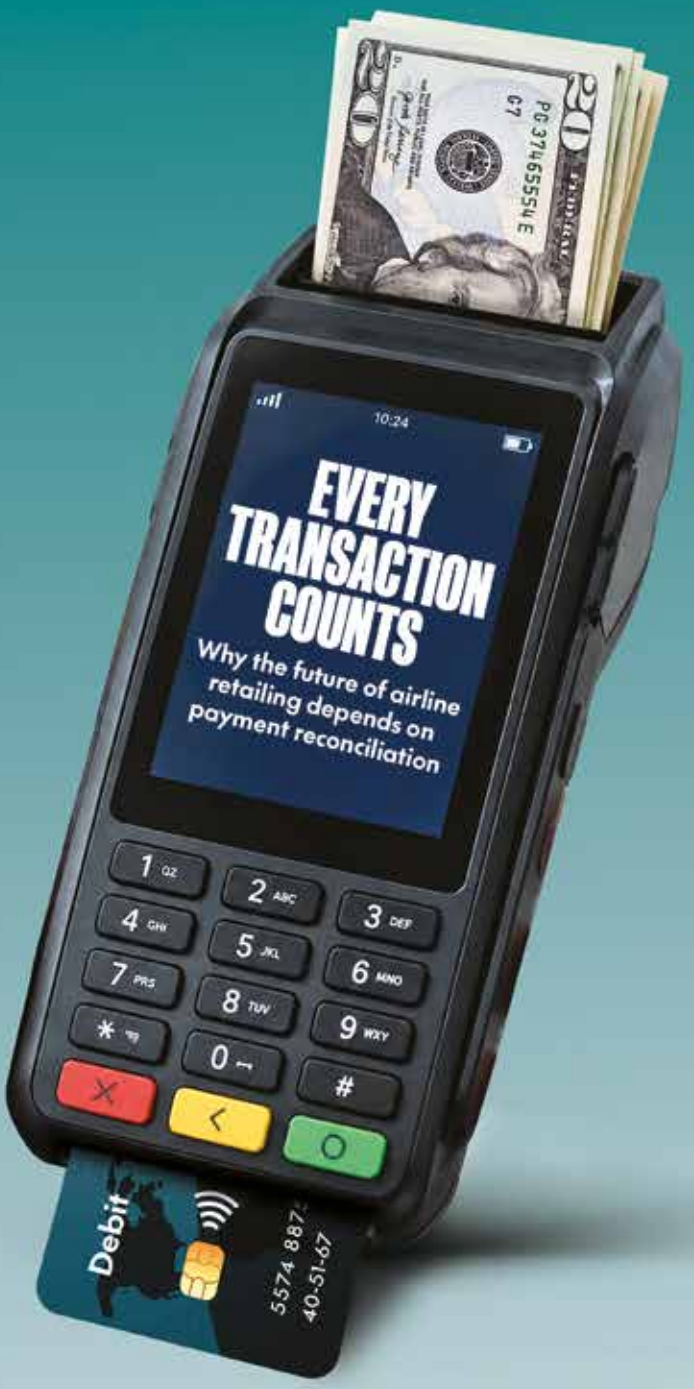


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Airlines have spent much of the past decade refining the art of retailing. New ancillary products, branded fares, onboard connectivity and digital sales channels have all helped carriers generate revenue beyond the ticket itself.

But as airlines become increasingly sophisticated retailers, a less visible challenge is emerging behind the scenes: ensuring every transaction actually turns into cash.

For many airlines, the greatest payments challenge is no longer persuading a passenger to buy. It is tracking, settling and reconciling an ever-growing volume of transactions across multiple channels, payment methods and systems.

The issue has grown in importance alongside the industry's shift towards modern airline retailing. Today's carriers sell through websites, apps, online travel agencies, NDC channels, loyalty programmes and increasingly connected onboard environments. Every seat upgrade, checked bag, lounge pass, Wi-Fi package and onboard purchase creates another payment that must be authorised, settled and properly accounted for.

According to Barbara Moreno, director product marketing at Accelya, "The challenge is not simply payment acceptance but is to ensure those transactions are successfully converted into cash and recorded accurately."

That distinction matters because the industry has traditionally focused on payment acceptance and conversion rates.



◀ As onboard sales grow, reconciliations must be accurately recorded

Opportunities lost

"If customers cannot pay using their preferred method, airlines will lose sales opportunities," Moreno says. But she argues that "acceptance is only one part of the equation". Airlines have already invested heavily in approval-rate optimisation, alternative payment methods and streamlined checkout processes. The next challenge is understanding what happens after the payment is approved.

Increasingly, that challenge revolves around reconciliation.

While reconciliation rarely receives the same attention as customer-facing retail technology, it sits at the heart of airline financial performance. Airlines must ensure that payments received from acquiring banks, digital wallets, loyalty programmes and other payment providers match the transactions recorded within commercial and accounting systems. Even relatively small discrepancies can rapidly accumulate.

Accelya says airlines can struggle to match around 0.5% of sales because of reconciliation breaks, unmatched settlements, billing issues and posting errors. In an industry generating billions of dollars in ancillary revenue each year, that seemingly small percentage can represent a significant amount of money.

0.5%

Accelya says airlines can struggle to match around 0.5% of sales because of reconciliation breaks, unmatched settlements, billing issues and posting errors

The challenge is likely to become more complex rather than less.

Defining trends

One of the defining trends in airline retailing has been the expansion of ancillary products. According to Christophe Roux, SVP & head of aviation passenger solutions at IBS Software, airlines are increasingly looking at how they can "differentiate and monetise the different elements of the passenger journey". Chargeable seating and change fees remain among the fastest-growing ancillary categories, driven by wider adoption of branded fares and increasingly personalised offers.

At the same time, airlines are beginning to view the connected cabin itself as a revenue opportunity.

Roux expects onboard sales to grow as aircraft become more connected, creating opportunities to sell not only inflight products but also destination services and ancillaries linked to future travel. Similarly, Moreno argues that connectivity is increasingly being viewed as a commercial platform capable of supporting real-time offers, ancillary sales, upgrades and loyalty engagement throughout the journey.

That growth may be welcome news for revenue teams. For finance departments, however, every new retail opportunity introduces additional complexity.

"Every bag, seat, upgrade, lounge pass or bundle creates another transaction that must be authorised, settled, reconciled and accounted for correctly," Moreno notes.

The industry's next retail battleground may therefore be less glamorous than artificial intelligence, dynamic offers or personalised merchandising. The real challenge could lie in building the financial infrastructure needed to support them.

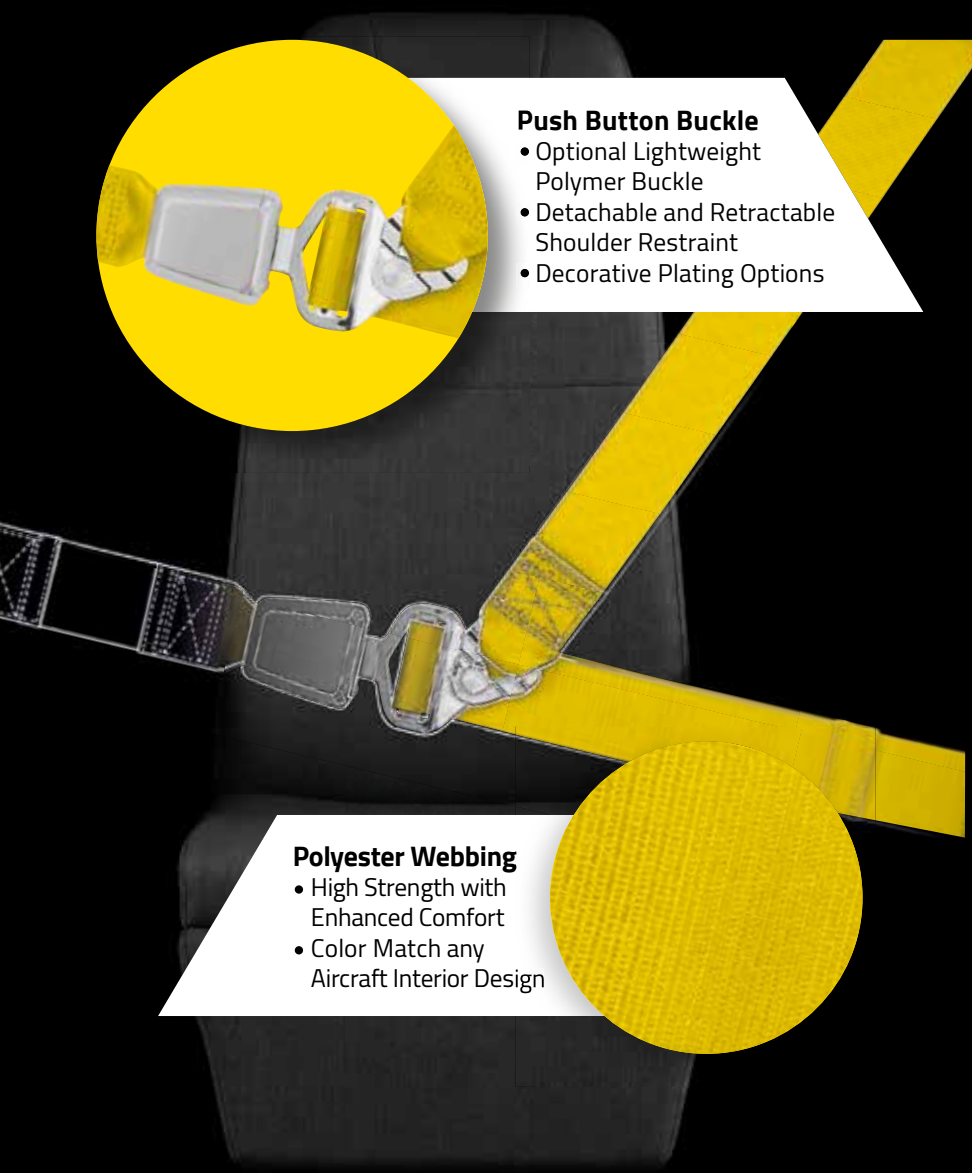
Airlines have become increasingly effective at selling ancillary products. The next step is ensuring that every transaction, regardless of where it originates or how it is paid for, reaches the airline's bank account accurately and can be accounted for with confidence.

As retailing expands beyond the booking path and increasingly into the connected cabin, payment reconciliation may become one of the most important aspects of airline commerce that passengers never see. ●

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Illustration by Phil Couzens

For years, airlines have justified investments in onboard connectivity through a familiar set of arguments: improving the passenger experience, supporting crew operations and differentiating the onboard product.

Today, however, a fourth benefit is moving rapidly up the agenda: revenue generation.

As airlines pursue more sophisticated retailing strategies, the connected cabin is increasingly being viewed not simply as a place where passengers consume services, but as an environment where commerce can continue throughout the journey.

According to Christophe Roux, SVP & head of aviation passenger solutions at IBS Software, airlines are moving towards "connected-cabin commerce", which he describes as "the ability for passengers to discover and purchase a broader range of products and services seamlessly while onboard". Rather than treating the aircraft as a separate retail channel, he says the aim is to make "the cabin part of a connected, continuous retail journey".

The opportunities extend well beyond traditional inflight sales. While meals, beverages and duty-free products remain important, airlines are increasingly examining how connectivity can support premium catering upgrades, destination services, limousine transfers and ancillary sales linked to future flights.

Roux believes onboard sales will grow as cabins become increasingly connected, provided airlines can deliver offers "seamlessly" and ensure the purchasing process remains "simple and convenient for the passenger".



That thinking reflects a broader shift taking place across airline retailing.

Barbara Moreno, director product marketing at Accelya, argues that connectivity is "increasingly being viewed as a commercial platform rather than simply an onboard service". She says connected cabins can enable "real-time offers, upgrades, disruption management, loyalty engagement and onboard transactions throughout the journey". More fundamentally, connectivity supports airlines' ambition to create "a continuous retail relationship rather than limiting commerce to the booking stage".

Moreno believes airlines are beginning to change the way they measure connectivity's value.

"The shift toward continuous retailing means airlines can think beyond 'Can the passenger connect?' and focus more on 'What value can we create during the connected journey?'" she says.

Behind the scenes, however, enabling continuous commerce introduces challenges of its own.

As Moreno notes, every bag, seat assignment, upgrade, lounge pass or ancillary purchase creates "another transaction that must be authorised, settled, reconciled and accounted for correctly". The challenge, she argues, "is not simply payment acceptance but is to ensure those transactions are successfully converted into cash and recorded accurately".

This is often overlooked in discussions about cabin retailing. Airlines may focus heavily on increasing transaction volumes, but the growth of ancillary sales also creates greater complexity in settlement and reconciliation. Accelya says airlines can struggle to match around 0.5% of sales owing to reconciliation breaks, billing issues and posting errors, creating potentially significant revenue leakage as retail operations expand.

At the same time, passenger expectations continue to evolve. Contactless payments and digital wallets have removed much of the friction traditionally associated with onboard transactions, but airlines are increasingly under pressure to support a wider choice of payment methods. Moreno argues that travellers are becoming accustomed to greater flexibility in how they pay and are beginning to expect similar options when purchasing airline products and services.

The result is that connectivity is moving closer to the centre of airlines' commercial strategies.

As Roux puts it, airlines are increasingly focused on "how they can better differentiate and monetise the different elements of the passenger journey". The connected cabin is becoming an important part of that effort.

For airlines investing heavily in onboard connectivity, the industry's next question may therefore be less about passenger access to Wi-Fi and more about commercial opportunity.

Connectivity is no longer simply a passenger amenity. Increasingly, it is becoming the platform that enables airlines to retail, transact and engage with customers throughout the flight itself. ●



"THE SHIFT TOWARD CONTINUOUS RETAILING MEANS AIRLINES CAN THINK BEYOND 'CAN THE PASSENGER CONNECT?' AND FOCUS MORE ON 'WHAT VALUE CAN WE CREATE DURING THE CONNECTED JOURNEY?'"

Barbara Moreno, director product marketing at Accelya

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Alex Preston looks at the efforts to curb the growing prevalence of thermal runaway



▲ Thermal device bags are becoming common

At the end of July, smoke was seen in the cabin of SWISS flight LX16 enroute from Zurich to New York. According to the airline, the cockpit crew immediately initiated a diversion to Bangor International Airport in Maine, where the aircraft landed safely.

SWISS specialists subsequently determined the cause of the smoke to be a damaged charging case for headphones.

This is the latest lithium-ion battery incident (thermal runaway) onboard passenger aircraft: a phenomenon that continues to increase, driven by the rapidly growing number of rechargeable devices passengers carry, including smartphones, laptops, tablets, e-cigarettes and particularly high-capacity portable chargers (in the case of LX16, it was "only" a small charging case with a comparatively low battery capacity).

For years, UL Standards & Engagement has tracked this issue through its Thermal Runaway Incident Programme (TRIP). Programme lead David Wroth reveals the most recent report showed that in 2025, thermal runaway incidents onboard aircraft have increased 15% and are now occurring 2.36 times per week, up from 2.05 per week in 2024. It's a trend his team is actively working to reverse.

Perfect storm

Mats Fortuin, managing and technical director at Netherlands-based LithiumSafe, explains that thermal runaway within an aircraft cabin can be initiated in several ways. These include internal manufacturing defects or cell damage, overheating, electrical short circuits, overcharging, or the use of damaged or poor-quality batteries and chargers. Mechanical damage is another important factor. A device may be dropped or crushed, or as was the case with LX16, become trapped within the mechanism of an electrically adjustable passenger seat. The resulting deformation or puncture of the battery can create an internal short circuit and initiate thermal runaway.

The consequences of damaged or malfunctioning power banks are therefore very serious and present a very different challenge from conventional cabin fires.

"One of the principal risks is cell-to-cell propagation," Fortuin says. "A PED battery pack can contain multiple individual cells. Once one cell enters thermal runaway, the heat generated can trigger neighbouring cells, creating a cascading event that can continue even after the initial open flames have been extinguished."

"At cruising altitude, cabin crew are effectively the first responders and must be able to control and isolate the incident using the equipment immediately available onboard."

A layered approach

Airlines are being proactive in their measures to mitigate this risk, voluntarily submitting data to TRIP and training their crew to recognise and respond to such incidents, as well as considering what types of equipment should be on board for firefighting. SWISS, for instance, says its flight attendants receive comprehensive training that thoroughly covers how to deal with fire, smoke and potentially hazardous items such as power banks.



15%

thermal runaway incidents onboard aircraft have increased 15% and are now occurring 2.36 times per week, up from 2.05 per week in 2024

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And it seems to be paying off. "Our research shows that 97% of cabin crew are largely aware of the risks of thermal runaway, and 97% feel prepared to respond if an incident occurs," states Dr Emily Brimsek, lead researcher on cabin crew preparedness at UL Standards & Engagement. "That said, there is always more to learn as these incidents evolve."

One takeaway is the important distinction to be made between suppressing the initial open fire and managing the complete thermal runaway event.

Extinguishing agents can be effective at knocking down the first open flames and preventing the immediate fire from spreading to surrounding cabin materials, says Fortuin, but extinguishing the visible flames does not necessarily stop thermal runaway within the battery.

"Fire suppression may provide a temporary cooling effect and knock down the initial flames, while the underlying thermal process continues inside the battery pack. As additional cells subsequently enter thermal runaway, the fire can reignite, producing renewed flames, intense heat, smoke and hot particles.

"For this reason, LithiumSafe firmly believes that effective fire containment is essential to safely managing a PED thermal runaway event onboard an aircraft. Suppressing the initial flames alone does not control the complete event. The battery must be contained until the thermal runaway process has fully run its course," he explains.

He adds that following suppression of the initial open flames, the affected PED can be transferred into a purpose-designed battery fire and smoke containment system. "The objective is to provide a controlled environment capable of managing the remaining thermal runaway event, including potential cell-to-cell propagation, secondary flames, smoke, hot particles and extreme temperatures.

"LithiumSafe solutions are specifically designed to be deployed without requiring the addition of cooling liquids inside the containment system," Fortuin comments.

The exact operational procedure, Fortuin emphasises, should always be incorporated into the airline's approved procedures and cabin crew training.

Ergonomic thinking

As Fortuin expounds, LithiumSafe has been focused specifically on the development, testing and continuous improvement of advanced passive fire containment solutions for portable electronic devices in the aircraft cabin environment since 2014.

"That experience has allowed us to continuously develop our products based on actual lithium battery testing rather than theoretical fire resistance alone.

"We have conducted extensive destructive testing over more than a decade. This accumulated knowledge of how batteries behave during real thermal runaway events is fundamental to the design and continuous development of our products," declares Fortuin.

▲ Battery fire demo
◀ Fire safety bag



97%

Research shows that 97% of cabin crew are largely aware of the risks of thermal runaway, and 97% feel prepared to respond if an incident occurs

"AS ADDITIONAL CELLS ENTER THERMAL RUNAWAY, THE FIRE CAN REIGNITE PRODUCING HEAT AND SMOKE PARTICLES"

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◀ Rapid smoke production, hazardous gases and potential pressure events can all occur as a result of a thermal incident

"THIS GAP IN PASSENGER AWARENESS HAS IMPORTANT IMPLICATIONS FOR AVIATION SAFETY"

Today, LithiumSafe fire containment kits are installed onboard more than 3,000 aircraft worldwide, including Lufthansa Group, and by extension SWISS, as well as military aviation operators.

An onboard battery incident is a high-stress event. Cabin crew may be dealing simultaneously with smoke, passengers, communication with the flight deck and an unstable device. A containment solution therefore must be simple, intuitive and extremely quick to deploy.

According to Fortuin, ease of use is a fundamental part of the LithiumSafe design philosophy, which has been built around the people who have to use it.

"Our systems have been developed with human factors at the centre of the design. They are lightweight, compact and require no complicated assembly, electronics or activation mechanism."

As Wroth explains, UL Standards & Engagement is committed to working toward a solution to this growing risk. Through TRIP, it works with more than 40 airline partners to identify trends and better understand where and how these incidents are occurring, helping inform airline training, policies and procedures.

Personal responsibility

"We also translate those insights into practical guidance for cabin crew and passengers, from recognising warning signs to responding appropriately when an incident occurs," he says.

According to Brimsek, despite the prevalence of lithium-ion battery-powered devices, nearly half (45%) of Americans admit to knowing nothing about these batteries. Further, three in five consumers (58%) are unaware that lithium-ion batteries power many of the products they routinely use. "This gap in passenger awareness has important implications for aviation safety and underscores the importance of continued passenger education."

Like many airlines, the use of power banks on board SWISS flights is no longer permitted and electronic devices or batteries may therefore no longer be charged using a power bank. In a statement, the airline stated: "Our passengers share responsibility for safety, and we must be able to rely on them to strictly comply with the rules governing power banks."

For its part, LithiumSafe provides comprehensive operating instructions and implementation guidance to airline customers, as well as supporting operators with the integration of the equipment into cabin crew procedures and training programmes.

Training and guidance can cover recognition of a developing battery incident, use of the protective equipment, handling and transfer of the affected PED, deployment and closure of the containment system, monitoring following containment and post-incident handling.

Wrapping up, Wroth says there is no single solution – continued cabin crew training, effective containment devices and sustained passenger education all have a role in reducing risk. "That's why we recently launched our passenger awareness campaign, focused on helping passengers better understand battery safety and the steps they can take to reduce risk when travelling." ●

Mats Fortuin, managing and technical director at Netherlands-based LithiumSafe, provides a checklist of battery characteristics that make thermal incidents particularly challenging onboard aircraft:

Very high temperatures Thermal runaway can generate extreme localised temperatures and intense heat flux.

Cell-to-cell propagation Failure can propagate throughout an entire multi-cell battery pack.

Reignition A device can appear extinguished while additional cells remain capable of entering thermal runaway later.

Flames and hot particles Failing cells can eject flames, sparks and extremely hot material capable of igniting surrounding cabin materials.

Rapid smoke production Thermal runaway can generate large quantities of dense smoke in a very short period.

Hazardous and flammable gases Battery decomposition can release a complex mixture of gases and vapours, including flammable components.

Potential pressure events Rapid gas generation and ignition can result in energetic venting or pressure events.



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FUEL PRICES TO BE CENTRE OF WAF

This year's event will focus on rising fuel prices

The prospect of airlines reducing frequencies and grounding aircraft to mitigate against spiralling fuel costs will be high on the agenda at this year's World Aviation Festival (WAF) held in October in Lisbon, Portugal.

As part of a WAF preview webinar, industry consultant John Strickland, head of JLS Consulting, predicted more consolidation this winter by US and European carriers.

At this year's show he will get the views of several airline bosses on a panel that will explore how carriers will "drive the aviation growth of tomorrow".

During the preview, Strickland said the impact of rising fuel prices varies according to whether carriers are hedged or can pass on cost increases to customers by raising prices.

Pressure

Despite the pressure on airlines, he said a feared immediate supply breakdown had been averted as airlines sought alternative sources of fuel or hedged to protect themselves from the full extent of short-term price increases.

But Strickland warned: "No matter how much airlines reduce prices to stimulate demand, they still wouldn't be covering the cost of the higher price of fuel. And I think we'll see more planes on the ground as a result.

"I think what we'll see this winter is a higher level of cancellations. I don't see airlines suddenly cutting prices left, right and centre in order to stimulate demand."

According to Strickland, the number of services removed from schedules has so far been relatively modest.

However, he expects these decisions to become more difficult as the industry moves beyond the peak summer period.

The warning comes as industry body IATA forecasts that fuel costs will rise by nearly 40% to $350 billion in 2026, with fuel accounting for 31.4% of total operating expenses.

Strickland will interview Len Corrado, chief executive of Flair Airlines; Jude Bricker, board director of Allegiant; Eivind Roald, chief executive of Norse Atlantic Airways; and Tero Taskila, chief executive of beOnd on October 15 from 12pm. ●



"NO MATTER HOW MUCH AIRLINES REDUCE PRICES TO STIMULATE DEMAND, THEY STILL WOULDN'T BE COVERING THE COST OF THE HIGHER PRICE OF FUEL"

▲ The annual WAF event
▼ JLS Consulting's John Strickland



APP BATTLE

Air Canada, Virgin Australia and Scandinavian Airlines (SAS) will go head-to-head at this year's World Aviation Festival in the Battle of the Airline Apps competition.

The three carriers will showcase how their apps are transforming the passenger journey from booking and check-in to in-flight engagement and post-travel loyalty.

The live competition will see each airline present its mobile app strategy to a panel of industry experts including Suzanna Chiu, head of Amadeus Ventures; Ann Cederhall, owner of consultancy LeapShift, Mark Lenahan, of Lenahan Consulting, Glenn Morgan, partner at SkiesFifty, and Jonas von Kruechten, principal advisor for Dgtlsky.



ESSENTIAL POWER

Modern cabins are being planned around customer charging needs. **Greg Whitaker** finds out more

For years, in-seat power occupied a relatively straightforward place in the cabin. Like mood lighting or enhanced entertainment, it was viewed as a passenger amenity, valuable but not necessarily essential. However, that perception is changing rapidly.

As airlines embrace bring-your-own device, power is moving from the margins to the centre of cabin planning. The question is no longer simply whether passengers can charge their devices. Instead, airlines are asking how in-seat power can support connectivity, retail, and operational efficiency. As a result, what was once considered a convenience feature is increasingly being treated as critical infrastructure.

Connected cabin

The growing importance of personal electronic devices lies at the heart of this transformation.

Airlines are increasingly encouraging passengers to use their own smartphones, tablets and laptops to access entertainment, connectivity services and onboard retail platforms. Wireless IFE systems, in particular, rely heavily on passengers bringing their own devices.

According to Neil McGregor, chief operating officer at IFPL, in-seat power and modern IFEC ecosystems have become inseparable.

"Firstly, as more airlines introduce wireless entertainment, this encourages passengers to use their own devices, so in-seat power becomes essential to the overall passenger experience," he says. "Travellers need to be able to keep their devices charged in order to access content; there is limited appeal in delivering entertainment or retail opportunities directly to a passenger's device if its battery cannot last for the duration of the flight."

He goes further, describing power and IFEC as being "intertwined into a symbiotic relationship, with each playing a key role in the success of the other."

That shift has profound implications for airlines. If passengers increasingly consume entertainment, purchase products and access connectivity through their own devices, keeping those devices powered becomes fundamental to the delivery of the onboard experience itself.

Revenue opportunities

The business implications extend well beyond passenger satisfaction.

Dennis Markert, director of business development, global sales and marketing at Astronics, argues that in-seat power directly supports a range of ancillary revenue opportunities by enabling continued use of connected devices throughout the flight.



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"Access to power ports provides airlines with multiple avenues to increase ancillary revenue," he says. "By enabling PED usage, airlines can boost sales of inflight connectivity, entertainment, retail, food and beverages, and more, ultimately driving additional revenue streams and fostering greater customer loyalty."

Viewed through this lens, seat power is no longer merely a cost of cabin provision. It becomes an enabler of commercial activity.

Markert believes this is one reason airlines increasingly specify in-seat power across both widebody and narrowbody fleets.

"Airlines recognise the importance of this feature for passenger satisfaction and increasingly specify in-seat power in new aircraft orders," he says.

Even older aircraft are being upgraded. "Owing to aircraft manufacturers being unable to keep up with the high demand for new, more efficient aircraft, airlines are increasingly retrofitting their older aircraft with modern amenities, such as in-seat power outlets, to meet current passenger expectations and maintain a competitive edge," Markert adds.

Beyond USB-C

Much of the industry's recent discussion has focused on the transition from USB-A to USB-C, but suppliers increasingly see this as only one part of a broader evolution.

According to McGregor, every new IFPL enquiry and order specifies USB-C charging capability, reflecting the market's direction of travel. However, he believes airlines must avoid abandoning USB-A too quickly.

"There is still passenger demand for USB-A," he says. "We expect demand for USB-A connectivity to remain for the next three to five years."

"IN-SEAT POWER IS NO LONGER SIMPLY A PASSENGER CONVENIENCE. IT IS BECOMING AN ESSENTIAL PART OF THE CONNECTED CABIN"

Neil McGregor, IFPL

Because aircraft remain in service for decades, future-proofing has become a major concern.

"Removing USB-A too soon isolates passengers who still depend on it," McGregor says. "Across the active commercial fleet, USB-A could remain in service well into the 2030s."

As a result, suppliers are increasingly promoting modular systems that allow outlet types to evolve without requiring airlines to replace entire power architectures. The conversation is shifting from individual socket types towards flexibility, scalability and long-term upgrade paths.

Smarter systems, better data

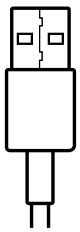
Another important development is the increasing intelligence of modern in-seat power systems.

Historically, seat power delivered little more than electricity. Today's architectures are increasingly networked and capable of generating valuable operational data.

According to McGregor, modern systems can provide information on outlet status, usage patterns and fault reporting, helping airlines understand passenger demand while streamlining maintenance activities.

"Additionally, modern in-seat power systems can also provide operators with valuable

1. Modern suite charging
2. Wireless charging



2030

Removing USB-A too soon may isolate passengers who still depend on it. Across the active commercial fleet, USB-A could remain in service well into the 2030s



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data, including outlet status, usage patterns, and fault reporting," he says. "This supports preventative maintenance, enables faults to be identified more efficiently, and gives airlines a clearer understanding of actual passenger power demand."

Markert identifies intelligent power management as another key differentiator.

"A standout feature of our systems is smart power management," he says. "This allows for dynamic power allocation based on demand, optimising energy usage and ensuring efficient operation."

In effect, in-seat power systems are becoming another connected node within the aircraft ecosystem, generating operational insights while improving reliability and efficiency.

Safety dimension

Perhaps the most significant change, however, is the growing relationship between in-seat power and lithium-battery risk management.

A number of airlines have tightened policies surrounding power banks following industry concern over lithium-ion battery incidents. As restrictions increase, suppliers argue that dependable installed power becomes even more important.

According to David Pook, vice president global marketing & sales at Burrana, the changing environment is encouraging airlines to look beyond the traditional passenger-experience argument.

"With the continued occurrence of lithium-ion battery incidents, airlines and regulatory agencies are reassessing policies around personal power banks and onboard charging," he says. "Providing reliable power at the seat eliminates the need for passengers to rely on their own portable batteries in the first place."

Pook believes certified onboard systems offer safeguards unavailable with personal charging devices.

"An installed in-seat power system provides monitored power within a certified aircraft architecture, with defined protection mechanisms and engineered safeguards," he says.

McGregor sees the trend in similar terms. "If passengers can no longer rely on portable power banks throughout a flight, airlines must provide sufficient installed capacity to support the devices passengers bring on board," he says.

That means delivering not only charging capability, but also "dependable access, appropriate power levels and intelligent protection against faults, damaged cables, and overheating".

The result is a notable shift in thinking across the industry. Installed power is increasingly viewed not only as a customer-service feature, but as part of an airline's broader approach to operational safety and risk management.

Critical infrastructure

The future of in-seat power will undoubtedly involve continued discussions around USB-C, power levels and the gradual decline of AC outlets. Yet those technology debates risk obscuring a much larger industry shift.

Power has become a foundational element of the connected cabin. It supports wireless entertainment, enables connectivity adoption, underpins ancillary revenues, provides valuable operational data and may play an increasingly important role in reducing passenger dependence on personal battery packs. What was once regarded as a simple passenger amenity is rapidly evolving into an enabling technology upon which much of the modern onboard experience depends.

As McGregor succinctly puts it: "In-seat power is no longer simply a passenger convenience. It is becoming an essential part of the connected cabin." ●

1. The IFPL power supply allows for easy retrofitting
2. Burrana RISE provides multiple port options

2



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WISE SKIES

Airspace reform is an effective way to lower emissions, reports **Greg Whitaker** from the Sustainable Skies World Summit

If sustainable aviation fuels (SAF) and next-generation aircraft are the headline-grabbers in the race to net zero, airspace modernisation is the quiet workhorse. It delivers carbon savings today, requires no new engines or airframes and, according to Ian Jopson, sustainability director at NATS (National Air Traffic Services in the UK), is essential for the future of UK aviation.

"Fuel propels the aircraft, but airspace shapes the journey," Jopson told delegates at the Sustainable Skies World Summit held at Farnborough in March. Every minute of holding eliminated and every smoother climb or descent converts directly into emissions avoided.

Those avoided emissions are already substantial. Jopson told the conference that since 2007, NATS' airspace enhancements have enabled annual savings of 1.8 million tonnes of CO_2 in UK airspace. To put that in perspective, he likens it to an aircraft flying 100 million miles a year, the equivalent of 5,000 trips around the Earth, without burning a drop of fuel, all achieved through smarter use of the skies.

Various carbon monitoring bodies have recognised the savings. CDP (formerly the Carbon Disclosure Project) has awarded NATS an 'A' rating for the third year running, placing it in the top 4% of more than 22,100 companies worldwide assessed for climate transparency and performance. Meanwhile, the Science Based Targets initiative (SBTi) awarded NATS with 'Business Ambition' status, the highest achievement possible.

Wise pairing

In his keynote, Jopson mentioned a system called 'Pairwise' being implemented at Heathrow. This was deployed in late 2024 at the Swanwick air traffic control centre.

Pairwise introduces a new method for calculating the minimum separation between arriving aircraft pairs. Traditionally, separation is based on six categories that consider an aircraft's weight and the wake it creates as it flies. Pairwise separation is calculated based on the specific characteristics of each aircraft type.

Calculating the separation in this more granular way means air traffic controllers can safely reduce the gap between some pairs of aircraft and increase the overall flow of traffic, allowing for an additional two arrivals per hour at Heathrow and a 3.2% increase in the average landing rate during peak morning hours.

"MODERNISING AIRSPACE IS THE FASTEST AND MOST COST-EFFICIENT WAY TO DELIVER EMISSION SAVINGS"

1





2

1. Ian Jopson, sustainability director at NATS
2. Air traffic controllers can safely reduce the gap between some pairs of aircraft
3. NATS may be able to reduce 1 million tonnes of CO_2 per year by 2050

Less time on hold

A higher landing rate means aircraft spend less time circling in airborne holds – one of the most fuel-intensive phases of flight.

Through this new system and other initiatives, Jopson told the conference that he believes NATS can reduce another 1 million tonnes of CO_2 per year by 2050.

"Modernising airspace is the fastest and most cost-efficient way to deliver near-term emission savings," he said, adding that while doing so is government policy, it needs support to make it a reality.

"What we need for it to be fully delivered is continued support from policymakers, but also support from airlines and the airports and all other airspace users to deliver these near-term benefits."





3

“FUEL PROPELS THE AIRCRAFT, BUT AIRSPACE SHAPES THE JOURNEY”

Non-CO2

Jopson also addressed the growing focus on aviation’s non-CO_2 impacts. Sustainable Aviation’s newly published position paper acknowledges that non-CO_2 effects, such as contrail formation, represent a significant share of the industry’s climate impact.

These include maximising co-benefits through SAF and advanced engine technologies that reduce both CO_2 and non-CO_2 emissions; testing mitigation strategies at scale, including operational trials that evaluate real-world climate impact; and working with academia and climate experts to build robust methodologies for assessing the effects of non-CO_2 emissions.

“These are to work with academia and climate experts to build robust methodologies for assessing the effects of non-CO_2 emissions”, said Jopson.

In short, the industry is ready to move beyond laboratory models and into operational testing – and NATS sees itself as a central player in that journey.

Expanded demand

Demand for air travel is set to increase. By 2030, the UK’s skies are expected to host around three million flights annually. Without redesigned airspace, Jopson warns, the system simply won’t cope.

Good airspace, Jopson concludes, is the backbone of a predictable, resilient aviation ecosystem. It keeps aircraft moving efficiently, reduces pressure on airports and cuts the environmental impact of every journey. ●



CLEANING THE CABIN

1

Aviation is tackling waste across the lifecycle of cabin products, making them more durable and easier to recycle

The industry's net-zero ambitions will not be delivered by a single technology. While SAF production continues to grow, it still represents only a small fraction of global jet fuel consumption, underlining the need for a broader approach to emissions reduction.

As Kennedy Ricci, president and CEO of 4AIR, argues, the solution will ultimately be "a mix" of SAF, carbon removals, operational improvements, contrail management and emerging electric-aircraft technologies.

That thinking is increasingly evident across the aviation supply chain. Rather than focusing solely on what powers aircraft, manufacturers and operators are examining how products are designed, maintained, reused and ultimately retired.

Lightweighting

For Carsten Laufs, senior vice president of product innovation and digitalisation at Diehl Aviation, reducing CO_2 emissions remains aviation's biggest sustainability priority. But the industry is now "taking the next step and exploring new paths" through circular-economy initiatives and more sustainable product design.

One of the company's flagship projects is the ECO Bin, a recyclable overhead stowage compartment developed using thermoplastic materials designed to simplify recycling at the end of a product's life.

The concept reflects a wider industry effort to reduce waste by designing products with reuse and recovery in mind from the outset. Yet true circularity remains a work in progress.



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According to Elina Kopola, founder of the Green Cabin Alliance, the aviation sector must be careful not to confuse recycling with genuine circularity.

"The real test is whether we can recover a cabin product and retain its value, ideally turning it back into the same, or an equivalent, product," she says. "That is where aviation still has a long way to go."

The challenge is significant. Aircraft cabins are customised, heavily regulated and expected to remain in service for decades. Those requirements make it far harder to apply circular-economy principles than in many consumer industries. Yet cabin sustainability may represent one of aviation's biggest untapped opportunities.

"We change the cabin far more often than we change the aircraft," says Kopola, noting that interiors are typically replaced several times during an aircraft's lifespan.

Extending life, reducing waste

The sustainability debate is also shifting from what products are made from to how long they remain in service.

"In aircraft interiors, sustainability is increasingly a lifecycle question, not only a question of coating chemistry," says René Lang, MD, aviation at Mankiewicz.

The comment reflects a growing view that one of the most effective ways to reduce environmental impact is simply to avoid replacing components unnecessarily. Airlines and suppliers are increasingly evaluating products not only on their environmental credentials but also on their durability, repairability and ability to remain in service for longer.

"Airlines and cabin suppliers are therefore looking beyond lower-VOC materials," says Lang. "They are also asking how long a component can remain in service, whether its surface can be repaired and how much waste can be avoided during refurbishment."

That philosophy aligns closely with the circular-economy thinking emerging elsewhere in the cabin sector. Designing products for recovery is one part of the equation; avoiding premature replacement is another.

"A MINOR SURFACE DEFECT CAN NOW LEAD TO THE REMOVAL, REFURBISHMENT, OR REPLACEMENT OF AN ENTIRE COMPONENT"

"A minor surface defect can now lead to the removal, refurbishment, or replacement of an entire component," Lang adds. "Repairable coatings turn that into a localised repair."

The principle may sound simple, but across thousands of aircraft and millions of cabin components, extending product life can translate into meaningful reductions in waste.

Data as a tool

Alongside circularity and lifecycle extension, digitalisation is emerging as a powerful sustainability enabler. At Diehl Aviation, research is focused on connected cabin technologies capable of monitoring energy consumption, water usage and maintenance requirements in real time. The aim is to give airlines better visibility into how resources are consumed onboard and where

1. A cabin being stripped during a C12 check
2. Defect repair can lead to the replacement of an entire component
3. A cabin being returned to service
4. Localised repairs can extend product life and reduce overall waste



4



1

efficiencies can be found. "Digitalisation and connectivity in the cabin can be a game changer for sustainability," says Laufs.

The applications extend beyond resource management. Connected systems could help airlines move towards condition-based maintenance, identifying faults before failures occur and reducing unnecessary component replacements.

"Ultimately, this means fewer resources are needed, parts are replaced less frequently and components have a longer lifespan," Laufs says.

The broader significance is that sustainability is becoming increasingly data-driven. Understanding exactly how much water, energy or material is consumed creates opportunities to eliminate waste that would otherwise go unnoticed.

Coordination challenge

A striking message is that the main barriers are no longer technical. "The biggest blocker is not a lack of technology," says Kopola. "It is a lack of alignment between safety requirements, certification, procurement, manufacturers, airlines, recyclers and regulators."

That observation highlights a reality often overlooked in sustainability discussions. Aviation's environmental challenge spans an entire ecosystem of stakeholders, each responsible for a different stage of a product's life.

"The airline buys the product. The designer specifies it. The supplier manufactures it. The MRO removes it. The recycler determines what can be recovered. And the regulator determines what is acceptable," Kopola explains. "If each makes a good decision independently, we can still end up with a product that goes to landfill."

The need for alignment is becoming more pressing as regulatory scrutiny intensifies.

According to 4AIR, airlines and operators now face an increasingly complex landscape of SAF mandates, carbon-pricing schemes and emissions-reporting requirements, with more than 25 sustainability-related regulatory frameworks affecting aviation globally.

"FEWER RESOURCES ARE NEEDED, PARTS ARE REPLACED LESS FREQUENTLY AND COMPONENTS HAVE A LONGER LIFESPAN"

At the same time, investors, customers and corporate travel buyers are demanding greater transparency, creating pressure for measurable and verifiable sustainability performance.

As Ricci puts it, the industry increasingly needs "partners who deliver results that can be supported, proven, scaled and trusted."

Looking beyond fuel

None of this diminishes the importance of SAF. The industry's net-zero ambitions will depend heavily on scaling sustainable fuels over the coming decades. But the sustainability conversation is clearly broadening.

Recyclable cabin products, design-for-disassembly principles, repairable surfaces, connected aircraft systems and lifecycle management are all becoming part of aviation's sustainability toolkit.

Kopola believes the next step is to stop thinking about sustainability as a series of isolated initiatives and start designing around an asset's entire lifecycle. "The opportunity is to connect them and make the cabin designed for its whole life, not just the next flight."

That may ultimately prove to be the industry's most important sustainability lesson. While cleaner fuels remain essential, some of aviation's biggest environmental gains may come from something far less glamorous: eliminating waste, extending product life and making better use of the resources already available. ●

1. Repair or replace?
2. A heavy maintenance check is the ideal time to recycle cabin equipment

2



JUMP SEAT DUO

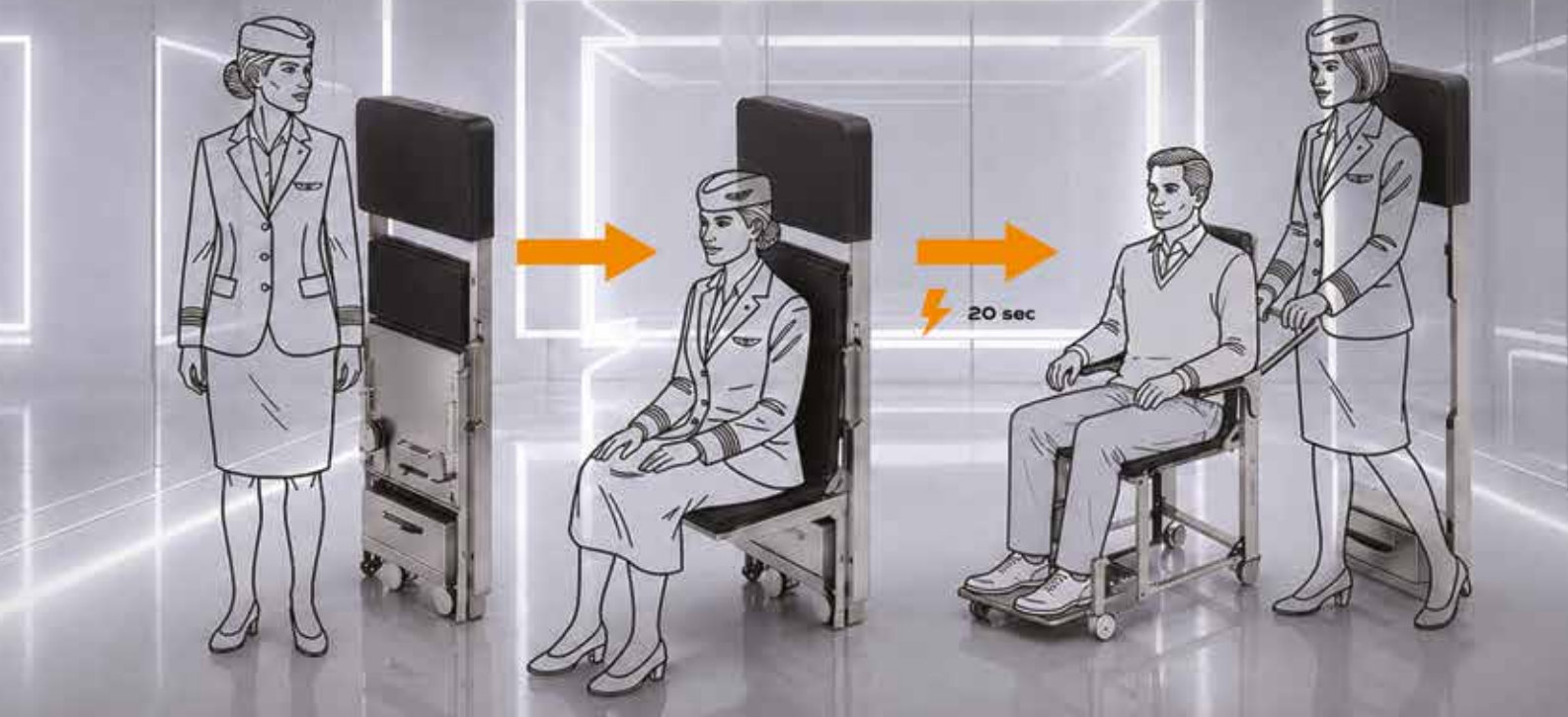
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Green Sky

REPORT FORECASTS 87% RISE IN GROSS AVIATION EMISSIONS BY 2050

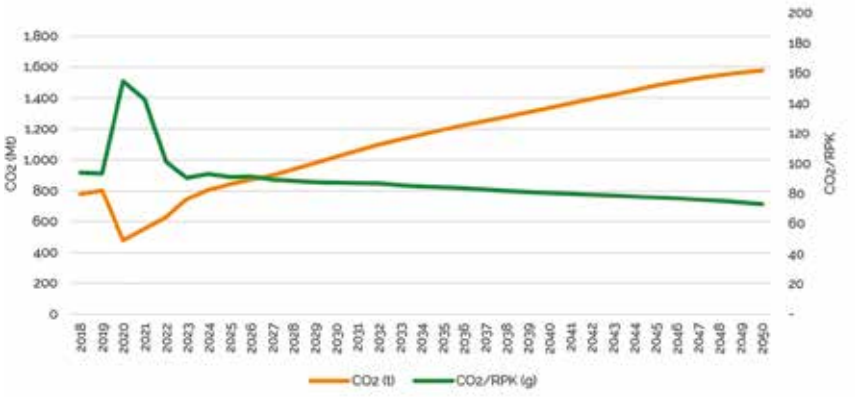
IBA suggests exhaust emissions will increase to approximately 1.58 billion tonnes of CO_2 in 2050

Direct carbon dioxide emissions from commercial passenger aircraft are expected to increase by 87% between 2025 and 2050, according to new forecasts from aviation consultancy IBA.

Analysis from IBA's NetZero sustainability platform suggests annual tailpipe emissions will rise from around 843 million tonnes of CO_2 in 2025 to 1.58 billion tonnes by 2050. The figures represent gross tank-to-wake emissions and do not account for the potential impact of sustainable aviation fuel (SAF), carbon offsetting schemes or other market-based emissions reduction measures.

The forecast comes despite significant improvements in aircraft efficiency over the same period. IBA projects average fleet emissions intensity will fall by around 20%, from approximately 91 grams of CO_2 per revenue passenger kilometre (RPK) in 2025 to 73 grams by 2050.

However, the consultancy expects passenger demand to grow faster than efficiency improvements can offset. Global RPKs are forecast to increase by 134%, from 9.25 trillion in 2025 to 21.65 trillion in 2050.



▲ Data relating to absolute emissions vs emissions intensity from IBA NetZero, market forecasts

Fleet renewal

Fleet renewal is expected to play a major role in reducing emissions intensity, with newer aircraft offering lower fuel burn than the models they replace. Even so, IBA forecasts the global commercial passenger fleet will almost double in size, growing from around 29,800 aircraft in 2025 to more than 56,000 by 2050.

Archie Brown, senior analyst at IBA, said efficiency gains from fleet renewal would continue to reduce emissions on a per-passenger basis but would be insufficient on their own to bring down total emissions as air travel demand grows.

He said achieving the aviation industry's longer-term decarbonisation goals would require wider adoption of sustainable aviation fuels, further operational improvements and supportive policy measures.

Under IBA's baseline scenario, zero-emission aircraft are not expected to enter commercial service in meaningful numbers until after 2046. By 2050, they are forecast to account for around 0.3% of the global passenger fleet, with operations largely limited to local and regional routes.

IBA said its analysis is intended as a baseline projection rather than a net-zero pathway, combining aircraft delivery and retirement forecasts with assumptions around passenger demand, utilisation and load factors. Dedicated freighter aircraft are excluded from the study. ●

IBA FORECASTS THE GLOBAL COMMERCIAL PASSENGER FLEET WILL ALMOST DOUBLE IN SIZE, TO MORE THAN 56,000 BY 2050

134%

Global RPKs are forecast to increase by 134%, from 9.25 trillion in 2025 to 21.65 trillion in 2050

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