

Aircraft

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CABIN

Perfecting the passenger experience

Management



A COLOURFUL APPROACH

Industry suppliers are
getting on board with
a whole new palette

Road to recovery

Assessing the outlook for the
aircraft interiors market

A brighter future

New fabrics come to the fore in the
post-Covid aviation environment

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Aircraft interiors could soon be looking brighter since passengers are craving cleaner colours, as Tapis sales director Matthew Nicholls explains





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Editor's L E T T E R



COLETTE DOYLE

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What a few months it has been since our last issue. The airline industry has been pummelled by the onslaught of Covid-19, shedding thousands of jobs, millions of passengers and billions of dollars. In this edition, we hear what the experts have to say about the outlook for air travel in general and the on-board products sector in particular.

Turn to page 18 to read what Andrew Doyle, director of market development at travel industry data provider Cirium, reckons is key to weathering this particularly pernicious storm. He points out how vital it is at this point in time for suppliers to stay ahead of competitors by using analytical insights to build a pipeline of leads, thereby readying themselves for a return in demand.

In place of our regular "In Conversation" interview slot we report back from "The Outlook for Aircraft Interiors". This is one of a series of webinars that the Passenger Experience Conference is running this summer to replace the cancelled live event due to have taken place in Hamburg this spring.

A panel of seasoned industry stalwarts recently gathered to assess the economic damage wreaked by coronavirus and discuss those cabin enhancements likely to constitute the 'new normal' in a post-Covid landscape, as well as proffering a variety of global recovery scenarios [see pages 24 and 25 for more details].

Our comment column, "In my View" [page 13], offers yet more authoritative opinion, this time from former airline CEO David A Banmiller, who has just written a memoir entitled *Turbulence: Fifty Years on the Leading Edge of the Airline Industry*. Here, David looks at those amazing innovations that have shaped the aviation industry and ponders on what's in store for the future.

We'll be back in September with features on environmental control systems, laminates and maintenance; in the meantime keep an eye on **aviationbusinessnews.com** for all your essential industry updates.



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Business Briefing

News from across the industry



EVENTS

Passenger Experience Conference goes online with series of webinars

Reed Exhibitions, organiser of the Passenger Experience Conference (PEC), is running a six-part series of free weekly online webinars over the course of the summer.

The PEC virtual series replaces its face-to-face event, normally held ahead of Aircraft Interiors Expo (AIX) and World Travel Catering & Onboard Services Expo (WTCE) in Hamburg.

Each week, industry experts will come together to discuss current issues. As the aviation industry prepares for a return to air travel, the first PEC webinar addresses the outlook for interiors specification programmes and

reconfiguration projects [*see our feature on page 24 for more details*].

Next in the series, Nicole Noack, MD at Independent Aircraft Modifier Alliance, Cristian Sutter, VP of commercial aviation strategy at GDC Technics and the VP of technical sales and customer services at Etihad Engineering, Frederic Dupont will discuss how reassuring passengers will dominate maintenance and cleaning regimes, as well as modification and retrofit initiatives.

Technologies embedded in materials, or which emulate the natural user experience, have the power to transform passenger interactions within the cabin and they form the basis of the third

session. Leading the discussion, Johannes Lampela, director of design at the LA studio of BMW Group Designworks, will explore new ways to harness disruptive technologies to support travellers and ensure a safe flying environment.

In the fourth edition, Bernd Knobe, managing partner at Umlaut Consulting, will be joined by airline and MRO industry value expert at Dassault Systèmes Aurélie Germain and Roland Naudy from the Airbus aircraft interiors marketing team. They will explore the initiatives and methodologies aviation leaders are deploying to encourage

The PEC virtual series replaces this year's face-to-face event

innovations aimed at transforming experiences and encouraging passengers to return to air travel.

The penultimate session looks at developing lightweight products for the cabin. Industry stalwarts including JPA Design MD Ben Orson and Nigel Smith, MD and head of design at SWS Certification Services, will address the opportunities to reduce both fuel usage and the CO₂ footprint of aviation using lightweight materials and Formula 1-derived technology.

The final PEC webinar for the summer will see Patrick Prefontaine, VP of business development at Fethr, a Black Swan Company, Mormedi CEO Jaime Moreno and Helge Sachs, senior VP of product innovation at Diehl Aviation, consider how data and technology can help meet the needs of passengers in the post-pandemic world.

Event director Polly Magraw said: "We're delighted to bring many of the speakers for this year's event online. We look forward to providing a platform for experts to continue the discussion, so the industry can take off and soar again."

For more information, visit passengerexperienceconference.com



AIRLINES

Airbus cuts 15,000 jobs globally

Airbus has announced plans to adapt and resize its workforce in response to the coronavirus pandemic, expected to result in a reduction of 15,000 jobs by the summer of 2021.

The company's commercial aircraft business activity is down by 40 per cent and although production rates have been adapted, air traffic is not expected to recover to pre-covid-19 levels before 2023.

"Airbus is facing the gravest crisis this industry has ever experienced," said CEO Guillaume Faury.

"The measures taken have enabled us to absorb the initial shock of this pandemic. Now, we must ensure we can sustain our enterprise and emerge from the crisis as a healthy, global aerospace leader, adjusting to the overwhelming challenges of our customers."

The cuts include over 5,000 positions

in both Germany and France, 900 in Spain, 1,700 in the UK and 1,300 at the company's other worldwide sites.

Airbus says that it will rely on all available social measures, including voluntary departures, early retirement, and long-term partial unemployment schemes where appropriate, before resorting to compulsory measures.

The company also announced it would take advantage of the furlough schemes in Spain and the UK for 5,300 staff.

Nicholas Jouan, aerospace and defence analyst at GlobalData said: "Overproduction is a perspective that plane manufacturers absolutely want to avoid, and furloughs are a convenient way to adapt to an erratic demand.

"The company reduced production of its main commercial platforms, including the A320neo which has seen stalled sales of 47 net orders in 2020. It is now clear that Airbus' pre-crisis output at around 60 A320 per month is far too high to be sustainable in the medium term.

Joan continues: "Questions remain on how much capacity Airbus can still cut in its commercial division after a previous furlough scheme at its Welsh assembly line and work reduction in other main locations such as France.

"Recent A320neo and A350 order deferrals from Iberia showed that the market is unlikely to recover completely for at least three to five years."

IATA'S 2019 AIRLINE SAFETY REPORT

All accident rates (accidents per one million flights)	2019 1.13, or 1 accident every 884,000 flights	2018 1.36, or 1 accident every 733,000 flights	Five-year average (2014-18) 1.56, or 1 accident every 640,000 flights
Total accidents	53	62	63.2
Fatal accidents	8 fatal accidents (4 jet and 4 turboprop) with 240 fatalities	11 fatal accidents with 523 fatalities	8.2 fatal accidents a year with an average of 303.4 fatalities each year
Fatality risk	0.09	0.17	0.17
Jet hull losses (per one million flights)	0.15 (1 major accident for every 6.6 million flights)	0.18 (one major accident for every 5.5 million flights)	0.24 (one major accident for every 4.1 million flights)
Turboprop hull losses (per one million flights)	0.69 (1 hull loss for every 1.45 million flights)	0.70 (1 hull loss for every 1.42 million flights)	1.40 (1 hull loss for every 714,000 flights)



STATISTICS

IATA figures show modest increase in air travel passenger numbers

IATA has released figures showing passenger demand in May dropped 91.3 per cent compared to the same time last year, a mild uptick from the 94 per cent annual decline recorded in April, driven by recovery in some domestic markets, most notably China.

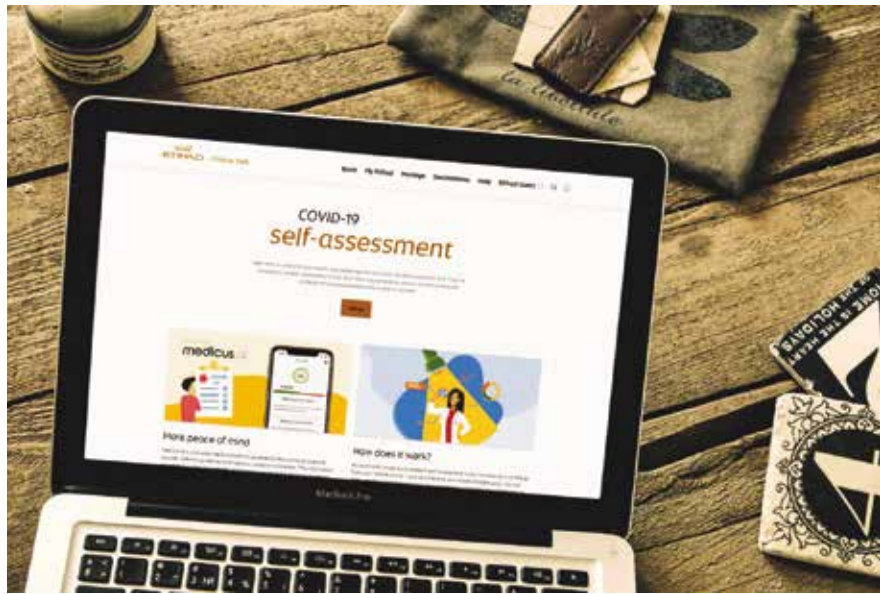
“May was not quite as terrible as April. That’s about the best thing that can be said,” noted IATA director general and CEO Alexandre de Juniac.

For European carriers, demand in May contracted 98.7 per cent compared to last year, virtually unchanged from 98.9 per cent in April. In Asia-Pacific, traffic plunged 98 per cent, in line with April’s 98.2 per cent.

Across the Middle East, the market in May contracted by 98 per cent, versus 97.3 per cent in April. US airlines’ domestic traffic was down 89.5 per cent, an improvement over April’s 95.6 figure.

Latin American airlines experienced a 98.1 per cent drop in May, versus April’s 98.2 per cent, while African airlines’ traffic sank 98.2 per cent, fractionally better than 98.7 per cent in April.

China’s carriers posted a 49.9 per cent decline in May traffic, better than April’s 64.6 per cent.



AIRLINES

Middle Eastern airlines get back on track

Middle Eastern airlines, including Qatar, Etihad and Emirates, have been increasing the amount of flights and safety tools for passengers as the Covid-19 pandemic starts to ease.

Etihad Airways has partnered with Medicus AI to launch a Covid-19 risk assessment tool that will guide passengers in evaluating the probability of having contracted the virus by responding to a set of 22 questions.

The self-administered assessment, which takes less than five minutes, is based on World Health Organisation (WHO) guidelines.

Etihad Airways chief digital officer Frank Meyer said that “health and wellbeing will be a major factor impacting guests’ travel decisions, and we are committed to ensuring their continued safety and peace of mind when they travel with Etihad Airways. As operations begin to resume globally, we want to empower our guests to make informed decisions.”

The tool is available on Etihad.com and will soon be on mobile apps on Apple IOS,

Android and Huawei. It will be accessible in English with additional language editions such as Arabic, French, German and Portuguese added in phases.

Qatar Airways, meanwhile, has begun to rebuild its network, with three weekly flights resuming to Dar es Salaam and Budapest, and daily flights to Dhaka, Istanbul and New York.

By mid-July, it hopes to build its US network to 39 weekly flights, including to destinations such as Boston, Los Angeles and Washington Dulles, as well as increasing flights to New York’s JFK.

Etihad Airways has a Covid-19 risk assessment tool for passengers

The airline also announced three weekly flights to Toronto Pearson International Airport from 4 July. The flights will be operated by an Airbus A350-900 offering 36 seats in business class and 247 seats in economy.

Following suit, Emirates has added more passenger routes, including Osaka, Narita, Khartoum, Amman, Athens, Larnaca and Rome, bringing the total list of destinations to 48. Emirates has also announced the resumption of flights between Glasgow and Dubai International Airport from 15 July, following a similar move with Manchester and London Heathrow airports.



SUSTAINABILITY

PriestmanGoode partnership explores sustainable luxury

A PriestmanGoode partnership with the Royal College of London has explored the option of using algae in cabins as part of a sustainable luxury aesthetic.

As part of a yearly industry brief with the MA Textiles course, the project challenged students to examine the possibility of using waste or by-products materials to create a new aesthetic that would be sustainable, desirable, tactile and functional for transport environments in 2030.

Each year, one student is selected as the winner, securing a paid internship with the company where they can work with teams to realise their work in an environment. This year it was Yanjie Zhang, who explored how algae could be used.

Maria Kafel-Bentkowska, head of CMF at PriestmanGoode said: "Algae is such an extraordinary material, it can be converted into energy and biofuels, it converts large volumes of CO₂ to oxygen, it can be turned into yarn and fabrics.

It was inspiring to see how Yanjie was able to use one single material to create such a wide range of objects of different material properties and textures."

An online exhibition charts the work of seven students whose projects were selected, and can be found on the PriestmanGoode website.

In other news from the studio, it has unveiled a new spaceship design for US-based company Space Perspective.

Spaceship Neptune is a high-performance balloon and pressurised capsule that will fly passengers and research payloads to the edge of space.

See Design Update in the next issue for more on the Royal College of London project

ENVIRONMENT

Implementation of ICAO's carbon offsetting scheme shows continued progress



The international civil aviation organisation (ICAO) says there has been "significant progress" towards the global implementation of its carbon offsetting and reduction scheme for international aviation (CORSIA).

Rwanda and Kazakhstan have just announced participation in the pilot phase of CORSIA. Such commitments represent an important contribution towards the momentum underpinning the scheme. Now 85 states, representing some 76.8 per cent of international aviation activities, are committed.

ICAO has also officially launched the CORSIA Central Registry (CCR), one of five implementation elements. It is a crucial step, as existing legislation obliges member countries to fulfil their reporting requirements through it and by no other means.

ICAO Council President Salvatore Sciacchitano said, "ICAO has been working diligently to put in place all implementation elements of CORSIA to ensure the scheme remains on track and the states have all tools available to comply with their CORSIA reporting requirements."

ICAO is committed to reducing the environmental impact of flights through a basket of measures, with CORSIA playing a significant role in its strategy.





RECOVERY MEASURES

IATA calls for governments to bear costs of public health efforts

The International Air Transport Association (IATA) and the Airports Council International (ACI) are calling on governments around the world to cover the costs related to public health measures aimed at mitigating the spread of communicable diseases.

As the industry begins to restart and plan for a long-term, sustained recovery, the health and safety of passengers and staff remains the foremost priority for airports and airlines. The International Civil Aviation Organization (ICAO), through the Council Aviation Recovery Task Force (CART), has resolved to partner with its member states, international and regional organisations

and industry to address the challenges and to provide global guidance for a safe, secure and sustainable restart and recovery of the aviation sector.

ICAO's TakeOff guidance outlines a number of new measures for safeguarding public health, which are already being introduced by airports and airlines around the world. To ensure their efficacy, these measures, including health checks, sanitisation and social distancing, will require implementation by the appropriate national authorities.

ACI and IATA believe that existing roles and responsibilities of governments, airlines, airports and other operational stakeholders should be respected in implementing the response to the

The industry is still on the edge of a financial precipice

Covid-19 outbreak. Airlines and airport operators should be included in national discussions to assess the practicalities of implementing the solutions proposed by ICAO aimed at harmonisation across jurisdictions.

"The aviation industry wants to get the world moving again. We have worked with ICAO and many governments to put in place standardised protocols that safeguard public health and give travellers the confidence to return to the skies," commented IATA's director general and CEO Alexandre de Juniac.

"However, the industry is still on the edge of a financial precipice. The extra costs of health measures mandated by governments must – as the WHO recommends – be borne by governments. That will enable the industry to focus scarce resources on reconnecting the world and boosting economic recovery."



AIRLINES

Flights resume from UK airports

American Airlines, KLM and Air France have all announced plans to fly from UK airports again as the industry recovers.

By 13 July, KLM was due to resume operations between London City Airport and Amsterdam Schiphol for a single daily service, with plans to increase frequency as demand for travel returns.

London City Airport's chief commercial officer, Richard Hill, said, "KLM's return to London City Airport is another positive sign of recovery. We have been working

hard with our partners to re-establish routes. This is an important milestone."

It will be operated by KLM subsidiary KLM Cityhopper, using an Embraer 190 aircraft carrying 100 passengers with a number of safety measures for passengers and staff, including compulsory face masks and social distancing on board when possible.

Air France, part of the KLM group, has also resumed operations from five departure points across the UK.

The French flag carrier currently

operates a daily service from both London Heathrow and Manchester to its hub at Paris CDG with frequency increases continuing in line with demand.

As borders reopen and travel restrictions begin to ease, daily services will also resume from Birmingham, Edinburgh and Newcastle from July. The airline plans to operate 80 per cent of its pre-coronavirus global network in summer 2020. Frequency increases throughout the period will result in the carrier reaching 35 per cent and 40 per cent of the planned capacity for July and August respectively.

Meanwhile, American Airlines has announced that it will make the move to London Heathrow Terminal 5 in an effort to rebuild "its international network by focusing on strategic hubs."

Joining business partner British Airways, it will operate four daily flights to Dallas/Fort Worth, New York's JFK, Chicago O'Hare and Miami.

"Moving American's operations to Terminal 5 for the first time will greatly improve the customer travel experience, enabling faster and easier connections," said Rhett Workman, managing director for Europe & Asia-Pacific.

"While our surroundings may have changed, the safety of our customers and teams remains of paramount importance. We are working tirelessly with our partners and the airport to ensure we continue to offer a safe travel experience."

INDUSTRY DATA

100 million passenger journeys lost during pandemic

Around 100 million passenger journeys to, from and within Europe on aircraft have been lost since 1 March because of the Covid-19 pandemic.

Research by *The Independent* with data from Eurocontrol revealed that 90 per cent or more of European passenger flights have been grounded.

Some have been replaced by all-cargo flights, with DHL express becoming the busiest airline in Europe with 153 movements per day in the week between 6 and 12 April.



Ryanair also lost its top spot, taken over by Norwegian carrier Wideroe, which had 114 flights in the course of a week.

It's estimated that the loss in revenue from European journeys in the six weeks after 1 March is currently £4 billion from the 677,959 cancelled flights, a small fraction compared to the £250 billion in lost revenue predicted by the International Air Transport Association (IATA) for airlines worldwide in 2020.



INTERIORS

Adhetec launches antimicrobial adhesive films for cabins

Adhetec a specialist in technical adhesives for the aerospace industry, has launched a range of certified antimicrobial adhesive films for use during the pandemic.

Embedded with natural antimicrobial technology from Pylote, it is claimed to be effective against coronaviruses and bacteria.

Adhetec CEO Alexis Gabillon said: "The Covid-19 pandemic has called into question travel habits. The innovation we are launching responds to this extra safety need by adding an additional function to our products, thanks to Pylote's technology: the maintenance of microbiological hygiene."

He continued: "We will apply the technology to all of our interior product range, particularly Adheskin, which will open the way to optimised cabins in terms of microbiological hygiene without any compromise on other elements like uniqueness and aesthetics."

Adhetec initially proposes the films for airlines, manufacturers or aeronautical subcontractors. The transparent or customisable adhesive films can protect tray tables, IFE screens, armrest, handles or seat shells. [See our feature on paints and coatings on page 32 for more details].



TRAINING

Middle East's first independent safety training facility approved

Dynamic Advanced Training, a subsidiary of Khansaheb Investment, has received certification from the General Civil Aviation Authority (GCAA), making it the only independent and approved Cabin Crew Training Organisation (CCTO) in the United Arab Emirates (UAE).

The training will provide safety and emergency procedures for aircrew at different stages of their development.

A wide range of management and soft skills training courses will also be offered.

Mark Kammer, co-founder and director of operations at Dynamic Advanced Training, said: "We are extremely excited to announce Dynamic Advanced Training as an approved training organisation."

"This centre will be a huge benefit to the aviation community. Be it wet or dry lease, commercial or business aviation, our flexible operations are designed to suit the needs of the customer."

"Dynamic is a testament to Dubai's long-term vision to foster knowledge-

based, sustainable, innovative business. Dynamic's location at Dubai South is perfect to support the wider region's aviation training needs."

Real world scenarios are replicated by using cutting edge technology embedded into some of the most sophisticated full-motion cabin simulators.

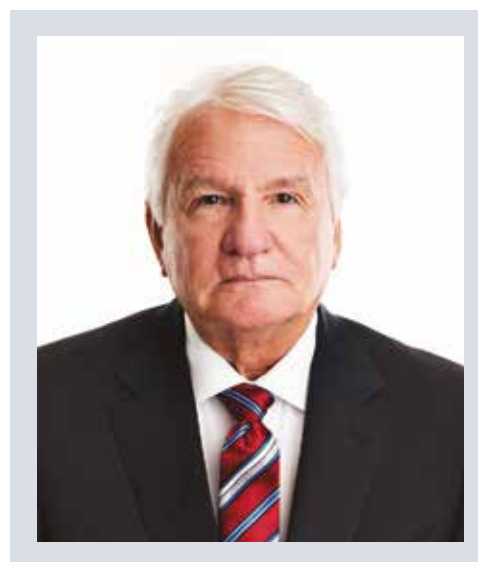
By using reality-based training technology, students can be qualified within a short period of time, providing expertise and experience to start or further their career as a professional cabin crew.

"The certification of the Dynamic Advanced Training centre in Dubai South is one step closer to establishing the UAE as a centre of excellence in technology and aviation in the region", added the managing director of Khansaheb Investment, Amer Khansaheb.

"The centre is in line with the UAE's Vision 2021 of creating a competitive knowledge economy. We look forward to serving the regional and global aviation community with this training facility."

In my **view**

In an excerpt from his recently published memoir, *Turbulence: Fifty Years on the Leading Edge of the Airline Industry*, former airline CEO **David A Banmiller** ruminates on the future of flying



Boom Supersonic is developing a 1,451-mile-per-hour, 55-seat aircraft that could make it from Washington DC to London in three-and-a-half hours

W

What's exciting about the airline industry first and foremost is innovation. From the witnessing of rudimentary flying machines to the sexy jet age, to an era when modern airports are being designed like mini-cities, invention will continue to pave the way in making this business operate optimally while rolling with the changing times.

The techno geek in me remains amazed by the aerospace innovations that have taken place over the span of my career. We don't often think about these things, but without them we would not be aloft. Among the most important have been airfoils, gliders, jet engines, winglets, aluminium alloys, autopilot, landing gear, cabin pressurisation and the black box.

Another interesting development is the rebirth of

supersonic air travel, which looks set to penetrate US skies following legislation agreed upon by Congress.

Many are gambling on the return of supersonic flight as a viable commercial operation. Denver-based Boom Supersonic has been developing a 1,451-mile-per-hour, 55-seat aircraft that it claims could make a trip from Washington DC to London in three-and-a-half hours. XB-1, Boom's smaller test aircraft, recently completed wind tunnel tests. The company said it aims to have its full-size airliner ready for flight by 2023.

Meanwhile, Lockheed Martin has been working with NASA to develop a "low-boom flight demonstrator" that would issue a much softer noise than the type emitted by the last generation Concorde. The plane, which is designed to cruise at Mach 1.4 (the equivalent of 1,081 miles per hour) has been in development since 2016 and is scheduled for delivery to NASA in late 2021. NASA plans to fly the plane over

US aerospace to test the noise output.

Perhaps the most wide-ranging concern affecting the airline industry is the environmental debate. Passenger figures for 2018 of 4.4 billion represent a 6.9 per cent increase from the previous year, equal to an additional 284 million trips by air, so there is no denying the popularity of flying. As with any human activity, this comes with an environmental cost and it is one that airlines worldwide are committed to reducing.

Governments around the world are feeling the pressure to commit to battling greenhouse gas emissions and many of them, especially those in Europe, are adding an ecotax to airline tickets, which is ineffective. These taxes

are misguided, because their slap-on-the wrist connotation is not only counterintuitive, but also counterproductive. It is unproved that funds earmarked for environmental purposes are actually used for such, but money taken away from the airlines could have been used to make green improvements.

Finnair CEO Topi Manner is quoted as saying that his airline and the industry overall need capital to do more to reduce their carbon footprint.

Better aircraft engines, improved aerodynamics, a scale-up of biofuels, as well as new engine technologies are all part of the answer, according to Manner, alongside less obvious items such as electrifying ramp operations at airports. ©



A new food safety solution for airlines has been launched in an effort to get back to normal post-Covid-19.

En Route International has created a range of 'light-touch' snacking and meal solutions, designed after recent research found food safety has been a key issue for passengers during the pandemic.

The boxes support minimal handling and customer contact, featuring a range from entry-level options with a snack, water and hand sanitiser, through to more substantial meal varieties.



Covid-19 has created an upheaval in much of the passenger experience, including the water served on aircraft.

Whether airport fountains, on-board coffee or just plain water, it is imperative that it be disinfected at the point of use.

To help, International Water-Guard Industries has introduced the IWG Passenger Water Dispenser, using water disinfected by UV-C LEDs.

UV-C radiations from LEDs at a wavelength of 260-270nm inactivate the DNA of the virus. The device uses water from the on-board system and includes filtration to improve taste.

TREND WATCH

With Covid-19 changing how the world flies, **Melissa Moody** explores the innovations and advice available to keep the aviation industry moving forward



Qatar Airways will offer face shields and protective kits to all passengers as part of its increased health and safety measures.

The face shields will come in two sizes for adults and children. Passengers travelling from Hamad International Airport will receive them at check-in. At other destinations, they will be distributed at the boarding gates.

Onboard, all passengers will be given a complimentary protective kit including disposable gloves and a hand sanitiser gel. Business Class customers will be offered an extra 75ml sanitiser gel tube.

With a litany of new guidelines and safety measures, the International Air Transport Association (IATA) has published guidance for converting passenger cabins to cargo cabins whilst the pandemic continues to affect flights globally.

The document looks at the scope of carrying cargo and mail on passenger aircraft, either through cargo unit load devices or a reconfiguration of the passenger aircraft.

It also covers regulatory requirements, risk assessments and operational procedures.



Innovation has been at the heart of airlines addressing questions about cabin airflow.

Teague has come up with AirShield, a 3D-printed germ isolation concept to prevent the spread of viruses.

Expected to be deployed later this year, the system transforms fresh air into 'air-blades' that control the spread of droplets and particles. When a passenger breaths, coughs or sneezes, water vapour droplets are re-directed down to HEPA filtration units.



Flexibility in cabins has become a necessity as reduced passenger footfall means many aircraft are now being used to carry cargo.

With this in mind, Haeco has developed solutions to allow airlines to carry passengers and cargo in the cabin simultaneously, using packages to create distance and maintain proper weight and balance requirements.

The installation process follows techniques used for economy seating, and can be accomplished without any special tools.

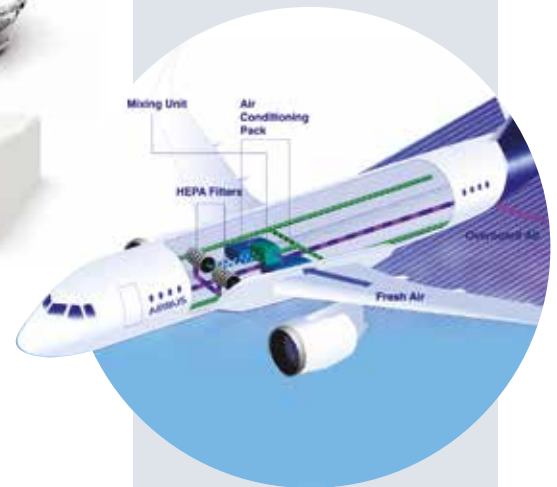
Safrair Seats has developed 'Travel Safe', a range of designs to protect passengers during and after the pandemic. The design is based around social distancing without loss of density, touchless interactions and virus-free surfaces.

The equipment includes the Ringfence, a removable partition to isolate passengers, touchless interaction equipment for doors, and pedal actuation for backrest recline. The virus-free surfaces solution uses coatings on seats and tray tables to facilitate disinfection and cleaning.

Etihad Airways has introduced wellness ambassadors to give passengers greater peace of mind when they fly.

The ambassadors will be introduced at Abu Dhabi International Airport to ensure the same levels of care and support are given at every point of the customer journey through the airport, from check-in to security, immigration, the retail areas, lounges and boarding.

Etihad will then introduce them onboard flights once travel restrictions to and from the UAE have been lifted.



Airbus is ensuring its passengers have a safe flight with a filtration system that introduces new air every two to three minutes.

Its Environment Control System (ECS) keeps the air constantly moving as it flows from top to bottom before being removed from the floor. 'New' air then enters from outside, where the high altitude keeps it naturally free from pathogens.

Optimised to prevent the spread between adjacent seat rows, any recirculated air is also passed through HEPA filters.

Emirates is the first airline to conduct on-site rapid Covid-19 passenger testing, with results available within 10 minutes.

Check-in and boarding processes have been adapted with social distancing in mind. Protective screens have been installed, and gloves and masks are mandatory for all employees.

Passengers must wear masks at the airport and onboard. Food packaging has been modified to reduce contact, and carry-on items are limited to a laptop, handbag, briefcase or baby items.



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A genuinely low carbon aviation fuel will soon be a reality
– and this will help pave the way towards renewable
transportation, as Climeworks AG explains here

L

ike shipping and heavy long-haul road transportation, aviation cannot shift to electric drive or hydrogen fuel in the short and mid-term on the same scale as the automotive sector. For larger-scale flights over longer distances, an alternative to fossil jet fuel has to be developed: this is where renewable jet fuel comes into play.

Climeworks, a pioneer in direct air capture technology, is part of the Norsk e-Fuel consortium, which aims to make transportation renewable. Norsk e-Fuel substitutes fossil crude oil by generating renewable fuels from air-captured carbon dioxide and water, using 100 per cent renewable electricity.

The other partners are Sunfire GmbH, the world's leading PtL-technology provider; Paul Wurth SA (SMS group), an international EPC company for steel manufacturers; and green investment company Valinor, parent company of Norsk Vind, the largest private wind power developer in Norway.



Climeworks founders
Christoph Gebald and
Jan Wurzbacher

The first Norsk e-Fuel plant, with a production capacity of 10 million litres annually, will go into operation in 2023

Specifically, Climeworks is contributing its direct air capture technology and know-how to help create the renewable crude: using a co-electrolysis process, the innovative technologies of Sunfire and Climeworks convert renewable electricity and carbon dioxide captured from ambient air into syngas. Renewable fuels, such as jet fuel, are then produced from this syngas through further processing and refining. The certified end-products can be used directly in existing infrastructures.

Climeworks' direct air capture technology filters carbon dioxide directly from

the ambient air. The key elements of Climeworks' technology are the CO₂ collectors, which selectively capture carbon dioxide in a two-step process. First, air is drawn into the collector with a fan. Carbon dioxide is captured on the surface of a highly selective filter material that sits inside the collectors.

Second, after the filter material is full of carbon dioxide, the collector is closed. The temperature is increased to between 80°C and 100°C and this releases the carbon dioxide. Finally, the high-purity, high-concentration carbon dioxide is cooled to 45°C, collected and delivered

to the next stage of the refining process where it will eventually become jet fuel.

The first Norsk e-Fuel plant, with a production capacity of 10 million litres annually, will go into operation in 2023. This plant will be upscaled 10-fold to produce 100 million litres of renewable fuel before 2026. This will remove 250,000 tonnes of CO₂ emissions from the air every year. The upscaled, industrial-sized plant will then serve as a blueprint for a nationwide roll-out of the project.

As Lars Helge Helvig, founder of Valinor and chairman of Norsk Vind explains: "To put this in perspective, one industrial-scale plant will provide enough blended renewable fuel for the top five domestic aviation routes in Norway combined. This would effectively cut the current flight emissions between these cities by almost half."

The planning of the first plant, to be located at Herøya Industry Park in Porsgrunn, is already well underway and sites for future plants have been identified. A future in which aircraft are powered by renewable fuels is just around the corner. ☺

Climeworks empowers people to reverse climate change by permanently removing carbon dioxide from the air. The Climeworks' vision is to inspire one billion people to act now. Find out more at www.climeworks.com



DESIGN UPDATE

In this issue's round-up of the prevailing trends in cabin design, director of market development at Cirium Andrew Doyle talks us through how the aircraft interiors and retrofit market can prepare for better times ahead. Meanwhile, **Colette Doyle** rounds up the latest developments so far this year from ABC International, FACC, El Al Israel Airlines and Diehl Aviation

STAYING AHEAD OF THE CURVE

It's no secret that the coronavirus pandemic has dealt a devastating blow to every segment of the aviation industry. The cabin retrofit market, in particular, saw an abrupt halt to activity at the end of March, as airlines entered 'survival mode'. Both 9/11 and the global recession in 2008 taught us cabin retrofits are viewed as a discretionary, even luxury, spend – especially when demand may take years to recover.

Covid-19 is no different, with 44 per cent of the global passenger jet fleet still in storage as of 26 June. In a recent webinar discussion with Gary Weissel, managing director at Tronos Aviation Consulting, he identified that we should expect to see a 60 per cent drop in spend on aircraft interiors from the original 2020 forecast [see pages 24 and 25 for a full write-up of the session]. Looking further ahead, we are unlikely to see any signs of major recovery until 2023.

Left and Below: El Al's renovated Boeing 737-800 aircraft include the swapping of fluorescent lighting for bluish LEDs, stands for tables and smartphones on every seat

with 43 per cent on seats, 20 per cent on IFEC, 10 per cent on soft goods and the remainder on other structures.

With so much at stake, there's no time to wait for information from airlines to develop a recovery plan. It is more important than ever to stay ahead of competitors using data insights and analytics to build a pipeline of leads and prepare for a return in demand.

First of all, accurate fleet data can help OEMs research aircraft by lease-end date and operator to find assets that require retrofitting in the next one, two or five years. Cirium's datasets go into even more detail on the market, with information on order backlogs, or on current seat OEM or IFE providers for each passenger jet.

This can be fused with detailed schedules data to see when airlines expect to fly certain aircraft, as well as with airframe utilisation data to monitor what aircraft carriers actually flew by individual manufacturer's serial number.

When demand in the aircraft interiors and retrofit market does recover, accurate data and analytics will be key to staying ahead of the curve.



Cirium's current data indicates the global aviation industry is heading towards a four-year recovery

ANDREW DOYLE, DIRECTOR OF MARKET DEVELOPMENT, CIRIUM

Broadly speaking, Cirium's current data indicates the global aviation industry is heading towards a four-year recovery. As demand for travel remains at a record low, airline exits could mean a large surplus fleet in 2021 and 2022, with roughly 750 airliner retirements a year – some 350 or so more than a typical year.

This outlook is particularly bleak for OEMs. In April, Airbus cut production on its single-aisle line by a third, to a rate of just 40 aircraft a month. But because of the surplus fleet, OEM production rates could see further cuts in 2021, with no significant ramp-up in production until 2023 at the earliest.

While airlines are turning their focus towards operational requirements, some interior components will remain indispensable. According to Tronos, the global spend is predicted to be split



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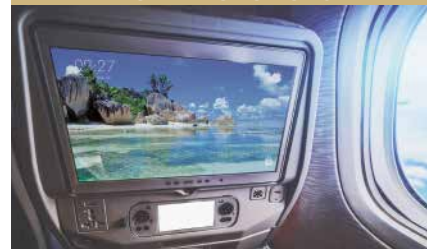
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Above and above right: FACC's Lav4all, barrier-free for all passengers
Below right: ABC International's striking new Boom headrest
Below: The newly restyled shamrock logo for Aer Lingus

ABC RESHAPES THE CONCEPT OF COMFORT

Italian design firm ABC International is aiming to redefine the comfort associated with on-board seating with its new Boom headrest. The headrest can be adjusted to various positions as desired throughout the flight, providing full support for the neck and nape, meaning that passengers no longer need to carry orthopaedic pillows on board.

A multi-functional mechanism within the headrest, called the 'gooseneck', provides the user with a choice of neck and head support options in-flight that can be accessed by applying a light pressure on the arms of the seat.

Weight is another essential key aeronautic design factor that needs to be taken into consideration. In order to create what it is calling "the lightest headrest in the market", ABC used state-of-the-art materials and processes. The Boom headrest is manufactured in aluminium alloy, with steel and polyamide inserts, which is designed to grant long-life functionality, integrity and uniformity, despite the intensive use of the mechanism.



Accentuating brand values

Another ABC International project involved working with Irish legacy airline Aer Lingus to install cabin branding elements on its A330s and new A321neos, following the branding specialist's design and manufacture of the iconic shamrock symbol. The Irish shamrock has been restyled to underline and represent the Dublin-based carrier's values of modernity, confidence and strength.

ABC International's collaboration with Aer Lingus began on the A330s as a branding project, with the aim of

refreshing the interiors on long-haul routes. The successful outcome of this project led the carrier to extend the branding to its A321neo fleet with a different-sized shamrock, again designed and manufactured by ABC International.

Based on Factory Design's new Shamrock design guidelines, ABC International translated the brand image into an airyworthy product compliant with the aviation environment and ready to be installed on board.

The newly designed shamrock has been installed on 14 A330 and eight A321 aircraft and approximately 30 branding elements have been manufactured and delivered to date.

BREAKING DOWN BARRIERS

Aerospace technology company FACC has introduced Lav4all, a 100 per cent, barrier-free aircraft lavatory available for retrofitting that offers more internal space without taking up extra room on board the aircraft. The new facility caters for the well-being of all passengers, including those with special needs.

Aircraft lavatories are sensitive pieces of interior equipment and people with limited mobility, or other impairments such as poor eyesight or hearing difficulties, often find them difficult, or even impossible, to use during a flight. The Lav4all aims to address this issue by offering improved accessibility, increased space and enhanced ease of use, meaning the facilities can be used with less stress and more dignity.



Left: Diehl Aviation is installing touch-free features in aircraft lavatories

Below: El Al's renovated Boeing 737-800 includes charging outlets on every seat

People with limited mobility or other impairments often find aircraft lavatories difficult to use during a flight

The newly introduced Silhouette Move cabin divider enables maximum recline of the backrest for passengers in the last row of business class. Due to the fact the partition does not go all the way to the floor, it provides improved legroom and under-seat stowage for passengers in the first row of economy class. According to the airline, El Al is the first carrier to install such a partition on its aircraft.

FLYING WITH CONFIDENCE

In the wake of the ongoing corona pandemic, Diehl Aviation is stepping up its efforts to improve hygiene standards in aircraft cabins, aimed at making post-Covid 19 flying safe, secure and sound.

The company has launched a product innovation initiative, dubbed the Cabin Confidence Concept, to address the operational challenges that airlines are facing in the post-coronavirus environment, as well as the health concerns of the travelling public.

Diehl has identified several fields of competence in its portfolio that it says will help to enable airlines to enhance passenger well-being on board. These include numerous touch-free features for the aircraft cabin, particularly for lavatory environments.

The Laupheim, Germany-based company is now working on specific product solutions that will shortly be available to the market. In addition, the company offers features for immediate application such as corona placards for cabin hygiene and hands-free lavatory handles. ☉

ALL CHANGE AT EL AL

El Al, Israel's national airline, recently renovated and altered the configuration of 13 Boeing 737-800 aircraft in its fleet.

Renewal and changes in the aircraft's interior include new seats in business and economy class; a redesign and replacement of partitions, carpets and curtains; and the swapping of fluorescent lighting for bluish LEDs.

In addition, the airline has added a varied selection of on-demand entertainment content via the DreamStream streaming system available on passengers' personal devices, with charging outlets and a stand for tablets and smartphones on every seat. Upper storage bins have been upgraded for new ones that can hold extra hand baggage.

Installation of new seats

Economy class offers 150 new Meridian seats manufactured by Collins Aerospace. Featuring an additional row of 18 'preferred' seats, premium passengers who have purchased a ticket upgrade can enjoy expanded comfort.

The remaining economy class seats offer a pitch of 29-30 inches and a recline of three inches. The use of ergonomic, advance geometry seats is said to afford "an enhanced experience" as compared to the earlier configuration.

One brand new feature is the way the door opens at a right angle, which blocks off the view from the aisle, affording more privacy. As soon as the door is closed, other passengers and crew can enter the galley again.

Product development experts at FACC worked with external partners, including Netwiss OG, Rodlauer Consulting, TU Wien, Raltec research group, FH Joanneum and the Austrian Research Promotion Agency, to offer a more generous lavatory area, while ensuring that the maximum on-board seat capacity and size of the galley remain unchanged.

Lav4all has initially been developed as a retrofit solution for the A3SA aircraft family; the company says that solutions for additional aircraft types flying short, medium and long-haul routes will soon follow.





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Road to recovery

Covid-19 has wreaked havoc on the airline industry supply chain, but survivors will emerge into a leaner, more agile sector.

Colette Doyle reports from The Outlook for Aircraft Interiors, a Reed Passenger Experience Conference (PEC) webinar

The last growth cycle in the commercial aviation sector ended in 2019, just as demand dipped below the

long-term average and then, as Rob Morris, global head of consultancy at Ascend by Cirium, put it during the latest session of PEC's series of virtual seminars, "the walls came tumbling down." Air traffic was already declining so a slowdown was expected, but not of this magnitude, said Morris, pointing to IATA figures that show a decline of 55 per cent. Any way you look at it, he said, the industry "will be [in for] a slow recovery".

Cirium data shows that by the end of July air traffic will be down 42 per cent globally. The domestic Chinese market was first to decline following the Covid-19 outbreak, with traffic down 90 per cent in

mid-February. Since the Chinese government managed to get a handle on the situation fairly quickly, the Cirium figures suggest that by the end of July traffic will be "in positive year-on-year territory", although a second lockdown in Beijing may impact this. Turning to domestic markets within the US, Morris said Cirium again predicts a more positive schedule in July for these and intra-European routes too.

Fewer flying hours

Morris flagged up that lower utilisation will have a major impact. The current fleet in service is flying 35 per cent

fewer hours per day than at the start of the year, with global capacity projected to be down 42 per cent against 2019 cumulatively by the end of July. More than 6,000 passenger jets have returned to service in the same period, including 1,000 single-aisle aircraft from 1 June.

Talking about the possibility of aircraft at risk of being withdrawn, Morris noted it all comes down in the end to a matter of efficiency: in single-aisle terms, 737s built before 2003 and early model A320s are unlikely to fare well. On the twin-aisle side, the fates of four-engine jets such as the A340 and 747, plus

early model 777s and early A330s, hang in the balance, but demand for the A350 and Boeing 787 Dreamliner "remains robust", he affirmed.

Global recovery scenarios

Morris concluded with a look at potential global recovery scenarios: in the first theory, spanning two years, the airlines experience a steady return in demand, led by the domestic market, with a number of bankruptcies. Original equipment manufacturers (OEM) maintain production at minimum viable rates, before witnessing a slow recovery in deliveries from 2022 onwards.

The second, v-shaped scenario sees a sharp recovery in international traffic, while OEMs experience a recovery in deliveries from the second half of 2021.

Figures suggest traffic in the domestic Chinese market will be in positive year-on-year territory by the end of July

ROB MORRIS
ASCEND BY CIRIUM



DON BUCHMAN
VP OF COMMERCIAL AVIATION,
VIASAT



GARY WEISSEL
MANAGING OFFICER,
TRONOS AVIATION CONSULTING



MATTHEW NICHOLLS
SALES DIRECTOR,
TAPIS CORPORATION



ROB MORRIS
GLOBAL HEAD OF CONSULTANCY,
ASCEND BY CIRIUM

Finally, in a four-year scenario, there is a slower return in demand, again led by domestic markets, with many airlines exiting the sector altogether. OEM production rates may see further cuts in 2021, with no significant ramp-up in production until as late as 2024.

Airlines enter survival mode

Next up was Gary Weissel, from Tronos Aviation Consulting. He told participants “cabin retrofits fell off a cliff” in the wake of the economic shutdown, so the vast majority of suppliers have had their programmes put on hold. Airlines are “in survival mode” said Weissel, focusing on cash conservation and fleet reduction.

Cabin retrofits “represent discretionary spending”, he acknowledged, noting that after 2008 it took around five years for the market to come back. The main focus now is on a clean cabin and hygiene initiatives to achieve that.

Fleets will be smaller and spending limited for the next three to four years, he predicted, adding that either pricing has to rise or load factors have to return to normal before airlines can start making money again.

Weissel also touched on IATA data that shows there will be a big reduction in profit margins, with net losses of up to 30 per cent of revenue. “There will be

no return to the glory days until airlines are back in the black,” warned the Tronos executive.

The new normal

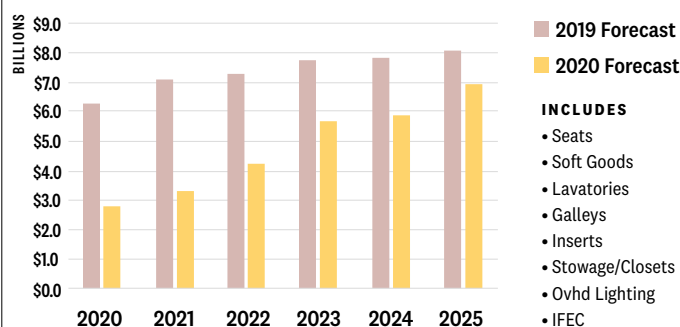
Looking at likely post-Covid cabin enhancements, Weissel highlighted several factors, including how inflight technology amenities are going touchless, with wireless IFE for instance, while the use of light-coloured interiors for a clean appearance and enhanced passenger confidence will become popular. In addition, surface materials will incorporate anti-microbial properties.

The interiors market is driven by the size of the fleet, noted Weissel. This is less than good news for suppliers as his forecast showed that by the end of 2020 the global fleet will equate to just 60 per cent of pre-Covid numbers, and will not return to the heights of 2019 until 2023.

The Tronos executive did, however, assure the audience that by 2025 the number of aircraft operating globally will be back in line with pre-pandemic estimates.

In terms of retrofit spend, the market is experiencing a 60 per cent drop this year, with a 50 per cent fall in value estimated for 2021: “There will be no major recovery until 2023... [the market will suffer] a 35 per cent reduction, equivalent to \$14.5 billion less than forecast,” he cautioned.

Major interior component spend for retrofits
Near-term post-Covid recovery scenario



By 2025, the number of aircraft operating globally will be back in line with pre-pandemic estimates

GARY WEISSEL
TRONOS AVIATION CONSULTING

An interesting space to work in

Matthew Nicholls, sales director at Tapis Corporation, responded to the trend highlighted by Gary Weissel that airlines will be looking for cleaning products with antimicrobial properties. His company “has made an antimicrobial product for a number of years... it is a very interesting space”.

He highlighted the need for end users to increase their knowledge of such products, so they understand, for instance, the difference between antimicrobials, antibacterials and antivirals.

“We are in regular contact with the EPA and CDC to ensure everyone is working off the same information,” he noted. “We need to encourage passengers to return to flight, but [these products] also need to be validated to ensure efficacy and to protect against skin irritations.”

Nicholls pointed to the appearance of a “slight differential spike” in three to four years, caused by the number of aircraft dropping out of service, but passenger demand returning sooner. In his opinion, this will lead to “a mini-surge in demand and airlines will need to play catch-up in terms of line fit as a result”.

Looking at the trend for a touchless environment, the VP of commercial aviation at Viasat, Don Buchman, highlighted that the main benefit of having high bandwidth on board is passengers can use their own devices, which provides notable hygiene benefits.

“The touchless environment means people don’t have to interact. This is not just in terms of entertainment, but also when they want to connect with the crew; they can do that virtually too, via their mobile device.”

End users must understand the difference between antimicrobials, antibacterials and antivirals

MATTHEW NICHOLLS
TAPIS CORPORATION

2020 CABIN RETROFIT STATUS

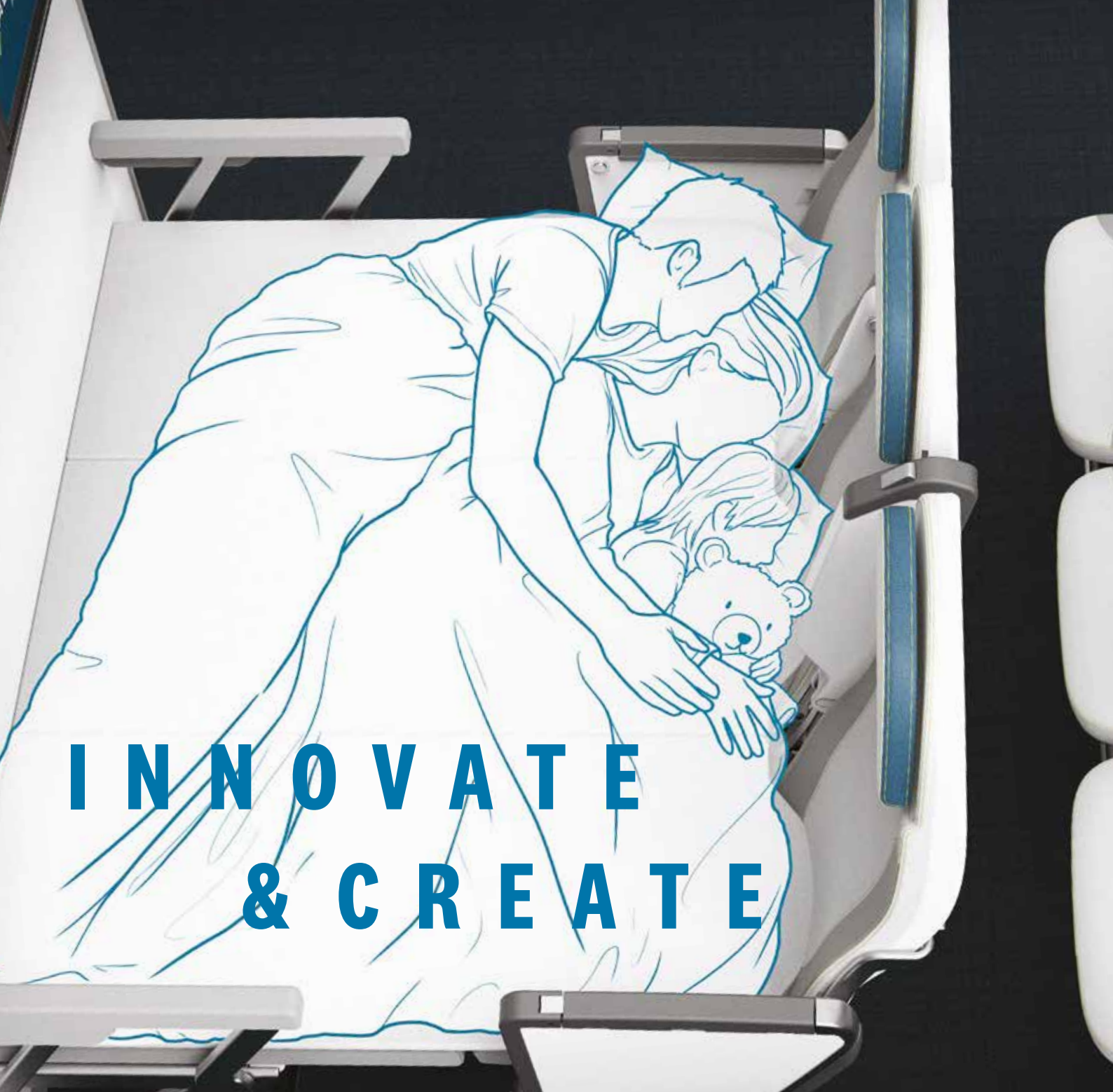
Cabin retrofit activities largely came to an abrupt halt at the end of March

Suppliers reporting existing programmes placed on hold or cancelled

Airlines are currently in survival mode

Historically, cabin retrofits and upgrades are discretionary spending

Current focus is on ‘clean cabin’ initiatives such as passenger hygiene kits



INNOVATE & CREATE

In a round-up of some of the newest additions on the seating market, features editor **Melissa Moody** discovers how airlines are creating solutions with a changed world in mind



Space For All can provide over 17 square feet of shared flat space for front row passengers



Expliseat's TI Seat E2 is 40 per cent lighter than any other certified seat currently on the market

Space For All has an extending mechanism that translates out from the lower bulkhead wall

The company, which won the Crystal Cabin Award in 2019 for its 1 For All Tetris-like seating concept, has made it clear that the Space For All solution can be retrofitted onto existing fleets, but would be further optimised with the Adient Aerospace front row triple seat, which incorporates a folding centre armrest with bifold meal table.

SHEDDING THE POUNDS

Nolinor Aviation has announced that it is equipping its latest fleet of Boeing 737-499 with the lightest aircraft seat in the world.

Made by Expliseat, the TiSeat E2 is 40 per cent lighter than any other certified seat currently on the market.

"For our new fleet of Boeing 737-400, we needed to give a fresh look to the interior of our aircraft while also improving performance. The solution put forward by Expliseat is perfect for us," says president of Nolinor Aviation Marco Prud-Homme.

According to Expliseat, the TiSeat E2 offers optimal transport efficiency by

reducing the total weight of Nolinor's aircraft by 1.1 tons whilst maintaining the comfort. With a structure made of titanium and carbon fibre, it is equipped with a 4.5 inch recline and foam combinations for flights up to seven hours.

The frame is made from the most resistant materials certified for aerospace, carbon fibre and titanium, which can last 1,000 times longer than aluminium with a carbon fibre tray table to resist the most critical load up to 90kg.

Nolinor says that the weight saving allows the airline to modernise its fleet while increasing competitiveness, by facilitating operations on destinations where Nolinor is benefiting from additional aircraft performance, or gaining additional 1.1 tons of payload.

It also allows the airline to expand its commercial offering with "new comfortable seats and a lighter fleet, offering the best passenger experience" with a more efficient aircraft that is capable of more range, less fuel and better carbon emissions.

Chief executive officer of Expliseat Benjamin Saada welcomes the news. "Our market shares in Canada are rapidly growing with more than 3,000 TiSeat flying on Dash 8, ATR and Boeing 737 aircraft. We are delighted to have Nolinor flying with our seats on the Boeing 737 aircraft. It demonstrated how our lightweight technology is a key asset for airlines in Canada to improve their operations while decreasing their CO₂ emissions."

THE SPACE AGE

With space at a premium on many aircraft, passengers look to get the most out of their seating. Bulkhead seats are often sought by many travellers as a means of getting extra leg room and proximity to bassinet fixtures. Adient Aerospace has taken this a step further with its Space For All (SFA) concept.

Nominated for a Crystal Cabin Award for Passenger Comfort Hardware, the concept aims to enhance the front row seat experience with an individual extending mechanism that translates out from the lower bulkhead wall.

When locked in position, SFA can provide each passenger with an extended flat surface to use as a lounge seat, or with all three deployed, a common space for children and adults. With the armrests in a raised position, SFA provides the front row passengers with over 17 square feet of shared flat space that can be used as a bed on longer flights.



Left and above: The Economy Sky-Dream concept introduces the idea of stackable bunk beds



The aviation market is increasingly moving towards ultra-long point-to-point flights

part of the cabin,” adds Boon. “The design features a passenger density that is very similar to a common 34-inch pitch, 10-abreast layout, so there is almost full interchangeability. This offers extensive LOPA freedom.”

During taxi, take-off, cabin service and landing, passengers of two rows will be seated opposite each other in club seating configuration, with hand luggage stowed under the extra-wide seats. The middle bed will move down during the long cruise to make room for the three beds. The beds will be 76-80 inches long and have a width of 23.6 inches, 20 per cent wider than a regular economy seat.

The company says that the three-bed design won't force airlines to compromise on revenues either, as it allows passenger density similar to a regular economy comfort class, and increased comfort may also bring in passengers, leading to increased revenue potential.

By opting for a modular concept, the Economy Sky-Dream is easily installed and able to be retrofitted into wide-body aircraft. It can be built into the existing seat tracks and luggage rack suspension without altering the residual value of the aircraft.

SLEEPING IN THE SKY

As fuel efficiency becomes easier and innovations continue to speed the industry ahead, the aviation market is increasingly moving in the direction of ultra-long point-to-point flights, making sleeping in comfort on aircraft more important than ever.

Dutch consultancy and engineering firm ADSE has introduced a new approach for sleeping comfortably in economy class with the Economy Sky-Dream concept, which has introduced the idea of stackable bunk beds.

Replacing overhead bins, the beds would be lowered during the sleep phase of flight and allow passengers to get some much-needed rest.

The idea was inspired by ADSE consultants' own long-haul flight

experiences, and is intended to challenge conventional cabin design thinking for long-haul travel. Aimed at wide-body aircraft such as the Airbus A350 and Boeing 787 and 777, the solution includes a full lie-flat experience through a bunk-bed concept. Making optimal use of the height in the middle of the aircraft, the central overhead luggage bins are taken away to create vertical space for a three-person full lie-flat bunk bed.

Maurice Boon, technical consultant at ADSE, explains that while the concept could be classified as blue sky thinking, they also considered the practicalities. “We realised that a radical innovation in the aviation industry will only occur when we can create benefits for all the stakeholders involved.

“We would envision this as a distinct class, indeed a premium economy, for

Interspace is a great innovation for passenger privacy, even more so post-Covid-19



Left and above: The Interspace portfolio gives airlines flexibility to reconfigure economy cabins by locking out central or outboard seats

SAFRAN PARTNERS UP

Safran Seats, the aerospace manufacturer, has partnered up with transportation technology company Universal Movement to bring the Interspace seat technology to market in a move that hopes to “get airlines back on their feet much sooner” than if standard aircraft seating remains the same.

The seat utilises its patented lateral-support wing design to provide greater privacy and comfort to passengers when travelling in premium economy. Guests are able to fold out two padded wings to provide more support and the ability to change posture at seat.

Following Universal Movement’s launch of the seat at the Red Cabin Innovation Summit in December last year, the new agreement will see Safran take up the exclusive development and

manufacturing of the Interspace portfolio across economy and premium, domestic business class, and upgradable retrofit solutions for existing premium economy seating, as well as the new Interspace Lite edition for economy.

Safran Seats’ EVP of strategy and innovation, Quentin Munier says: “We are confident that this partnership with Universal Movement will generate value to our customers thanks to its recognised agility and innovative spirit. Interspace is a great innovation for privacy of passengers, even more so in the post-Covid-19 travel environment that’s ahead of us.”

The partnership also allows the companies to begin work on the Interspace Light, which gives airlines flexibility to reconfigure economy cabins, providing delineation and privacy between passengers by locking out either the central or outboard seats of a row.

Luke Miles, founder of Universal movement says: “When we launched

the Interspace seat last year, we had established a clear gap in the aerospace seating market with an innovative new design. We are thrilled to be partnering with a company as significant and accomplished as Safran to bring this portfolio of products to market.

“With the travel industry severely affected by the spread of coronavirus, we have also sought to provide a solution through the Interspace Lite. Our partnership with Safran is a significant step in helping to support the industry and also make planes a much more comfortable space for passengers when they look to travel again.”

The manufacturing for the lite and premium economy upgrade products is due to begin in early summer of 2020, with supply and kitting tailored to meet demand thereafter. The company’s design and development teams will continue, leading to a fully integrated interspace product for economy and premium economy as a new seat offering.



#FLYINGWHEELCHAIRS

Molon Labe Seating has unveiled a new airline prototype that will allow passengers of restricted mobility to fly on airlines in their own wheelchairs.

Currently, passengers in wheelchairs must transfer to a skychair able to get down the narrow aisle before transferring to their airline seat, with their own wheelchairs stored in the cargo hold.

The solution is based on the slide-slip seat design, but has been modified from a standard economy-class triple seat to a very wide economy-class double seat.

“Power wheelchair users have an approximate spend of globally \$3.9 billion, and the desire to spend this on travel has never been stronger,” says Ben Orson, managing director of JPA design, which has been working alongside Molon Labe to bring the chair to life.

“IATA forecasts passenger numbers doubling by 2036, and disabled travellers are rising at approximately 10 per cent per year. We want to create a space to allow power wheelchair users to fly safely and with dignity inside the cabin in their own wheelchair.”

During operations, the aisle seat functions as a normal economy-class seat but, when required, it is slid over the top of the window seat and locked into place for normal use. The gap that is then opened up as a result of sliding the aisle seat over the top of the window seat offers a 36-inch-wide space that can secure a manual or powered wheelchair in place.

A Q-Straint wheelchair docking system, which is already widely used on buses and trains, is used to secure the wheelchair to the aircraft cabin floor.

To expedite the design, analysis and engineering and certification of the seat, Molon Labe has launched a GoFundMe campaign titled #flyingwheelchairs.

“It costs millions to design and certify an airline seat. We are a small start-up with limited resources; our recently certified S1 economy-class seat is our main focus right now,” says Molon Labe CEO Hank Scott.

“We chose to crowdfund this project so we can get it certified and in the air as soon as possible. We want to be flying within 18 months, but we need the public’s help.” ©

We want to allow power wheelchair users to fly safely and with dignity inside the cabin in their own wheelchair

Above: Molon Labe Seating’s new prototype slides the aisle seat over the window seat so a manual or powered wheelchair can fit in its place

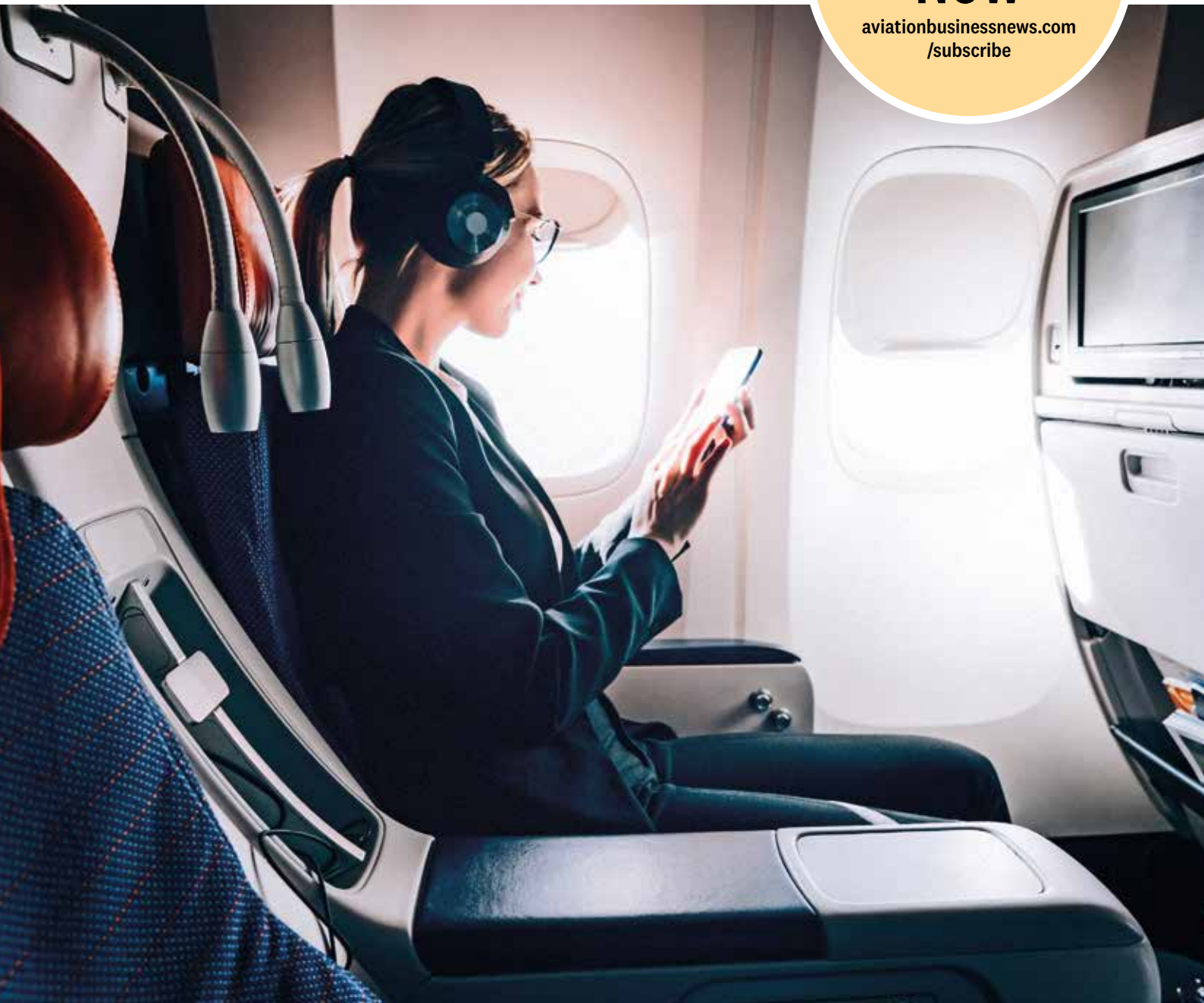
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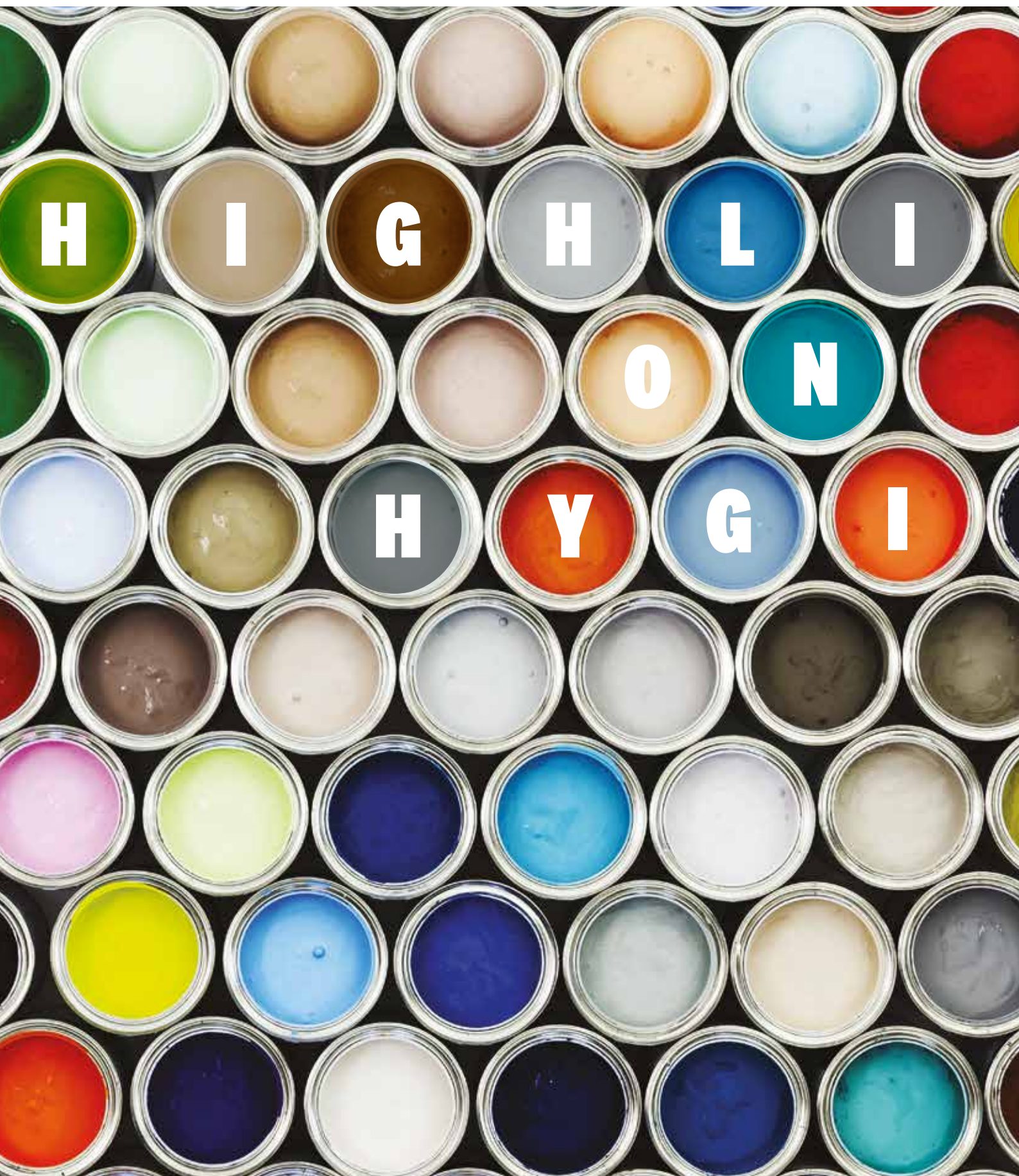
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Aircraft Cabin Management is the magazine informing airlines of key design concepts, the manufacture and operation of modern airline cabins – helping airlines to address the balance between passenger appeal and operational efficiency.

Reaching an audience of over 32,000 professionals, we aim to keep you fully informed of the latest news and developments from the sector.





Innovative, hard-wearing antimicrobial cabin coatings are essential for passenger well-being. Four industry suppliers are applying unique solutions to the challenge, as *Paul Eden* discovers

Price and inflight service were almost certainly key factors for passengers last summer. Now, on-board safety from infection transmission is more than likely the most significant driver in their decision-making process. Cabin cleaning and disinfection are more important than ever and, while specialist cleaning contractors are stepping up to the challenge, there is more to truly effective cabin hygiene than thorough cleaning after a flight.

Detergents and other chemicals inevitably test paints and coatings on cabin surfaces, while the physical wear and tear of cleaning also takes its toll. Add to this the anti-microbial qualities of some specialist coatings and the choice of surface finish takes on a new importance.

For the leading coatings manufacturers, German company Mankiewicz among them, this is no surprise. As director and head of aviation Andreas Ossenkopf says, "Our primary focus is on easy-to-clean, durable surfaces and our Alexit FST PureGuard and BioProtect coating systems contain active antimicrobial additives."

The long-term antimicrobial effectiveness of the products has been proven by the JIS Z2801 test and they are OEM qualified or compliant with OEM standards. They have mainly been used in lavatories, but the OEMs are convinced of the benefits of their antimicrobial qualities and considering extending their application; they are equally suitable for general use on sidewalls and all plastic surfaces, for example.

Global marketing manager at Sherwin-Williams Aerospace Coatings Julie Voisin highlights some qualities that make the US company's JetFlex product a favourite with aircraft OEMs. "It's an extremely proven, hardy product that's been used in aircraft cabins, galleys and lavatories for decades. Not only



Left: Adhetec's Adheskin allows colourful interior decoration
Below: Sherwin-Williams offers colours responsive to LED lighting
Opposite: Branding can be applied on all sorts of surfaces using Adhetec's Adheskin

"We've been manufacturing placards and on-board advertising for a decade and our brand is recognised for its quality and robustness," she adds. "Since we're a Part 21G organisation, we can also release certificates, including EASA form one."

Adherence to regulatory standards

Adhetec is unusual among manufacturers in being able to supply an off-the-shelf range and also products on demand. For companies producing coatings systems, the challenge is perhaps not so much satisfying requirements for hard-wearing, antimicrobial products, since these are already on the market. Instead, it's more about enabling whole cabin hygiene while adhering to regulatory standards.

"Our aerospace cabin branch is facing a challenge to ensure passengers can travel safely according to the highest safety requirements," says AkzoNobel's John Griffin. "This is in addition to the fact that airlines travel to a large variety of countries governed by local legislation, especially for biocide regulations.

"Our research laboratories are working on innovative solutions in liquid and film that will combine fire retardance and chemical resistance with antibacterial and antiviral effects, while complying with all application regulations."

Nathalie Kujawa talks us through Adhetec's efforts to advance its existing technology. "We developed a product for tray tables to carry advertising and branding. Now we've partnered with



All cabin surfaces will need to demonstrate enhanced 'hygiene performance'

JOHN GRIFFIN
 GLOBAL AEROSPACE BUSINESS
 DIRECTOR, AKZONOBEL

does it have excellent scratch-and-mar resistance, but also an extremely high level of chemical and stain resistance. It's built to handle the extremes of the aircraft cabin."

A timely acquisition

AkzoNobel acquired French aerospace coatings manufacturer Mapaero late last year, adding important cabin finishes to its portfolio at a crucial time. "The key addition is the Airbus-approved FR2-55 water-based interior cabin coating that complements our range of Intura film products," explains global aerospace business director John Griffin. "Both lines possess very high resistance to cleaning with disinfectant, which will be a must as airlines put systematic disinfection between flights in place."

Adhetec, another French company, specialises in self-adhesive cabin products, including signage and placards. It has seen increased demand for these as airlines do their best to communicate new instructions to passengers, as aerospace account manager for North Europe Nathalie Kujawa confirms.

"We've had requests for specific cabin signage, including a floor sticker asking passengers to respect one-metre social distancing regulations, sometimes with the addition of a QR code in the welcome area, highlighting that the airline has taken measures for passenger safety.



Pylote to create a range of antiviral and antibacterial films for frequent touchpoints. This unique technology kills more than 90 per cent of bacteria and viruses in one hour and more than 99.9 per cent in a few hours.

“The material is biocompatible, FDA-approved and harmless to the skin. And, unlike many other antimicrobial alternatives, it does not release volatiles or molecules into the air. We’ve had its certificates for effectiveness against bacteria and coronavirus certified.”

Perceived hygiene

Over at Mankiewicz, Andreas Ossenkopf recognises two important aspects to whole cabin hygiene and passenger well-being: “The first is ‘real’ hygiene, the second ‘perceived’ hygiene.” Coatings with active antimicrobial additives contribute to real hygiene, but the appearance of being hygienic also plays an important role, notes Ossenkopf.

“Does the cabin have a smell? Do its surfaces look dirty or scruffy? Are there stubborn stains on the tray table? If ‘yes’ is the answer to any of these questions, the passenger will undoubtedly perceive the cabin as dirty and unhygienic.

“This is why it is essential that painted surfaces are extremely durable and easy to clean. The agents used are highly effective against microorganisms and dirt, but also act aggressively towards painted surfaces. We’ve therefore always placed considerable importance on chemical resistance when developing products. Mankiewicz FST cabin interior



Mankiewicz FST cabin interior paints are highly resistant to chemicals

ANDREAS OSSENKOPF
DIRECTOR AND HEAD OF AVIATION,
MANKIEWICZ

paints are highly resistant to chemicals and remain in use for such a long time.”

With enhanced ambience in mind, Sherwin-Williams Aerospace recently introduced Jet Suede, a two-component urethane topcoat that looks and feels good. It delivers a textured surface that’s easily cleaned and is a cost-efficient alternative to leather and fabrics.

Voisin comments: “The product sits alongside JetFlex Elite, which offers colours responsive to LED lighting. These coatings create a subtle glow with highlights and coloured shadows not seen with other coatings.”

Ambience is key to comfort

The outlook is similar at AkzoNobel, where John Griffin says: “Cabin ambience is key to passengers’ comfort and trust. We’ve done a lot of work on colours, but lighting and painted surfaces also have a key role in enhancing light diffusion.

“We’ve developed a new-generation paint range with a very smooth texture; it’s been adopted by many OEMs as their standard finish. Meanwhile, our Intura soft-touch films provide a luxurious feel while still meeting stringent requirements for flame retardance, cleanability and chemical resistance.”

Given its slightly different portfolio, Adhetec approaches cabin ambience from another angle, but one nonetheless based, according to Nathalie Kujawa, on the belief that passenger experience begins with feeling good. “It’s the feelings you have on a journey that make you want to travel again. Of course, Covid-19 has changed how we travel, and our perception of hygiene, yet it is possible to combine a design promoting a favourable ambience with safety.

“On that basis, we’re adding Adheskin decorative foil to our laminate range. It uses Pylote’s antimicrobial technology and satisfies requirements for aesthetics, personalisation, design versatility and safety.”

Changing expectations

Kujawa hints at the changing expectations of an emerging market where the traditional values of passenger experience remain, but with the critical addition of enhanced hygiene. AkzoNobel is observing a similar trend and is also not alone in subjecting existing products to enhanced testing in light of Covid-19.

“Since March, our liquid cabin range has been laboratory tested under harsher conditions than normal,” asserts Griffin.

Looking ahead, he echoes the industry’s sentiment. “The OEMs and equipment manufacturers are expecting a lot. In the short term this means coated surfaces will have to resist regular cleaning, retaining their appearance.

“In the medium term, it is probable that all cabin surfaces will need to demonstrate enhanced ‘hygiene performance’, but the new materials and additives required to achieve this will need to be qualified to aviation requirements and that will take time.” ©





SOUND & VISION

Australia-based in-flight entertainment specialist Burrana has unveiled Rise, which it describes as its most powerful IFE platform to date. Elsewhere, Panasonic has its sights set on creating bespoke passenger marketing solutions,

Inmarsat uses innovative technology to provide fast and secure inflight connectivity on board Boeing, and Astronics picks up an award for its portable IFE solution.

Group editor *Colette Doyle* has all the details

Rise to the challenge

Formed following digEcor's acquisition of the Collins Aerospace commercial IFE business and named after an indigenous Australian word meaning "to fly", Burrana is dedicated to producing integrated, end-to-end cabin technology. Its latest innovation is Rise, a platform consisting of hardware, software, apps and services that can be scaled up or down depending on aircraft type and business need.

Enabled by shared hardware and a common 48VDC power backbone, the Rise platform can be configured to include seatback, wireless, or overhead entertainment, as well as in-seat power – or any desired combination of the above.

"Rise was created to solve airlines' most challenging issues regarding inflight entertainment, while providing passengers with an experience unlike any other," comments Burrana's VP of marketing and sales support David Pook.

The displays within the Rise platform are 4K Ultra High Definition (UHD) resolution and feature High Dynamic Range (HDR), large amounts of local storage and robust processing power, packaged in a thin and modern design. Each seatback display also supports integrated single-pin audio, Bluetooth, Near Field Communication (NFC), and

Rise leverages crowd-sourced data and intelligent algorithms to deliver a dynamic entertainment experience

the airline's choice between USB-C or the industry's highest power USB-A offering.

Rise leverages crowd-sourced data and intelligent algorithms to deliver a dynamic entertainment experience that adapts to the passenger as they use it. Targeted advertisements, a powerful recommendation engine, plus comprehensive accessibility settings will provide passengers with "an intuitive IFE experience that is uniquely theirs," claims the company.

Airlines' IFE management teams will also benefit, according to Pook. "We've been really clever about how we've architected our software, apps and services. Rise has completely eliminated the need for time-consuming and expensive change requests. Airlines will be able to add or remove apps from aircraft via a simple, web-based tool and

The Rise platform includes seatback, wireless and overhead entertainment



make changes to their GUI (Graphical User Interface) by themselves, without the need for formal acceptance testing."

In addition, Rise offers numerous ultra-high-speed content loading options and easier maintenance; it is also said to be 30 per cent lighter than competitive solutions. Rise will be available for retrofit on single and twin-aisle aircraft starting in early 2021 and ready for line-fit installations shortly thereafter.

The next big thing

Panasonic Avionics is renowned for offering a range of digital solutions that can be tailored to an individual airline's business objectives, as well as for using digital innovation to enhance the passenger experience.

The company's latest innovations include Next, its next-generation inflight entertainment and connectivity system. Aligned with new trends in aircraft architecture, Next delivers a superior cinematic experience and technological advancements focused on weight reduction and simplified seat integration for every cabin class. This includes Theatre, an impressive and powerful inflight entertainment experience that combines diverse media with the highest audio fidelity and video quality.

Another recent innovation is Panasonic's revolutionary 3D inflight map application, Arc, which brings a wide



Panasonic Avionics's Next inflight entertainment system delivers a superior cinematic experience



The connected aircraft will save the aviation industry \$15 billion annually by 2035

Above left and right: Panasonic Avionic's Next system is focused on simplified seat integration for every cabin class

range of new features to the traditional moving map. Inspired by the latest design thinking in contemporary UX and high-definition gaming experiences, Arc enables airlines to leverage the significant number of passengers who view moving maps inflight. Arc has answered the market's call for innovation in the map space with numerous pre-launch commitments and is set to take to the skies later this year.

Exploration of emerging technologies has led Panasonic to develop visionary concepts for the aircraft cabin. These include personalised discovery, where the goal is enabling tailored and contextual destination information while being supported with e-commerce possibilities.

A flight often affords plenty of time for passengers to discover and learn more about their destination using intelligent IFE content; selected content can then be easily downloaded on to the passenger's personal device for use when they arrive at their destination.

Another interesting development is the use of sensors and predictive data to support the safety and well-being of both crew and passengers inflight. This technology is already used in homes and public places; such an application would

extend its use into the aircraft cabin to enhance the inflight experience.

This could include extending the seamless connectivity of personal devices to seatback IFE systems; allowing a passenger to game or interact and execute social activities with neighbours or interest groups in the cabin. Most of these social activities are already a reality in everyday life on the ground – this kind of technology could make it possible while in the air.

The right connection

Global mobile satellite communications expert Inmarsat is to use 'smart pipe' technology to provide fast and secure inflight connectivity from the cockpit to the cabin. This enables airlines to avail themselves of multiple third-party applications simultaneously on board the new Boeing 777X aircraft.

The brand-new infrastructure has been designed to independently allocate connectivity bandwidth to multiple applications. This enables airlines to unlock important operational benefits such as predictive maintenance, route optimisation, modernised air traffic

management and real-time crew communications, while also offering enhanced passenger entertainment, including high-speed internet and live television.

The 'smart pipe' functionality means that applications delivered on two of Inmarsat's award-winning satcom solutions, GX Aviation and SwiftBroadband-Safety (SB-S), are each able to have a unique service level agreement and guaranteed performance levels, independent of other applications that are also operating through the same terminal.

Inmarsat's new 'smart pipe' technology will initially be available to airlines that have either ordered or plan to order the Boeing 777X. In addition, these capabilities will be available as upgrades on other aircraft models.

As outlined by the London School of Economics in its *Sky High Economics* report, the connected aircraft will save the aviation industry \$15 billion annually by 2035; the joint venture project between Inmarsat and Boeing is a significant stepping-stone towards this goal. As the only operator of fully owned and managed networks providing global high-speed broadband to both cabin and



Left: Astronics' highly commended Sierra (top) and Edge (bottom) IFE systems
Right: Inmarsat is introducing its 'smart pipe' technology on the new Boeing 777X



Astronics' Sierra enables passengers to enjoy hundreds of hours of streaming, audio, video, digital magazines and more

cockpit, Inmarsat describes itself as being in a unique position to help both original equipment manufacturers and airlines achieve the best solution in terms of digital aircraft transformation.

Expanding into new markets

In other news from Inmarsat, the company announced earlier this year that it would be bringing its connectivity solutions to Saudia Arabia via a partnership with Sada Al Ammah to deliver cockpit safety services and passenger cabin broadband wifi connectivity, using GX Aviation. This will enable airline passengers to browse the internet, stream video and music, check and update social media and more during their flights.

The Inmarsat network enables a wide range of services, such as fleet

management, remote analytics, data transfer and other IoT/M2M applications in areas with non-existent or unreliable connectivity. Further capacity is set to benefit customers in Saudi Arabia soon, with the recently launched GX-5 satellite coming into commercial service later this year to meet the surging demand for high-capacity broadband across the skies of Europe and the Middle East.

Meanwhile, the company's GX Aviation solution has reached the one million mark in terms of free inflight broadband sessions for Air New Zealand passengers. The impressive milestone was achieved approximately one year after Air New Zealand switched to a free-of-charge model for its inflight broadband service.

GX Aviation is currently available on almost 25 aircraft within the Air New Zealand fleet, operating on Trans-Tasman, Pacific Island, US and London routes. This includes a combination of Boeing 777-200, 777-300 and 787-9 aircraft, in addition to Airbus A320 and A321 neos.

Astronics takes top honours

Astronics Corporation's portable inflight entertainment product, Sierra, has been on the receiving end of lots of attention this year. First up, it received the Good Design Award in the transportation category, presented by the Chicago Athenaeum Museum of Architecture and Design together with the Metropolitan Arts Press.

Founded in Chicago in 1950, the programme remains the oldest and world's most recognised authority for design excellence worldwide. Astronics' Sierra was selected for this award from a record number of submissions from the world's leading manufacturers and

design firms, representing the most important influential corporations in the design industry.

The Sierra is an affordable, scalable IFE solution that delivers inflight entertainment as a standalone unit from a single battery; when installed and powered, it can employ multiple units merged into a single network to cover a larger aircraft cabin. Sierra enables passengers to enjoy hundreds of hours of streaming audio, video, digital magazine content and more. The product stands up to the rigours of flight in the overhead bin while delivering streaming content that matches the experience of installed IFE without the need for a supplemental type certificate (STC).

Sierra garnered further plaudits when it was shortlisted for the 2020 Crystal Cabin Awards alongside Astronics' Edge cabin network platform. The Edge works on a cabin network IFEC platform, said to offer "unprecedented modularity, security and cost effectiveness". Distributed computing architecture enables the Edge platform to service any number of streaming devices while offering redundancy and self-healing capabilities to eliminate the possibility of service outage. The Edge does not require rack space and eliminates the Arinc 600 architecture to enable a fast, economical, overnight installation. ©





Clockwise from left: Bright interiors help to give an sense of cleanliness; Tapis has seen a rise in demand for lighter colours and synthetic leather, which is easier to wipe clean and disinfect quickly



A B R I G H T E R F U T U R E

Everything from the type of materials to the kind of colours used in aircraft interiors has been turned on its head by the corona pandemic. Here, Tapis sales director Matthew Nicholls discusses the future of fabrics with features editor *Melissa Moody*

“When you look at PPE and any surgical materials used in hospitals, they’re all typically white or light colours. When you look at companies such as Apple, who are famed for their clean design principals, their stores and products are always in either white or stainless steel. High-end open kitchens are also usually in stainless steel and that is done to show their customers that they’re clean.”

According to the New York-headquartered company, there has been a big uptake in enquiries looking to switch from fabric to synthetic leather for its

The Covid-19 outbreak has forced the whole world to reevaluate how it works, with the aviation industry at the top of the list. Keeping passengers willing to travel is a huge priority, with many airlines completely overhauling interiors, and the fabrics used, for a post-coronavirus future.

Fabric is being exchanged for easy-clean synthetics and dark colours moved onto the backburner for a cleaner looking palette, explains Matthew Nicholls, sales director at aircraft interior manufacturer Tapis.

“For the last 30 years or so, we’ve essentially tried to hide dirt and micro-

organisms in an aircraft interior by employing darker hues wherever possible to mask the colour of soiling, but the healthcare industry works in completely the opposite way.

“I think at the moment, the situation is in such a state of flux that it’s hard to predict where aircraft interiors are headed and what trends may emerge. In the future, I think we’re going to see a subconscious demand from customers to ‘see’ that an interior is clean – and colour is the way to do it,” he comments.

Nicholls notes that the aviation industry may be looking to healthcare for further inspiration as things get back to normal.





wipe-clean and disinfection capabilities. The flagship Promessa AV featuring anti-microbial technology has become one of its most-requested fabrics, with major global airlines installing it on fleets while they are grounded.

Nicholls also cites the Ultraleather Whitewash Pro as an option for aircraft of the future, as it is both stain and ink-resistant, as well as being anti-microbial, and is available in a wide array of light colours. It also has good durability, is easily disinfected and cleaned to keep any passenger anxieties at bay.

“Traditional woven fabrics can only be sanitised by removal of the dress cover and dry cleaning or machine washing. There’s not enough time to do this every day, so it typically only happens every three to four months, and that’s a long time to sit on a non-sanitised surface in this new era,” explains Nicholls.

Sustainability in doubt

The sudden change in airline’s needs has meant that other initiatives have had to take a step back, one of which is sustainability. While the aviation industry as a whole has made leaps and bounds in the area, any interest in sustainable products has waned considerably in the last six months.

One new product in the pipeline is Volar Bio by Ultrafabrics, which works with Tapis [see box opposite]; this contains a high concentration of bio-based materials in the black cloths and resins used, making the entire manufacturing process more

Fabric is being exchanged for easy-clean synthetics, and dark colours moved onto the backburner

sustainable and renewable. While the TapiSuede products are made from 100 per cent recycled polyester, this isn’t currently what airlines are looking for.

“We started to see some movement towards sustainable products around nine to 12 months ago, but the pandemic has literally brought these to a sudden halt,” admits Nicholls. “It’s been a challenge on many fronts and the fluidity of the situation has meant we have had to be very nimble in order to adapt.

“Our aim is to help our airline customers as much as possible to navigate this new world, and one of the first things that we did was host private webinars for our customers about Covid-19. These keep them informed on what it is, how it impacts surface materials and how to inactivate it as much as possible to provide a safe environment.”

Given how much the global pandemic has turned the industry on its head, the future of fabrics is still uncertain. However, it is obvious that suppliers are ready for whatever may happen, whether that be lighter colours, anti-microbial seats, or cleaning solutions, all produced with the aim of keeping passengers’ fears at bay. ©



PREPARE TO PROTECT

Ultrafabrics is preparing for a world post-coronavirus with its range of antimicrobial fabrics.

Created to be durable against disinfectants, the products can be cleaned with an array of substances without damage.

Benji Bagwell, lead engineering manager at Ultrafabrics says: “Our unique technology sets Ultrafabrics apart. Fabrics like Promessa AV, distributed by our partner Tapis, are not only designed to look and feel beautiful, but inhibit the growth of bacteria and other microbes.

“We utilise silver ion technology, mixing silver ion additives with our polycarbonate PU resins, which then becomes permanently bound within the resin. The silver ions will not release, meaning the product is extremely durable when it comes to cleaning, including UVC disinfecting technology.

“Also, crucially, Ultrafabrics’ technology is nonvolatile, meaning it won’t become airborne, so you will not have to worry about breathing in potentially harmful chemicals.”

Career PATH

Tell us how you got to be where you are today

One day I asked myself this question: “Why do my children (now young adults) with a disability have to be treated like second-class citizens when flying?” That’s when I set about lobbying the industry for solutions. What I have learnt is that solutions are easy; it’s the culture that needs to change. It is a revenue-driven industry and I do respect that; however, by putting the passenger’s safety and dignity first, more people will fly.

What is the most interesting part of your job?

Without doubt it is meeting people. I am a bit old school and much prefer to discuss projects over a coffee or lunch. There is an old saying, “People like to do business with people” – this is very true. There are so many nice people in this industry willing to help. I am constantly humbled when people tell me how this personally affects them, a friend, or family member. Hearing these stories gives me more energy to push for change.

And the bit you like least?

As any campaigner or lobbyist will tell you, it’s the funding. I



Aviation accessibility consultant
Christopher Wood talks about
how his personal experiences have
driven him to challenge the culture
of the airline industry

do this myself and it’s a constant battle. Most of what I spend is on air fares and hotels. But I never talk about it, as that’s not what this is all about. The mission for better accessibility in the cabin is what I want to talk about and it is what drives me.

What would be your alternative career?

I was a fan of Factory Records [a Manchester-based, independent label founded in 1978] and its ethos from its very early days. I would run a club giving young, up-and-coming artists a platform to perform. Music is dying in a computer in a bedroom, it needs to get back to basics.

Talk us through your flying routine

I am always early to the airport – probably earlier than most people. I am not good at the take-offs or landings, so a good grip on an armrest is absolutely essential. If I am not watching IFE, then I am reading, I find it difficult to work when flying.

What’s your favourite on-board meal?

Airline food is a bit like turbulence – it’s an unfortunate consequence of flying. Since I am usually in steerage then its typically chicken and rice; not a lot wrong with that.



What kind of programme would catch your eye on the IFE system?

I am a huge film fan and go to my local cinema regularly. However, there are always one or two I need to catch up on when I have IFE in front of me. I love a good ‘art house’ movie.



How do you see cabin design developing in the future?

My focus would be on accessibility, of course. Since there is nothing currently tangible in the aircraft cabin, we have a blank canvas, meaning accessible design solutions will be with us shortly, so that’s hugely exciting. I am sure this will run in tangent with greener solutions; in many ways they have parity. Both are needed now – not tomorrow. ©





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