

# Aircraft *interiors* INTERNATIONAL

SEPTEMBER 2010

THE INTERNATIONAL REVIEW OF AIRCRAFT INTERIOR DESIGN AND COMPLETION



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18

open tab

reservations

car hire

psp

attraction tickets

## screen gains

HOW CAN THE IFE SYSTEM HELP AIRLINES REDRESS THE EROSION OF FARE INCOME BY TURNING PASSENGERS INTO CONSUMERS?

# RECARO

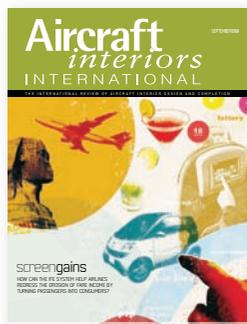
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## targetaudience

Who says first class has no future? For carriers such as British Airways and Lufthansa, providing an exclusive product capable of satisfying their most demanding customers is still a profitable niche well worth exploiting. Following on from our last issue, which featured British Airways' new front cabin, we provide an exclusive report on Lufthansa's first class on board its A380s. Inspired by the carrier's sumptuous First Class Terminal at Frankfurt Airport, the airline has succeeded in conjuring an oasis of calm and considered design. Instead of being distracted by gimmicks, Lufthansa has simply listened to passenger requests for a good night's sleep and the most comfortable journey possible. With this in mind, it has invested heavily in sound dampening to reduce noise in the cabin, as well as installing a cabin humidification system – the first on a commercial airliner. Luxury bathrooms provide plenty of room to change and freshen up before landing, while individual, leather-stitched lockers replace unsightly overhead bins.

Priestman Goode worked with Lufthansa on the project, and it's no surprise to discover that the UK design firm collaborated on another product featured in this issue – the Open Concept Suite (OCS), from B/E Aerospace. The OCS is a breath of fresh air – stylish, modern and sleek, it's a million miles from the heavy and clumsy looking 'furniture' one is accustomed to on board aircraft. It also goes to show just how important good industrial design can be in elevating a product. Teague's work with Panasonic on its Integrated Smart Monitor (featured in previous issues and in *Airline Entertainment International* – an exclusive supplement available with this issue to our IFEC readership) is further proof of this. The trick is to get the designers involved from the very beginning – a topic we will examine in more detail in our forthcoming *Annual Showcase*, which for the first time will include a dedicated design section profiling the industry's leading creative agencies.

Readers responsible for inflight catering and service should find another new publication included with this copy – *Airline Catering International*, which examines the need for more sustainable practices, the latest on Airbus's SPICE galley, and the subject of the moment – ancillary revenue growth. This topic is also covered in our cover story on page 58, which looks at the opportunities and technologies driving increasing onboard retail sales – with passengers using the onboard IFEC system to buy food, cocktails and tickets to exclusive events. An army of software boffins and CRM analysts should ensure that the whole process becomes ever more sophisticated – although personally I still enjoy the cheeky sales pitches delivered over the public address system on certain low-cost carriers by crew eager to boost their commission. Whether you're a leading flag carrier or a bargain tour operator, it's all about hitting the right note with passengers by better targeting their specific needs and desires.

Anthony James, editor

WHETHER YOU'RE A LEADING FLAG CARRIER OR A BARGAIN TOUR OPERATOR, IT'S ALL ABOUT HITTING THE RIGHT NOTE WITH PASSENGERS BY TARGETING THEIR SPECIFIC NEEDS AND DESIRES

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Total Qualified Circulation:  
12,362 (Average circulation  
June-December 2009)

### Annual Subscriptions (5 copies)

Worldwide Rate: £42/\$88

The views expressed in the articles and technical papers are those of the authors and are not endorsed by the publishers. While every care has been taken during production, the publisher does not accept any liability for errors that may have occurred.

Periodicals postage paid at Dover, NJ, 07801.  
US Mail Agent: CleveTT Worldwide Mailers LLC,  
7 Sherwood Ct, Randolph, NJ 07869  
POSTMASTER: Send address changes to Aircraft  
Interiors International, 19 Route 10 East, Bldg 2  
Unit 24, Succasunna, NJ 07876  
USPS Periodicals Registered Number: 019-144

ISSN 1463-8932 Aircraft Interiors International  
September 2010. This publication is protected  
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Printed by: Nuffield Press, 21 Nuffield Way,  
Ashville Trading Estate, Abingdon,  
Oxfordshire, OX14 1RL, UK  
Cover image: Lee Woodgate

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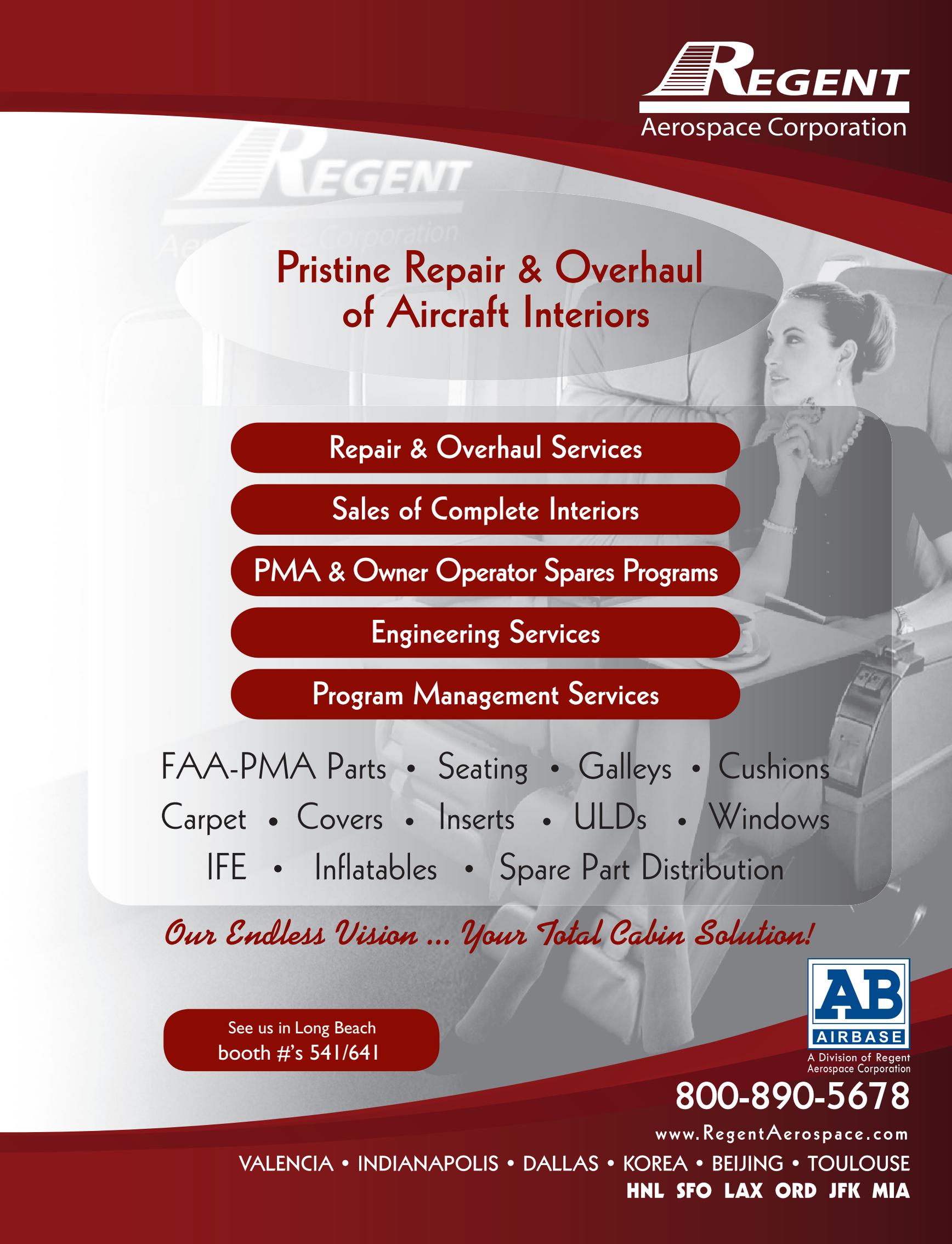
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## screen gains 058

Airliners used to carry passengers – now they transport guests, customers or travellers – how can the IFE system help their operators redress the erosion of fare income by turning them into buyers?

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



# features

**clubrules**  
Inspired by First Class Terminal at Frankfurt, Lufthansa's new first class on its A380s responds to customer requests for peace and privacy.

## 032 club rules

Inspired by its First Class Terminal at Frankfurt, Lufthansa's new first class on its A380s responds to customer requests for peace and privacy  
ANTHONY JAMES,  
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**thirdforce**  
Diehl's acquisition of Dasell Cabin Interiors underlines the German industrial group's ambition to become a supplier of complete, integrated cabin systems.

## 042 third force

Diehl's acquisition of Dasell Cabin Interiors underlines the German industrial group's ambition to become a supplier of complete, integrated cabin systems  
BERNARD FITZSIMONS,  
AIRCRAFT INTERIORS INTERNATIONAL

**openhouse**  
B/E Aerospace and Priestman Goode have developed the Open Concept Suite – a stylish first-class product that wouldn't look out of place in your living room.

## 050 open house

B/E Aerospace and Priestman Goode have developed the Open Concept Suite – a stylish first-class product that wouldn't look out of place in your living room  
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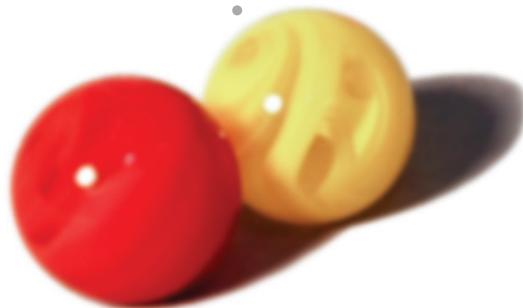
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## angle grinder 066

Every trick in the book is being employed by vendors desperate to help airlines squeeze more seats into business class without any loss in comfort

ANTHONY JAMES,  
AIRCRAFT INTERIORS INTERNATIONAL



## blue wonder 072

JetBlue celebrates its 10th anniversary this year – and continues to hold true to its original values of service and product

FIONA COHEN,  
AIRCRAFT INTERIORS INTERNATIONAL



## 080 jostling for room

Established giants are competing with an influx of new companies in the economy and premium-economy seat market, resulting in more space- and weight-efficient products

IZZY KINGTON,  
AIRCRAFT INTERIORS INTERNATIONAL



## 088 inside out

Irkut exhibited a mock-up of its MS-21 single-aisle airliner at Farnborough in July, with a singularly well-appointed cabin from C&D Zodiac

BERNARD FITZSIMONS,  
AIRCRAFT INTERIORS INTERNATIONAL





Big changes to Virgin America's Red IFE platform include enhanced terrain view Google Maps, an open tab service for the airline's on-demand menu, and a digital shopping platform. Passengers can now browse hundreds of products and place orders from their seatback touchscreens via the Red store, powered by SkyMall. Products range from the Sony PSP with one game (US\$329, £212.43) to the latest Michael Kors tote (US\$268, £173.04). This is the first time that SkyMall has developed a product line specifically for purchase through an airline's seatback IFE system.

Meanwhile the new open tab service means passengers can swipe their credit card just once per flight and order food, cocktails, movies and more – keeping a tab

## Upgrades to Virgin America's Red IFE platform include tab service

running during the flight. The tab will stay open until the passenger closes it, or until the aircraft descends to 10,000ft, at which time it will automatically close. The airline has been cashless since its launch in August 2007. Its seatback menu allows passengers to order what they want, when they want it during a flight.

The enhanced Google Maps system will feature terrain view maps with fresher images and eight levels of zoom.

### Inmarsat to invest US\$1.2 billion in Ka-band network

Inmarsat has agreed a contract with Boeing for three 702HP Ka-band satellites, which will make up the new Inmarsat-5 (I-5) constellation. With operations expected to start in 2014, I-5 will support a new global service called Global Xpress, which will target a US\$1.4 billion (£0.9 billion) incremental market for VSAT services. The company says the new network will deliver mobile broadband at speeds of up to 50Mbps. "Global Xpress will be faster and less expensive than current Ku-band market offerings, it will be delivered to smaller and cheaper terminals, and be the first offered on a seamless, global, end-to-end basis with high quality of service. Picture 50Mbps services to a ship or aircraft, and 10Mbps to an antenna the size of an iPad (20cm)," said Andrew Sukawaty, chairman and chief executive of Inmarsat. "The Inmarsat-5s will also complement our existing global L-band services, allowing us to offer unique hybrid packages using both networks." Boeing will also be a distribution partner for Inmarsat's Ka-band and L-band services. Inmarsat estimates the total cost of the I-5s and Global Xpress will be US\$1.2 billion (0.8 billion) over four and a half years.

### Zodiac Aerospace to acquire Sell

Zodiac Aerospace has signed an agreement to buy Sell from the Premium Aircraft Interiors Group (PAIG). The transaction is subject to antitrust authorisation, and is expected to close before the end of 2010. Sell is a leading designer and manufacturer of aircraft galleys and galley insert equipment and provider of associated services for the global commercial aerospace industry. Sell is based in Herborn, Germany, and has 1,250 employees. The company generated €179 million (£149 million) in revenue in 2009. Zodiac Aerospace acquired C&D Aerospace in 2005 and Driessen Aerospace in 2008.

### 787 Dreamliner interiors factory

Boeing has chosen North Charleston, South Carolina, USA, for its new 787 Dreamliner interiors fabrication facility. Construction is due to begin later this year. The new factory will be 10 miles (16km) from Boeing's 787 final assembly and delivery site in North Charleston. At the new facility, the Interiors Responsibility Center South Carolina team will manufacture 787 interior parts including stowbins, closets, partitions, class dividers, floor-mounted stowbins used by flight attendants, overhead flight crew rests, overhead flight attendant crew rests, video-control stations and attendant modules.

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## Alitalia shows off new A330 with redesigned Magnifica class

Alitalia has unveiled the first of two new A330s being introduced on long-haul intercontinental routes from Milan Malpensa airport. The new A330 features a redesigned 28-seat business class, Magnifica, with new interiors and seats; a new 21-seat premium-economy class, Classica Plus, making its debut on the Italian market; and a renovated 175-seat economy class, Classica.

The new EADS Sogerma business-class seats are set in a 1-2-1 configuration on the A330. The leather seat extends into a fully flat bed position, and also features a massage function and 15.4in (39.1cm) screen with privacy device. The IFE includes 12 audio channels and over 40 films in up to eight languages, the ability to download multimedia content with a USB device, as well as documentaries, sitcoms, games, and cartoons. Passengers can use the landscape camera to see live views from outside the aircraft. Other extras include noise-reduction headsets, night amenity kits

with duvets and Frette pillows, cutlery and glasses designed by Richard Ginori, and Culti amenity kits.

The new A330 Classica Plus features 21 Recaro seats in three rows. Each seat offers up to 120° of recline and is 20% wider than those in economy. Seat pitch is 38in (96.5cm) pitch – about 25% more than in economy. Each seat also features a removable footrest, adjustable leather headrest, and individual 10.6in (26.9cm) screens with an on-demand IFE system. Other benefits include USB ports, noise-reduction headsets and Culti amenity kits.

Meanwhile Classica on the A330 features Recaro seats that recline up to 110°, with 9in (22.9cm) screens and an individual on-demand IFE system. Passengers are given Frette blankets, one or more hot meals, snacks and drinks. All seats in all classes feature an individual telephone with an extendable keyboard.

Alitalia will also reconfigure its B777 fleet with the same product to ensure a harmonised intercontinental service.

### COMAC awards C919 contracts

Monogram Systems is to provide water and waste systems for the Commercial Aircraft Corporation of China (COMAC)'s C919. Rockwell Collins and China Electronics Technology Avionics (CETCA) have won the communication and navigation contracts for the aircraft. Rockwell Collins and CETCA also agreed to establish a China-based joint venture, with a formal supply agreement with COMAC expected by the end of 2010.

### Continental sells cocktails

Continental Airlines has started selling cocktails in economy class on flights to North American, Caribbean and Latin American destinations. The drinks can be purchased with a major credit or debit card. Continental has partnered with Stirrings to offer mojitos and pomegranate martinis for US\$9 (£5.96) each, or US\$3 (£1.99) without alcohol. The airline has also teamed with Red Bull to offer its energy drink – on its own for US\$3, or paired with Skyy Vodka on ice for US\$9. The airline continues to offer free non-alcoholic drinks, including coffee, tea, soda and juices.

Lufthansa has received the first two of its 526-seat A380s. The upper deck features a new eight-seat first-class cabin, and a 98-seat business-class cabin. The main deck houses 420 economy-class seats.

First class features an open-plan design with Contour seats in a 1-2-1 layout. Each seat extends to create a lie-flat bed 81.5in (207cm) in length and 31.5in (80cm) in width. Each passenger has a lockable closet, adjustable electric ottoman and a flexible privacy screen. Two luxurious bathrooms, sound dampening to reduce cabin noise, and a humidification system complete the offer.

Business class (pictured) features an enhanced version of the airline's existing Recaro seat, converting into a 78.7in-long (200cm), lie-flat-at-an-angle (168°) bed at 57.1-59.8in (145-152cm) pitch in a 2-2-2 layout. Seat width is 26.4in (67cm).

Lufthansa is currently working on new business-class fully flat beds for its first B747-8, due at the start of 2012. The new product will be retrofitted across its entire long-haul fleet, including its first A380s.

Economy sees a 3-4-3 layout with seat pitch set at 31.1in (79cm). Each seat is 20.5in (52cm) wide and offers 113° recline.

Lufthansa will deploy Panasonic's eX2 IFEC system in all classes. Monitors are 17in (43.2cm) in first, 10.6in (26.9cm) in business, and 9in (22.9cm) in economy.



## Lufthansa unveils A380 and plans new business class

### Iberia remodels Business Plus seating and meals

Iberia has further remodelled its Business Plus cabins. At the end of last year it announced it was reducing the number of business-class seats on its A340-600s from 52 to 42, and its A340-300s from 42 to 36. The reconfigured cabin now provides an extra 11.8in (30cm) of room between seats – with seat pitch at 86.6in (220cm). The airline has now updated upholstery and linen in orange and brown hues. Eiderdowns replace blankets, and a new amenity kit features products designed exclusively for Iberia. The airline has also renovated its Business Plus meal service on flights departing from Madrid, with a different menu of Mediterranean dishes each month, designed by chef Sergi Arola. Pastry chef Paco Torreblanca has devised new pastries freshly made for each flight, and travellers may also enjoy new flavours of Häagen Dazs ice cream. Light suppers on night flights leaving Madrid have also been changed, and are now comparable to the three-course lunch menu.

### dPAVES HD now available on 737 Boeing Sky Interior

Rockwell Collins' second-generation dPAVES system is now available on the 737 Boeing Sky Interior. This generation adds high-definition (HD) capability to the company's dPAVES single-aisle cabin offering. dPAVES has recently been enhanced for Boeing and now features retractable 12in (30.5cm) 16:9 LCD HD-ready displays, an enhanced touchscreen flight attendant entertainment control panel (ECP), and USB ports located next to the ECP for easier content loading. At the core of the system is the High Definition Media Server (HDMS) offering 160Gb of solid state storage for audio and video, integrated pre-recorded announcements and music functionality with embedded Airshow Moving Map – all in a single four modular component unit box. The HDMS allows for multiple play periods. The server automatically selects the new content when the new play period starts. Non-encrypted content can be handled by airlines independently of Rockwell Collins' content management system.

### American gets going with B737-800 retrofit project

American Airlines is retrofitting 76 B737-800s to match the new B737-800s entering its fleet. A prototype of the updated aircraft has been in service since February. The retrofit project began in May and is being carried out by American's mechanics at its maintenance base in Tulsa, Oklahoma, USA. Both the new and retrofitted B737s will feature new first-class seats designed for American by Weber Aircraft, as well as 144 newly designed economy-class seats featuring a higher recline pivot that provides increased knee room. The aircraft's new configuration adds an extra 12 seats in economy, boosting total capacity to 160. Throughout the cabin, drop-down LCD monitors replace CRT monitors and the airline says a digital media file server will provide better quality video and audio entertainment. Every first-class seat will feature a 110V AC power port, while there will be two power ports per every three economy-class seats. American intends to equip all of its B737s with Gogo Inflight Internet.

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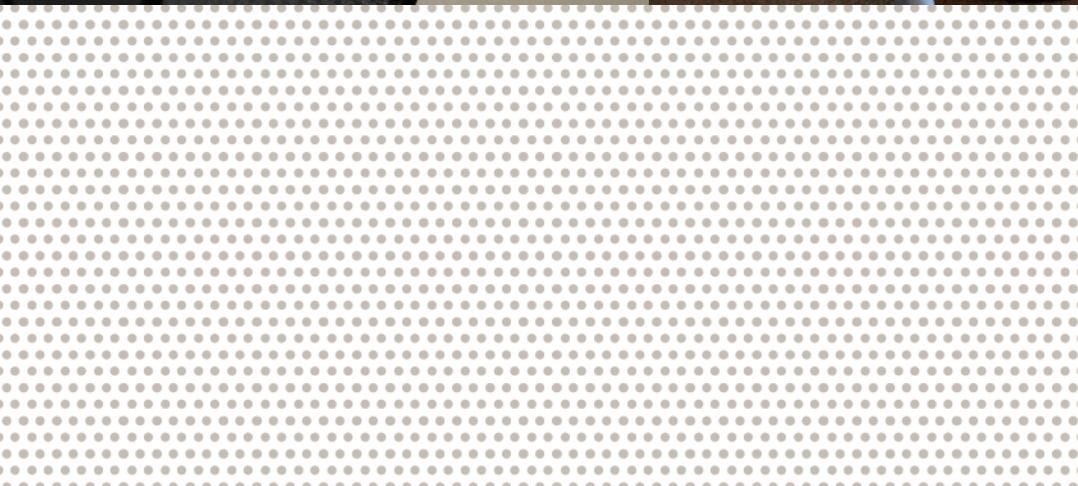
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## TUI Travel to target jetlag reductions with B787 Dreamliner

TUI Travel, which owns Thomson Airways, has revealed what passengers can expect from its B787 Dreamliners, the first of which is due for delivery in January 2012.

Thomson Airways will offer broadband access and up to 1,000 hours of HD-standard IFE on the aircraft. The Dreamliner will also feature measures designed to reduce jetlag. As well as the

aircraft's sunrise and sunset lighting effects and higher humidity levels, Thomson Airways will use aromatherapy fragrances and add a bar area on board, providing customers with unlimited fresh fruit smoothies and mineral water. In research, the airline found that 43% of people would consider flying long haul for a week's holiday if jetlag was reduced.

### Viking Airlines and Thomas Cook choose Sony PSPs

IFE Services will provide Sony PlayStation Portables (PSPs) to Viking Airlines UK. Passengers on selected flights will be able to rent the consoles. Every PSP comes pre-loaded with a variety of Hollywood movies and PSP video games. The PSP has a widescreen TFT display and will be equipped with an extended battery life offering up to 11 hours while playing games. To date IFE Services has signed PSP distribution deals with eight airlines, with ongoing negotiations for several more. In July it announced that it would supply PSPs for 32 of the 44 aircraft in Thomas Cook Airlines' UK fleet. "We've selected a range of films, programmes and games to keep the whole family happy on their flights with us," said Ian Derbyshire, CEO at Thomas Cook UK & Ireland.

### Another step towards paperless cabin for Singapore Airlines

In its latest move towards a paperless cabin, Singapore Airlines (SIA) is introducing electronic versions of magazines on its KrisWorld IFE system. SilverKris, SIA's travel magazine; KrisShop, the airline's inflight sales catalogue; and KrisWorld, SIA's IFE guide; are the first featured as part of the trial with SmarttPapers Aviation. The airline aims to extend this initiative to other publications at a later date, including menu cards and the 100-plus international and local magazines currently carried systemwide. The plan is also to introduce e-newspapers and e-books using the same technology. The airline is incorporating the feature on aircraft equipped with the latest Panasonic eX2 IFE system, starting with two B777-300ERs and two A380s.

### Lumexis IFE system installed in Recaro seats for flydubai

Lumexis' new fibre optic-based IFE system will be integrated in seats developed and manufactured by Recaro for the system's launch customer, low-cost operator flydubai. Recaro will supply a 'facelift version' of the successful Basic Line 3510, which has a new composite backrest. The Lumexis' FTTS system won a Crystal Cabin Award this year in the Entertainment and Communication category. The system uses fibre optics rather than traditional copper wires. "We've been very impressed with the quality and comfort of the Recaro seats we have received to date," said Ghaith Al Ghaith, CEO of flydubai. "The innovative seatback design, which removed the seat pocket from its traditional knee-high position, has ensured our seats have an additional 2in (5.1cm) of legroom and gives us one of the largest seat pitches of any economy-class airline. Recaro has continued to innovate by ensuring Lumexis' revolutionary fibre optic seatback touchscreen IFE system can be accommodated into our seating, thereby ensuring we will be the world's first commercial airline to bring this new type of IFE to our customers." Established in March 2008 by the government of Dubai, flydubai started operating on 1 June 2009, and currently has a fleet of nine B737-800 NG aircraft.

ATR and Italian design house Giugiaro Design have developed a cabin design (Armonia) for the new ATR -600-series regional turboprop. The -600 series aircraft is due to enter service from 2011.

Giugiaro Design has been involved in many high-profile car, corporate aircraft, train, ship and motorcycle design projects in the past, but the Armonia cabin marks its entry into the commercial aviation interior design market.

The Armonia cabin features new wider lightweight seats – designed to ensure greater knee clearance and increased under-seat capacity. The companies say the cabin also offers 10% more storage space and 30% more carry-on capacity (up to 70% of passengers will be able to store roller bags overhead), as well as LED lighting.

A two-class configuration is available as an option, with first class offering wider seats, more space, windows for each row, and large armrest tables. Also available as an option is a jetway-capable forward door and spacious entrance area.

Armonia was designed with lightweight materials, which the companies say reduces the cabin's weight by the equivalent of two passengers.



## ATR and Giugiaro Design team up for ATR -600-series cabin

### Turkish Airlines' B777s to include premium economy

Turkish Airlines is to add a premium-economy cabin, Comfort Class, on trunk routes to Beijing, Shanghai, Narita, Bangkok, São Paulo and Toronto on the new B777 aircraft. Depending on when the new B777s join the fleet, Comfort Class might also be offered on flights to New York, Chicago and Washington DC. The airline already offers economy-, business- and first-class cabins. Comfort Class seats will boast 45.7in (116cm) pitch and 19.3in (49cm) width, as well as a legrest. Each seat will feature a 10.6in (26.9cm) in-arm screen, via which the passenger can see films, documentaries, serials and cartoons. Passengers will also be able to use their own USB devices or iPods.

### Crystal Cabin Award application period announced

The application period for the 2011 Crystal Cabin Award is 4 October to 15 November 2010. The international contest was created to motivate companies and research facilities to develop new products and modern designs for aircraft cabin interiors. Entries will be judged by a panel of industry experts. In 2010, 64 applicants from 12 nations entered the competition, which was awarded in five main categories – greener cabin, health and safety; entertainment and communication; industrial design/interior concept; material and components; and passenger comfort. There was also an award for universities and colleges, and a judges' recommendation prize.

### British Airways and OnAir launch mobile portal

British Airways and OnAir have launched an inflight mobile portal, Club Mobile, on the airline's London City to New York-JFK route. Passengers can access travel-related services and information in real time by switching on their mobile and receiving a text message with a direct link. In addition to viewing flight information, passengers can consult the weather forecast for their destination, check traffic congestion, book a chauffeur, access concierge services, view guides for local events or check sport results. "Staying up-to-date on information via the portal will ensure passengers make best use of their time during their flight," said Ian Dawkins, CEO of OnAir.

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Cessna has launched a new special, limited edition of its Citation Mustang. The High Sierra Edition features luxury versions of the three currently offered interiors, a special paint scheme, a Garmin G1000 system with synthetic vision technology, electronic charts and locking fuel caps, and special support. The three new interiors will only be available on High Sierra Editions. As well as new textures and patterns, the interiors feature hand-woven carpets and premium leathers.

The first interior option, Smoky Quartz (pictured), has an earthy colour scheme including espresso brown, complemented by flowing patterns and bronze silk details in the carpet. Option two, Black Pearl,

## Cessna launches special edition Citation Mustang

features contrasting black and cream leathers, a textured carpet, and embossed leather accents. The third option, Silhouette, features smoky blue, charcoal, and bronze colours, and a textured carpet.

"The special High Sierra Edition gives our customers more luxurious interior and exterior options to outfit their Mustang," said Roger Whyte, Cessna's senior vice president of sales and marketing.

### Goodrich to acquire DeCrane's cabin management business

Goodrich has signed an agreement to acquire the cabin management assets of DeCrane, which provides seating, furniture, veneers and cabin management systems for the business jet market. The purchase price is approximately US\$280 million (£178.8 million). The transaction does not include DeCrane's aircraft completions business. DeCrane's PATS Aircraft Systems will continue to operate as a standalone business concentrating on auxiliary fuel systems for business and executive aircraft, and VIP maintenance, modification and interior completions. DeCrane has also signed an agreement with a substantial majority of its lenders and stockholders to restructure the capital structure of PATS. DeCrane intends to use most of the sale proceeds to repay its outstanding debt and redeem preferred stock issued by DeCrane Aerospace. The agreement would allow DeCrane to convert a substantial portion of its remaining debt into newly issued common stock. PATS will be controlled by Wayzata Investment Partners and led by PATS' existing management team, including its CEO, John Martin.

### BaySys International announces Moroccan joint venture

BaySys International has signed an agreement with a regional investor to support the development of a VIP completion facility in Casablanca, Morocco. The facility will target the Gulf and Middle East as well as serving the company's European client base. It will provide VIP and head-of-state interior completions, interior upgrades, flight deck upgrades and maintenance. BaySys currently has three major facilities in Virginia, USA – its Accomac headquarters; a completion facility at Wallops Island; and Interad (which specialises in communication electronics for government and military use) in Melfa.

### Three new completion contracts for Jet Aviation Basel

Jet Aviation Basel has signed agreements with undisclosed clients for the completions of two A319 CJs and a BBJ3. The interiors of two of the three aircraft will be designed by the company's in-house interior design studio. Layouts for all three aircraft include living and dining areas, as well as private bedrooms with en-suite bathrooms. One narrow-body aircraft is already on site in Basel, Switzerland; the other two aircraft are expected within the next few months. Jet Aviation Basel recently delivered two newly completed A319 CJs to Boutsen Aviation, and a B737-800 for an undisclosed customer.

# mercuryrising

**BRIEF:** “We believe that a new high-speed train is vital for the future of Britain, both as the low-carbon, sustainable transport of the future and because it offers a crucial opportunity to champion British design and engineering at a time when we need to fight as hard as possible in an increasingly competitive global economy,” says Paul Priestman of UK design firm, Priestman Goode (PG). With this goal in mind, PG recently unveiled ‘Mercury’, which it describes as a “new British design icon to follow in the footsteps of Concorde, Spitfire, Rolls Royce and the Routemaster bus”.

**DESCRIPTION:** Mercury is a double-decker train with an interior featuring a flexible, open plan design allowing for interaction, space and relaxation without compromising privacy. As a result, traditional commuter seats (designed to incorporate in-transit entertainment systems) sit alongside private berths – for families, private parties or business meetings echoing the nostalgia of compartmental train travel. A children’s play area will be integrated into the train and a luxury first-class section will mirror the choice offered to air travellers with a luxury lounge and bar. The exterior of the train, designed to emulate those great British design classics, will be up to 400m long and the extended nose section will be one of the most extreme in the world – vitally important for the aerodynamics of a train which will travel at 225mph, as well as ensuring the train is instantly recognisable.



**VERDICT:** The economic and social benefits of a high-speed rail network are well known. However, Priestman Goode believes the value of design is less well understood: “Our work with Sifang, to design high-speed trains for China and the rest of the world, has shown us that it is equally important to have a train to be proud of, in order to show Britain’s global credentials and to persuade people to leave their cars at home,” says Priestman. “Not only does it need to be fast, it needs to be modern, luxurious, exciting and stylish. We believe Mercury is all those things.” ☒



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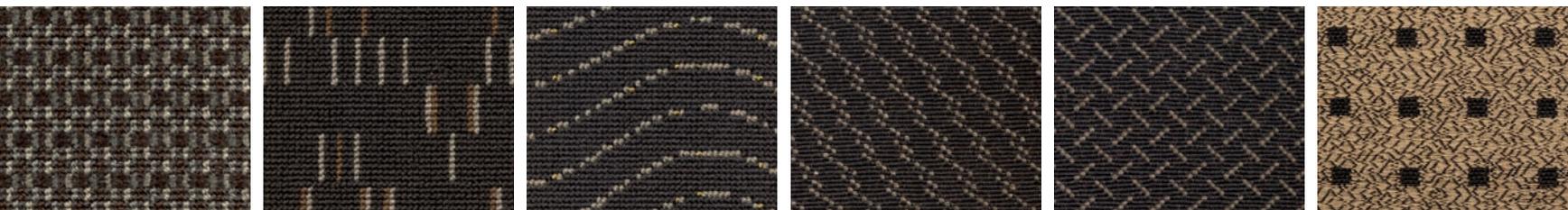


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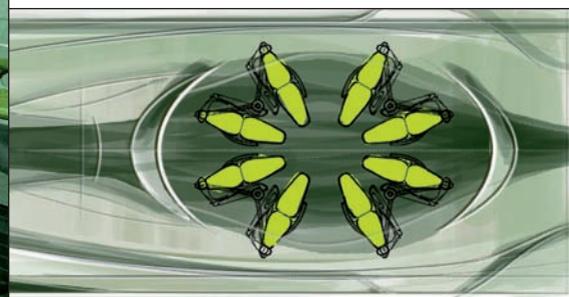
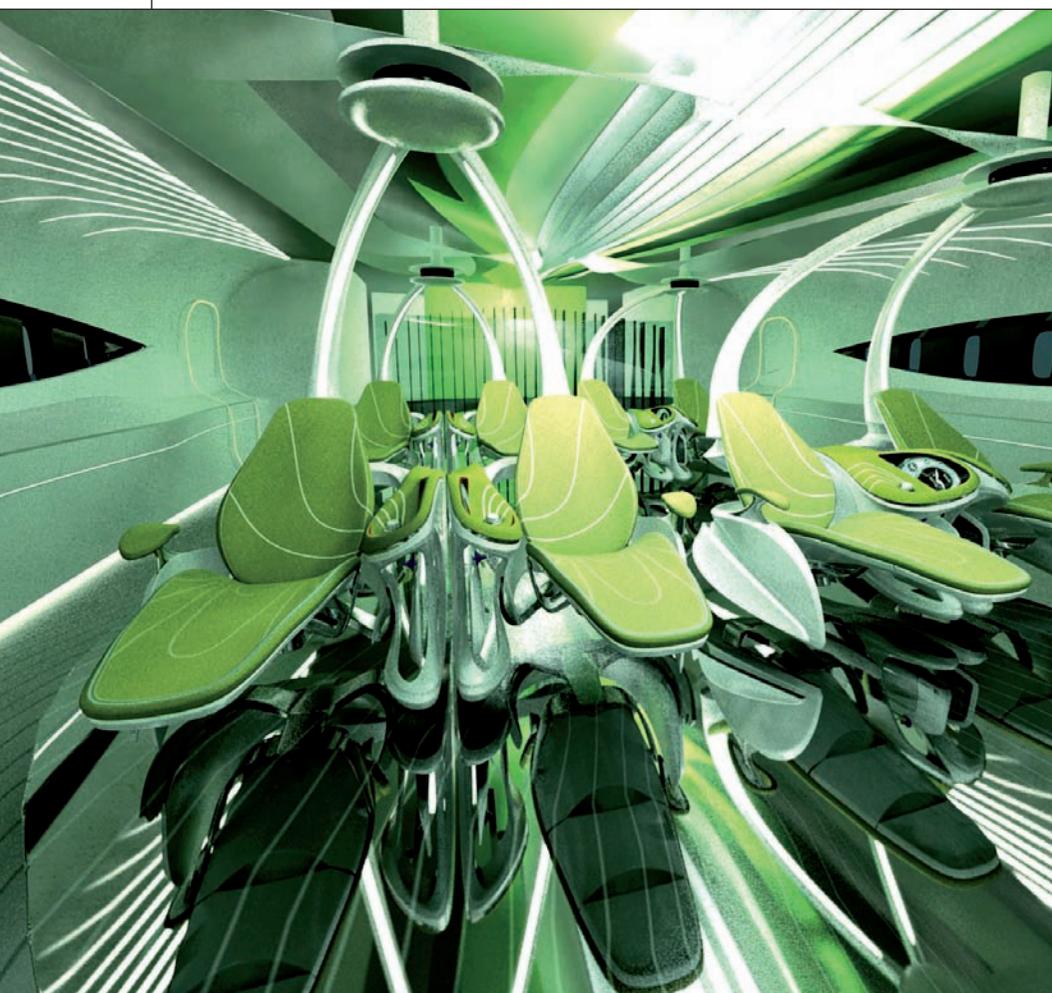
# hangloose

**BRIEF:** Inspired by the advanced concepts developed by leading automotive marques, Design FL, part of the Envisage Group, has created 'Air' – a future super-first-class airline seating scheme. "We wanted to showcase the strategic thinking and innovation at the heart of our process and start a conversation about the future of air travel," explains Bryan Campbell, chairman of Envisage Group. "Air has been developed around the need to increase feelings of space, and increase social interaction. It allows you to relax with friends and chat face to face, sit around a media table for an important business meeting, or watch movies on panoramic screens as if in your own private cinema."

**DESCRIPTION:** The Air concept features seating suspended from the ceiling and sculpted storage lockers integrated into the sidewalls for easier access and a striking contemporary aesthetic. Two latched pivots allow the coupled seats to change aspects, eventually turning to face one another. A third latch, connected to a network of ceiling rails, allows seat couples to be relocated around the aircraft and rearranged into clusters that best suit the collective requirement. The ability of clusters to merge their audio, media and environment settings further contribute to an enhanced communal experience. The seating concept is loosely based within a futuristic Airbus A380 cabin: "It's a commercial space with the spirit and functionality of a large private aircraft," adds Campbell. "We wanted to create an effortlessly flowing environment – a feeling of floating in space."



**VERDICT:** "The response we got for Air during the Expo in Hamburg was very positive," reports Campbell. "The automotive world has been reaping benefits from advanced concepts for decades; we should be applying that approach to all transportation sectors by now." Design FL's scheme is certainly bold – and clearly recognises the need for far greater cabin reconfiguration flexibility to enable more adaptable environments. However, such a scheme would depend on aircraft manufacturers agreeing to ceiling attachment points – and potentially huge retooling costs. ☒



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# efficiencydrive

**BRIEF:** A cooperative effort between the engineering department at Neoseats (a division of Spanish textiles manufacturer Neotex) and the design team at Mormedi, this project set out to create a new economy-class slimline seat offering reduced weight, increased comfort and a design language more in keeping with new aircraft such as the A350 and B787 – but at a very competitive price.

**DESCRIPTION:** Sharing the same Neoseat-developed chassis, the seat, made from aluminium and composite, is available in two versions: one has a small pocket integrated in the upper part of the backshell; while the other can integrate an IFE screen up to 10.6in wide. "During the development process, two table options were evaluated: one with a folding table, which has been selected for further development; and another with an additional mini-table for small objects, which is more comfortable for quick meals or drinks," explains Jaime Moreno, Mormedi's founder and CEO. "The seat's slim silhouette integrates perfectly with the new wide-body cabin architectures of Airbus and Boeing," he continues. "Its slim structure increases the passenger's sense of personal space, and we have ensured all seat elements are integrated into the seat's main body in order to avoid uncomfortable protrusions (the seat features an integrated aisle-facing step, and a screw cover for the backshell)." The seat weight goal is 12kg per pax and the team are working to ensure units can be installed at a minimum 28in pitch.



**VERDICT:** Ten units – five doubles and five triples – are currently being produced for dynamic testing and certification by EASA. Computer test simulations and static tests performed by Mormedi and Neoseat are described as "satisfactory". "Airlines will be able to install it at 28in pitch – and we are aiming to get it certified for long- and medium-range aircraft with small modifications so the airlines can reduce the maintenance cost of having too many different spare parts," says Moreno. Expect to see a prototype at next year's Expo in Hamburg. ☒



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# wideofthemark

Daniel Baron of Lift Strategic Design says talk of twin aisles on narrow-body aircraft misses the point

So what's going to replace the Boeing 737 and Airbus A320? I keep hearing tantalizing talk of a twin-aisle solution featuring a 2-2-2 economy cabin. True, 2-2-2 would indeed mean less anxiety prior to the trip. Even if unable to pre-book an aisle or window seat, none of the last-minute options would be as nightmarish as they are now. Stress levels would decrease over a wide spectrum of humanity. Global peace might break out.

But assuming that the economics allowed for a slightly wider cabin, would 2-2-2 actually save the world? Using the standard seat and armrest widths, it would not address a critical issue: nobody actually wants to sit closely to anyone, unless the seatmate in question is a family member, partner or target of a sexual conquest. 2-2-2 with conventional spacing would not reverse the reality that we humans are getting larger (in every direction), and that our elbows often commit involuntary violation of borders during intensive typing and passionate game-playing. Ditto for long legs straying into aisles. Our shapes and behaviours have rendered the current dimensions utterly redundant.

Twin aisles would not be the holy grail of service delivery either. Cabin crew numbers aren't going up anytime soon, and ruthless seat packing might necessitate long marches back to the galley. Human overflow would mean collisions between passengers and carts in two aisles, not just one.

All carriers have access to sophisticated yield management software. Now what they really need is a super-flexible, convertible, narrow-body cabin that enables them to sell different products depending on market, sector length and/or time of day, with no extra labour for configuration changes. The future narrow-body cabin should therefore give lateral space between passengers precedence over number of aisles. How to achieve this? Simple. A slightly wider fuselage in a 3-3 configuration, with current seatback widths – but with wider centre armrests. The primary benefit: even with a 100% load factor, all customers get more 'breathing space' and the middle seat is no longer akin to medieval torture. The extra inches in each triple would mean additional space under and above seats for stowage, slightly deeper closets and lavatories, and a pinch of new vertical space in the galleys.

A wider triple would deliver the quick product change flexibility that airlines need. The aircraft could perform single-class, short-haul sectors during the day and then overnight flights with the



## DANIEL BARON

Daniel Baron is managing director of LIFT Strategic Design, a Tokyo-based brand and design consultancy whose clients include LAN, China Airlines, Philippine Airlines, Oasis Hong Kong Airlines, IMDC and Jamco. He has lived in Asia for 20 years.

spacious triples sold to a single customer at a premium, with sleep pad, comforter and pillow included. No additional dividers or labour time would be necessary. The à la carte enhanced offering would be popular with business travellers forced to fly economy. Many of these road warriors would pay out of their own pocket for the guaranteed ability to get horizontal (conquests aside).

These fabulous additional inches would also create new possibilities for business-class seat designs, and for long-haul niche players who want to offer a high-density, low-fare affair in the back but 'owner class' luxury up front.

Conventional categories continue to blur as airlines tweak their models to cut costs and increase revenue. Creative tweaking is the new norm, and product differentiation remains critical for brand loyalty. At the heart of my wild 'wide 3-3' concept is a cabin designed for today's needs, with built-in flexibility for tomorrow. ☒



A WIDER TRIPLE WOULD  
DELIVER THE QUICK PRODUCT  
CHANGE FLEXIBILITY THAT  
AIRLINES NEED



01. Wider centre armrests – the way forward?

01



# factfile:lufthansa

AIRCRAFT TYPE	A380	A340-600	A340-300	A330-300	B747-400
No. of aircraft	15	24	26	15	30
Entered service/ last refurbishment	4 deliveries in 2010, 11 more due from 2011	2003	1993/2007	2004	1989/2010 (ongoing)
<b>Total seats</b>	526	306	221	221	330
Number of seats	8	8	8	8	16
Configuration	1-2-1	1-2-1	1-2-1	1-2-1	2-2
Seat pitch	84in (213cm)	85in (215.9cm)	85in (215.9cm)	85in (215.9cm)	92in (233.7cm)
Seat width	31.5in (80cm)	21in (53.3cm)	21in (53.3cm)	21in (53.3cm)	21in (53.3cm)
Seat recline	180°	180°	180°	180°	180°
Bed length	81.5in (207cm)	79.1in (201cm)	79.1in (201cm)	79.1in (201cm)	79.1in (201cm)
Seat supplier	Contour	Weber	Weber	Weber	Weber
IFE system	eX2	eTES	eTES	eTES	eTES
IFE supplier	Panasonic	Rockwell Collins	Rockwell Collins	Rockwell Collins	Rockwell Collins
<b>First class</b>					
Number of seats	98	60	48	48	80
Configuration	2-2-2	2-2-2	2-2-2	2-2-2	2-3-2
Seat pitch	60in (152.4cm)	60in (152.4cm)	60in (152.4cm)	60in (152.4cm)	60in (152.4cm)
Seat width	19.6in (49.8cm)	19.6in (49.8cm)	19.6in (49.8cm)	19.6in (49.8cm)	19.6in (49.8cm)
Seat recline	168°	165°	165°	165°	165°
Bed length	80.1in (203.5cm)	78.7in (200cm)	78.7in (200cm)	78.7in (200cm)	78.7in (200cm)
Seat supplier	Recaro	Recaro	Recaro	Recaro	Recaro
IFE system	eX2	eTES	eTES	eTES	eTES
IFE supplier	Panasonic	Rockwell Collins	Rockwell Collins	Rockwell Collins	Rockwell Collins
<b>Business class</b>					
Number of seats	420	238	165	165	234
Configuration	3-4-3	2-4-2	2-4-2	2-4-2	3-4-3
Seat pitch	31in (78.7cm)	31in (78.7cm)	32in (81.3cm)	32in (81.3cm)	31in (78.7cm)
Seat width	20.5in (52.1cm)	17in (43.2cm)	17.5in (44.5cm)	17.5in (44.5cm)	17.5in (44.5cm)
Seat recline	113°	113°	113°	113°	113°
Seat supplier	Recaro	B/E Aerospace	Recaro	B/E Aerospace	Recaro
IFE system	eX2	eTES	eTES	eTES	eTES
IFE supplier	Panasonic	Rockwell Collins	Rockwell Collins	Rockwell Collins	Rockwell Collins
<b>Economy class</b>					
Number of seats	420	238	165	165	234
Configuration	3-4-3	2-4-2	2-4-2	2-4-2	3-4-3
Seat pitch	31in (78.7cm)	31in (78.7cm)	32in (81.3cm)	32in (81.3cm)	31in (78.7cm)
Seat width	20.5in (52.1cm)	17in (43.2cm)	17.5in (44.5cm)	17.5in (44.5cm)	17.5in (44.5cm)
Seat recline	113°	113°	113°	113°	113°
Seat supplier	Recaro	B/E Aerospace	Recaro	B/E Aerospace	Recaro
IFE system	eX2	eTES	eTES	eTES	eTES
IFE supplier	Panasonic	Rockwell Collins	Rockwell Collins	Rockwell Collins	Rockwell Collins

- \* Information shown represents Lufthansa German Airlines' long-haul fleet
- \*\* Lufthansa German Airlines also has 20 B747-8s on order for delivery from 2011, details to be announced
- \*\*\* The first-class cabin on the A380 will eventually be retrofitted on all the airline's other long-haul aircraft

01. Lufthansa's new first class for its A380s



**HEADQUARTERS:** Frankfurt, Germany

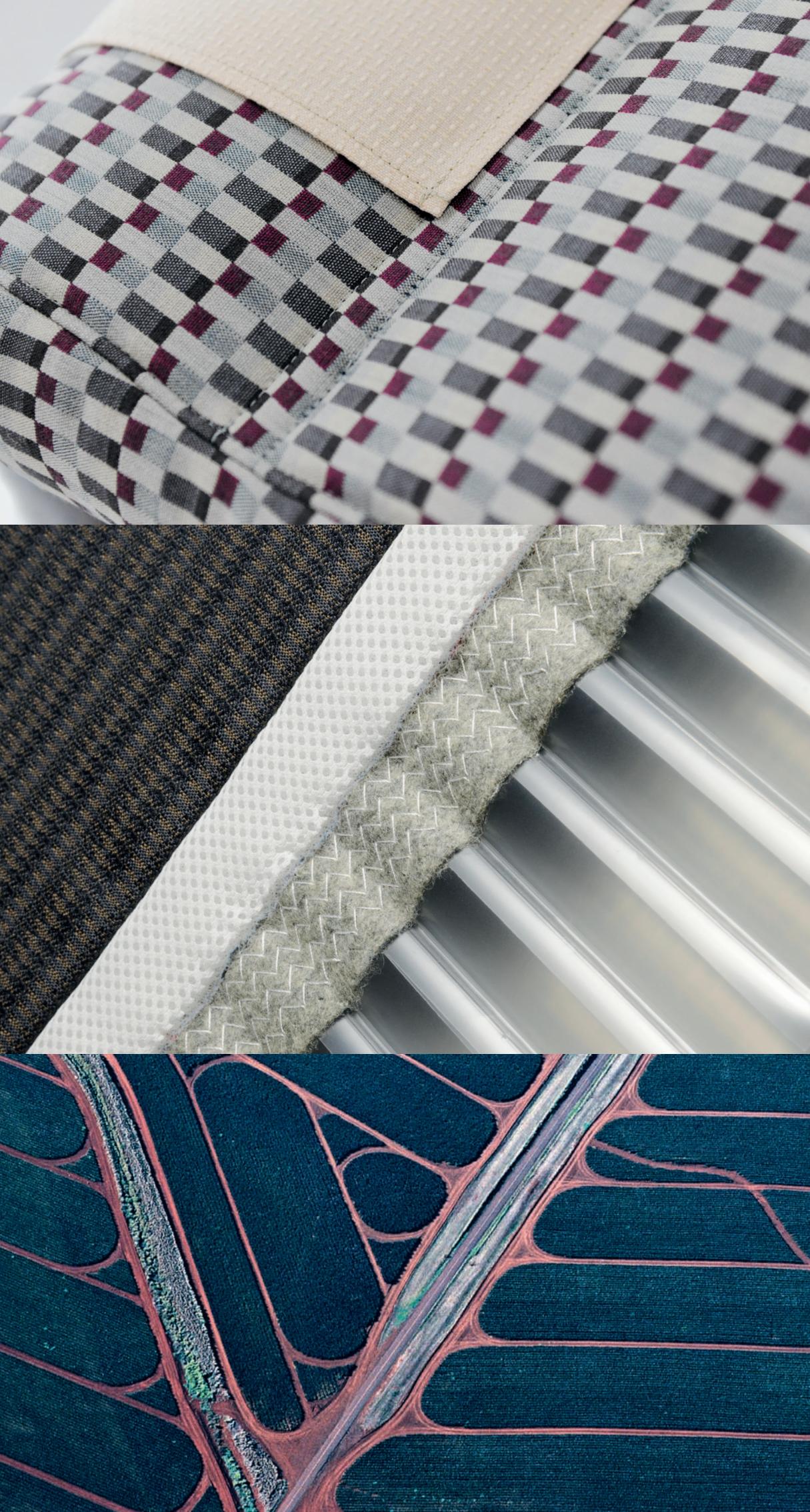
**PASSENGERS CARRIED IN 2009:** 55.5 million

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**Bernhardt Seiter**, director product management competence centre, bernhardt.seiter@dlh.de



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**TRANSPORTATION FASHION**

# clubrules

Inspired by its First Class Terminal in Frankfurt, Lufthansa's new first class on its A380s responds to customer requests for peace and privacy

ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL



 The arrival of an airline's first A380 always generates excitement, with rival carriers, the media and passengers alike eager to know what's on board, particularly in first class where the aircraft's generous girth enables something extra special. However in Lufthansa's case a big clue was provided long before the official unveiling in May – in the shape of its dedicated First Class Terminal in Frankfurt, an exclusive haven of peace and tranquillity for its most privileged customers. Sure enough, Lufthansa's first-class cabin, located at the front of the A380's upper deck, sports the same calm and considered colours and clean lines.

Offering just eight suites at 84in pitch in a 1-2-1 layout, Christina Foerster, general manager, product management (intercontinental) at Lufthansa, likens it to a private club: "I think the most interesting survey we did at the beginning was to find out what differentiates business from first," she says. "In the minds of our customers, it was all about exclusivity – the fact that you have very few people, that you're standing out from the crowd; and that you are in a group where you are aware of everybody and that's why you behave more politely than you would if you were in a crowd. First class is about being part of an exclusive circle – a private club."





THE 'GRANITE' FLOOR IN THE THE BATHROOM IS A PRINTED LAMINATE FEATURING A CUSTOM VEIN DESIGN FOR EACH TILE



01

01. The luxurious new bathrooms are five times the size of a standard first-class lavatory
02. A full-length mirror and integrated lighting help maximise the sense of space

Such clubs often involve certain rules – and Lufthansa's first class has two of its own – the quieter the cabin, the better one sleeps; and passengers should never want for anything in terms of service. "Customers said to us that what makes a great first-class experience is to be able to sleep in a quiet atmosphere and that everything is individually taken care of – those were the two main things," continues Foerster. "It's the same for our First Class Terminal – the minute you arrive, you are looked after. There are no lines, no hassle, and no stress. Everything is very calm. You are met at the door, escorted through security, and when it's time to fly you are taken by limousine to the aircraft." With two flight attendants for just eight passengers, the exclusive service continues on board.

**FIRST IMPRESSIONS** The first impression upon entering the cabin is one of spaciousness, inviting passengers to relax and unwind. To provide more headroom and create the feeling of a lounge, the airline has removed all overhead bins. Instead, each passenger has an individual, full-height, lockable closet, as well as generous storage facilities around the seat, including space in the ottoman for a shoulder bag or laptop.

Foerster says a concept with separate 'mini-cabins' was deliberately rejected early on after customer surveys and inflight tests uncovered a clear preference for a more open-plan design. Having fully enclosed suites would probably also have meant moving first class down onto the wider main deck with its more forgiving, straighter sidewalls.

Privacy is, instead, provided using flexible screens in each seat, which passengers can electronically raise or lower as required. However, in the interests of etiquette, crew members raise the screens between central pairs: "Our customers told us they didn't want to appear rude to the person sitting next to them," explains Foerster. "So as soon as the aircraft is at altitude, the crew asks if it's alright to raise the privacy screen – if they don't say, 'No, we want to talk', then the screen is raised." Foerster points out that over 90% of Lufthansa's first-class passengers travel alone – consequently the outboard 'single' seats are more popular than central seat pairs.

**SOUND CHECK** To ensure a quiet atmosphere conducive to rest, work or sleep, sound-absorbing curtains partition first class from the rest of the cabin, while sound-insulating



## colour and trim

The cabin's colour and trim palette borrows heavily from Lufthansa's First Class Terminal, with beige, caramel and chocolate fabric, suede and leather materials teamed with dark 'oak', white gloss paint and 'stone' finishes – the 'German Granite' floor in the bathroom is a printed laminate featuring a custom vein design for each tile instead of a repeat pattern. Meanwhile the 'wood' panelling is actually a timber-effect foil from Schneller. "You can hardly tell the difference between the real oak in the lounge and what we've got on board," says Luke Hawes of Priestman Goode. "It's not flat – it has little indentations to give a more authentic feel. I'm also pleased with the finish on the IFE monitors, which makes them look more like high-end home entertainment systems."

material in the aircraft's outer skin reduces engine noise, and a sound-dampened carpet helps block noisy footsteps. "We put insulation below the carpet so the noise of somebody walking past a sleeping passenger won't wake them up – that makes a big difference because if you get startled in the night, it can be hard to fall asleep again," explains Foerster. "With the curtains and the sidewall insulation, it's amazing how much quieter it is. We've had lots of customers say this is the first time on an aircraft that they did not have to use earplugs or headphones to get to sleep."

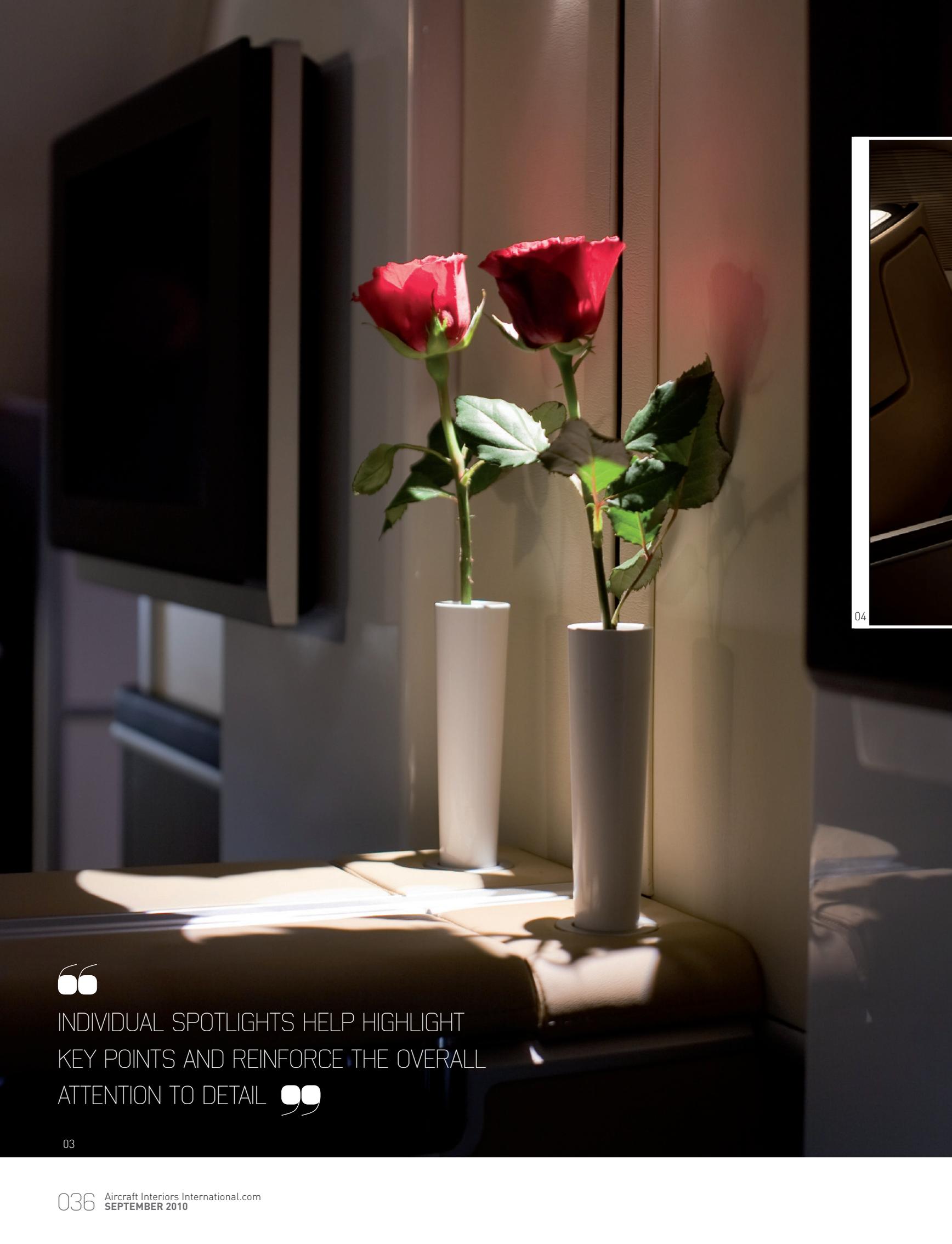
Overall, Foerster says such measures have helped reduce noise levels within the cabin by five decibels: "That doesn't sound a lot, but it's actually quite a big deal." All the sound dampening material adds cost and weight, particularly with regard to the sidewall insulation, but Foerster says it is probably a lot less than the water carried by Emirates for its first-class showers. Lufthansa believes the extra investment is worth it, as it directly corresponds to the top priority of customers – a good night's sleep.

The airline had originally planned to have a set of sliding doors, rather than the sound-absorbing curtains: "A lot of passengers get upset about noise pollution from the

galley," explains Foerster. "The sound of espresso makers or other equipment in use during the flight, so that's why we put sound curtains there. We wanted to install sliding doors at first and we even had a sliding door developed that you could walk through in an emergency as required by current legislation, but the authorities wouldn't let us put it in."

**WATER TREATMENT** However, the airline was more successful when it decided to install a cabin humidification system – the first of its kind on a commercial aircraft. "Everybody notices how you have a dry nose and dry eyes when flying – so we felt that in terms of being comfortable, this would be a real improvement, especially when sleeping on night flights," explains Foerster.

CTT Systems supplies the technology, which is line-fitted by Airbus: "We wanted to make sure the warranty on the airframe stays intact so Airbus had to do that, even though Lufthansa Technik could install it too," she says. "Obviously there were discussions with the board about the humidification and the sound measures, but we felt both were worth the weight. We had a very clear path in



04



INDIVIDUAL SPOTLIGHTS HELP HIGHLIGHT  
KEY POINTS AND REINFORCE THE OVERALL  
ATTENTION TO DETAIL





our minds of what we wanted to achieve for our customers and were able to convince our management to go for it.”

A custom mood lighting programme further contributes towards passenger wellbeing, while individual spotlights and feature lighting help highlight key points and reinforce the overall attention to detail.

**REGAL RECLINE** The newly developed seat converts into a bed 207cm long and 80cm wide. “My favourite piece of the whole thing is the seat itself,” says Luke Hawes of Priestman Goode, which worked with Lufthansa and Contour, the seat manufacturer, on the project. “It’s one of the biggest around – it’s very, very wide and it feels like your sitting on a throne. We did a lot of work on the ergonomics, for example the angles of the armrests; and we also worked hard on the styling, particularly the back shell, to give it a very contemporary yet classical feel.”

The design team adjusted the slope of the seat pan to improve comfort upon first boarding: “When you were nose up in flight, the seat had a very nice feel, but when you sat in it on the ground, passengers said it felt like the seat was almost pushing them out,” explains Foerster. “So we adjusted the tilt until it was more welcoming and gave the passenger the feeling, ‘OK I’ve arrived now’.”

Dampener hinges and extra foam are incorporated into the seat and credenza to further reduce noise in the cabin. Another nice touch sees recessed metal finishes in the leather armrests – to avoid a cold sensation on the passenger’s skin. There’s even an antimacassar featuring extra padding to act as



THE GERMAN FOOTBALL TEAM’S DOCTOR  
USED THE BED COMING BACK FROM SOUTH  
AFRICA AND WAS VERY IMPRESSED



a thin pillow: “It’s not a bit of cotton or leather flapping around – it’s all very high comfort,” says Foerster.

The same attention to detail has been applied to the separate bedding, which was developed with Charité University Hospital and Research Centre in Berlin – Germany’s leading sleep institute. “The German football team’s doctor used the bed on his way back from the World Cup in South Africa and he was very impressed,” reports Foerster. “During development, we tested the mattress, pillow and duvet in flight – we made the pillows bigger and the duvet thinner in response to passenger feedback.”

**STAND AND DELIVER** Instead of just a washroom with a lavatory, passengers are treated to two luxurious bathrooms on either side of the stairwell, each featuring wash and changing zones separated from the lavatory area. There’s plenty of space to move around in and each bathroom is equipped with various amenities, including the first ever

**03.** A spotlight picks out the iconic Lufthansa first-class rose

**04.** Each seat converts into a generous bed, with luxurious duvet and pillow

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urinal on an aircraft. Foerster admits the airline took a long, hard look at adding a shower, but decided against it: “The main issue is that the shower quality on board is not up to what our customers expect from the other environments they are used to,” she says. “And in the last two hours before you land, the bathrooms are blocked and nobody can go to the lavatory.”

Other ideas of what to do with the space (the bathroom is five times the size of the average first-class lavatory) included a business lounge, massage zone, bar, office, library and restaurant: “We looked at everything, but in the end the customers told us very clearly that what they wanted was a place to get changed,” says Foerster. “That’s why there is a bench, so you have somewhere to put your suitcase and pack or unpack, and there’s a generous space separate from the toilet for passengers to get changed in.”

For the benefit of female passengers, the urinal is hidden from view by a discreet door. “There is a sign on the urinal door showing a little man but most of the passengers on the first flight only noticed the urinal when they were sitting on the lavatory – but we have a lot of frequent travellers, so I’m sure most of them are aware it’s there now!”

Foerster says the airline saw little benefit in installing gender-specific bathrooms: “The vast majority of our passengers in first class are male, between 40 and 70 years of age,” she says. “So one bathroom would be virtually unused, while there would be a line of customers waiting for the other.”

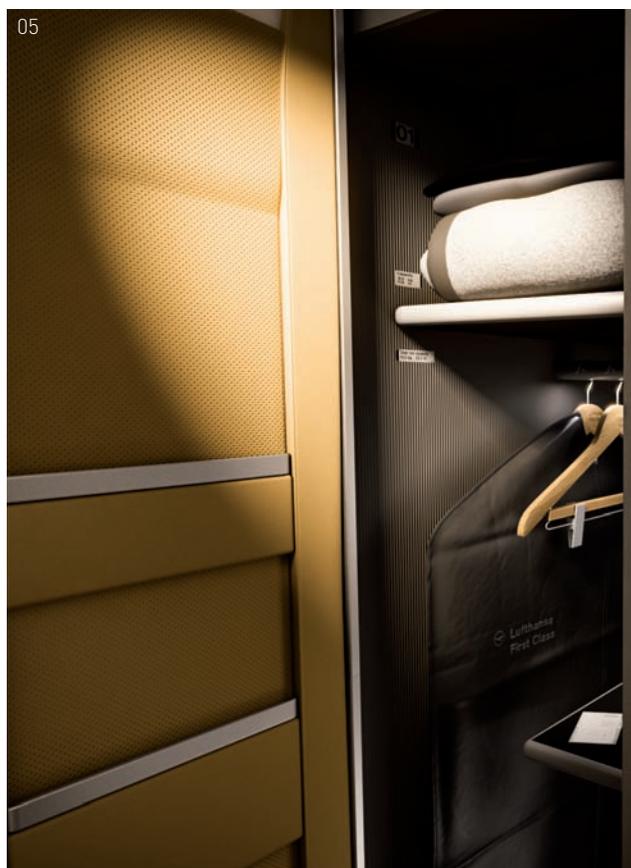
The mirror and the washbasin are opposite the outer sidewall: “It’s the only way to ensure passengers can actually

““

IN THE END THE CUSTOMERS TOLD US VERY CLEARLY THAT WHAT THEY WANTED WAS A PLACE TO GET CHANGED” ””

## expert advice

Lufthansa is in the fortunate position of being able to call upon leading VIP completion centre Lufthansa Technik (LHT) to help solve any cabin engineering problems: “We do not have to rely solely on a seat supplier to tell us what’s possible and what’s not,” says Christina Foerster, Lufthansa’s general manager, product management (intercontinental). LHT also helps write the technical specifications: “These give really defined parameters of what’s acceptable and what isn’t – everything, right down to the last tenth of a millimetre, is scrutinised. The noise generated by an actuator, what table deflection is acceptable, even the width of split lines. The contract means the supplier has to do something about it if it’s not OK – otherwise there will be a penalty to pay.”



- 05. Personal wardrobe with custom leather stitching
- 06. Colour and trim detail showing range of finishes
- 07. Easily accessible seat function buttons – with further options concealed under a panel



08

## key features

- Eight suites convert into 82in-long (207cm) beds with intuitive seat control functions, large, adjustable table, moveable ottoman, flexible privacy screens, and armrests that lower automatically to increase bed width to 32in (80cm).
- Sidewall insulation, soundproof curtains and sound-insulated floors combine to lower overall noise in the cabin by 5dB.
- First commercial aircraft to feature an air humidification and zonal drying system, to help improve air quality in first class.
- Two large bathrooms featuring the first onboard urinals and areas for washing and changing separate from the lavatory zone.
- Overhead luggage bins removed to increase the impression of space – instead personal wardrobes provide plenty of storage options.

08. First class sees an open cabin design with eight suites in total

stand up,” says Foerster. “We wanted a full-length mirror to accentuate the space, while the back lighting further enhances this.” To protect passenger’s modesty, the mirror opposite the lavatory is shaded. Lufthansa worked with müller/romca Industrial Design on the bathroom.

**RETROFIT PACKAGE** Lufthansa’s second A380 entered scheduled service at the beginning of August – the two aircraft now provide daily service between Frankfurt and Tokyo. A third aircraft joined in September, flying from Frankfurt to Beijing three times a week. Each aircraft features 526 seats in total: eight suites in first class and 98 seats in business class on the upper deck; and 420 seats in economy on the main deck.

The airline plans to retrofit a “similar” first-class product to its entire long-haul fleet: “We’re starting with the Airbus fleet this winter, and then we’ll look at our 747 fleet,” says Foerster.

“It will have the same look and feel but some things will be different – we can’t have such large bathrooms, for example. We’ll fit the entire fleet with similar seats, and bathrooms with the same styling – but it will take time.”

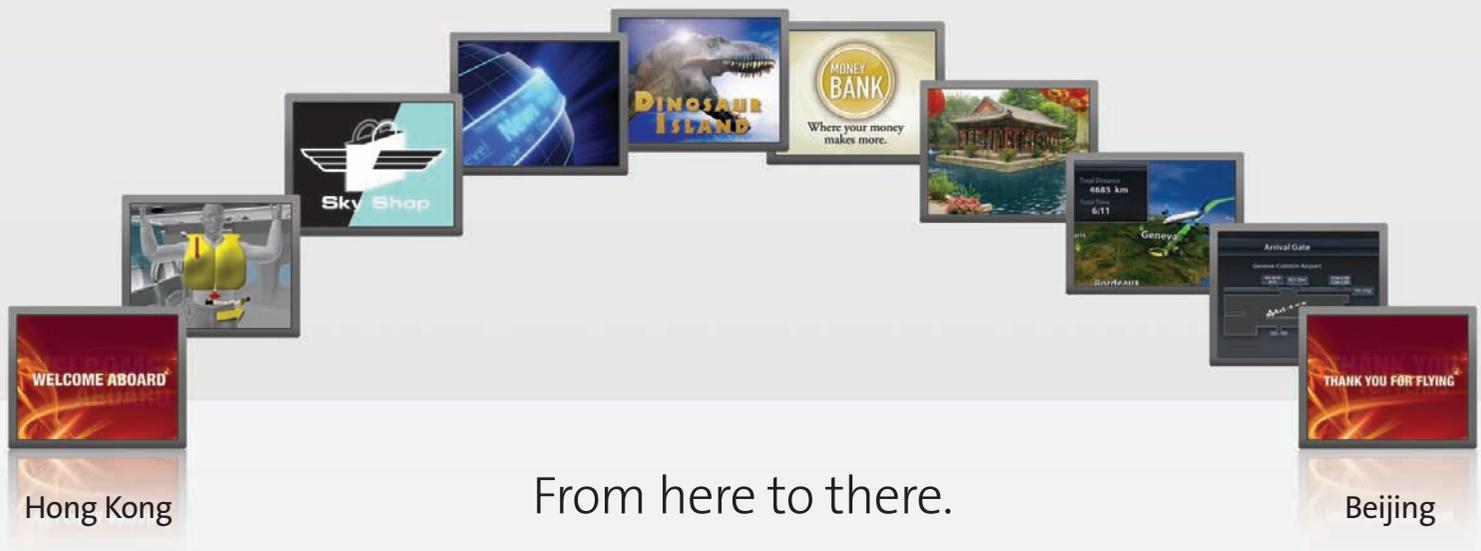
The airline also plans to introduce a new business class. Currently its A380s feature an enhanced version of its existing Recaro CL 6510 units: “Fundamentally, the A380 product is the same as that launched on the A340-600 fleet in 2004, but we’ve refined and upgraded it,” says Hawes. “We’ve got a better position for the monitor and a more accessible and bigger literature stowage in the shell. We’ve also bulked the shell out to give it a bit more strength and presence, and we’ve used different textiles, a new headrest shape and different foam.”

Foerster explains the airline originally expected to receive its first A380 in 2007 – when its business class would have only been three years old. “Obviously now it’s much closer to the end of its lifecycle,” she says. “At Lufthansa, we try not to rush into decisions, because if you get it wrong and make a lot of changes after introduction it does not give a very good impression to the customer and it costs a lot of money. The A380 kept slipping a few months and then another few months – but there was never enough time to really switch to a new product.”

However, Foerster says a new business class will be available on its new 747-8s “for the beginning of 2012”. The carrier continues to see a strong demand for business travel, hence the new product will have to maintain, if not improve, current seat counts. A conundrum that is currently keeping Foerster and her team awake at night – unlike those lucky few flying first class on Lufthansa’s new A380s. ☒

## CONTACT

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# thirdforce

Diehl's acquisition of Dasell Cabin Interiors underlines the German industrial group's ambition to become a supplier of complete, integrated cabin systems

BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL



The four years since Diehl merged its avionics subsidiaries to form the Diehl Aerospace joint venture with Thales have seen the two companies join forces again to acquire the former Airbus cabin systems plant at Laupheim. Earlier this year Diehl Aerosystems acquired a second Airbus offshoot, Dasell Cabin Interiors in Hamburg. So what happens next? Rainer von Borstel, who is due to succeed Rainer Ott as president of Diehl Aerosystems at the end of September, has been working as a member of the Diehl executive board since April. In July he briefed *Aircraft Interiors International* on the division's strategy.

Before joining Diehl, von Borstel spent 23 years with Airbus, where his last role as head of the cabin and cargo centre of excellence included responsibility for the Laupheim plant that became Diehl Aircabin in October 2008. "I was managing and responsible for the entire cabin and cargo value chain," he says, "from architecture and customer definition to production of parts in Laupheim."

The background to Diehl's approach is its view – one it shares with the OEMs – that air transport will continue to

grow at an average rate of 5% per annum. "We believe that, so it's really worth investing money and effort in aviation," von Borstel stresses. In the last three years that conviction has translated into a strategy for growth and acquisition that he says has been vindicated by market development.

**PACKAGE DEAL** Diehl Aerospace is producing the cabin lighting for the Boeing 777 and 787 and Airbus A380; and developing the lighting system for the A350. It also makes the door and slide control system for the A380. Diehl Aircabin is investing more than €100 million in production facilities for floor-to-floor A350 interiors, including crew rest compartments and air ducting, while continuing to turn out sidewalls, ceilings, hatracks, crew rests and other cabin furnishings for the A380 and other Airbus models. Dasell's product line includes lavatories for all Airbus aircraft and such innovations as the Emirates A380 first-class shower spa.

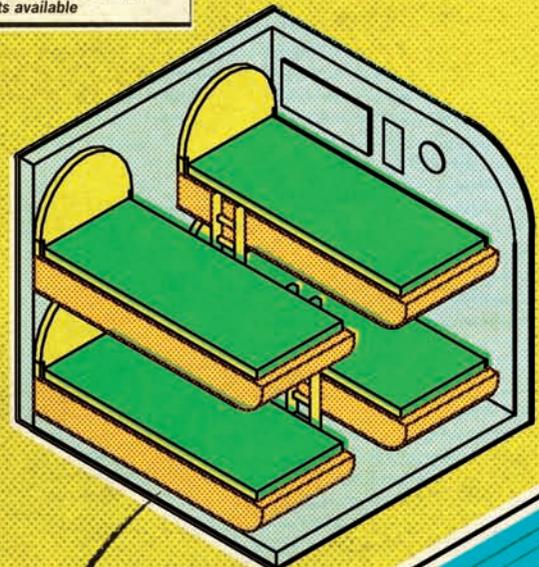
The immediate priority for all three, says von Borstel, is operational excellence: "We have development programmes such as the Boeing 787 which has not yet entered service

# ACME interiors

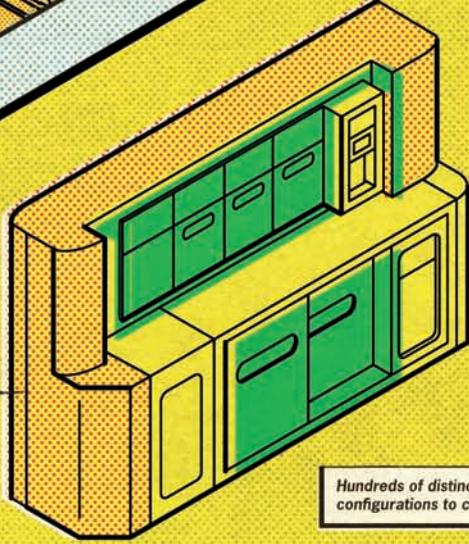
Wide range of lavatories available, including countertop, mirror and cabinet modules

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where we have a huge stake with our lighting system; and we have the A350; and we have our e-shade system on the 747-8. In addition to that we have series programmes: we are on a couple of Boeing programmes with serial deliveries of lighting systems; and of course on every Airbus. So we have to really focus at first on operational excellence, to pass development milestones and deliver everything on time, on quality and with a reasonable profit.”

A parallel requirement, he says, is the need to integrate the new companies and find ways to unlock synergies: “During the past two to three years we have added companies but up to now we have not really taken benefit from their coexistence.”

Beyond that, the next step in the growth strategy is to become a strong player on the retrofit market. “We are developing and producing proprietary parts for Airbus and for Boeing, and we are not really taking advantage of that,” notes von Borstel. Now, following the Aircabin and Dasell

acquisitions, “we can actively penetrate the market to promote retrofits, whether it’s just cabin reconfiguration or for complete cabin change including system adaptation.”

**COMPETITIVE STRENGTH** Diehl is positioning itself in direct competition with B/E Aerospace and C&D Zodiac. In that context, says von Borstel, Diehl’s unique strength is its combination of avionic systems and cabin interior equipment: “We have cabin management systems in our portfolio, we have lighting, we have door and slide management systems, so we have a strong link in our portfolio between systems on the one hand and interiors on the other hand. This puts us in a strong position in the market, because nobody else has that.”

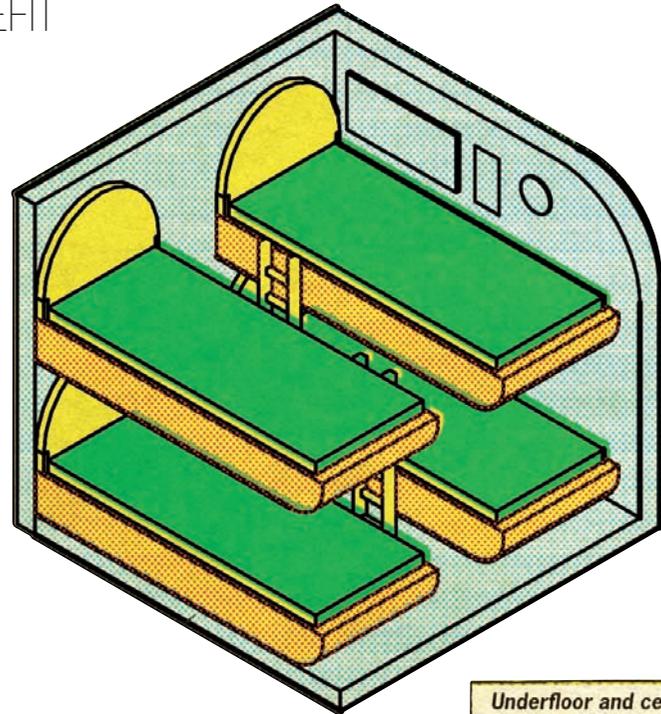
There are still missing elements, von Borstel concedes. But, he says, Diehl did not try to pre-empt Zodiac’s acquisition of galley maker Sell: “It was too early for us, we had so many things on our plate,” he explains. “Of course we know that the consolidation of the marketplace will



WE HAVE ADDED COMPANIES BUT UP TO NOW WE HAVE NOT REALLY TAKEN BENEFIT FROM THEIR COEXISTENCE

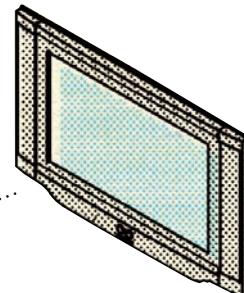


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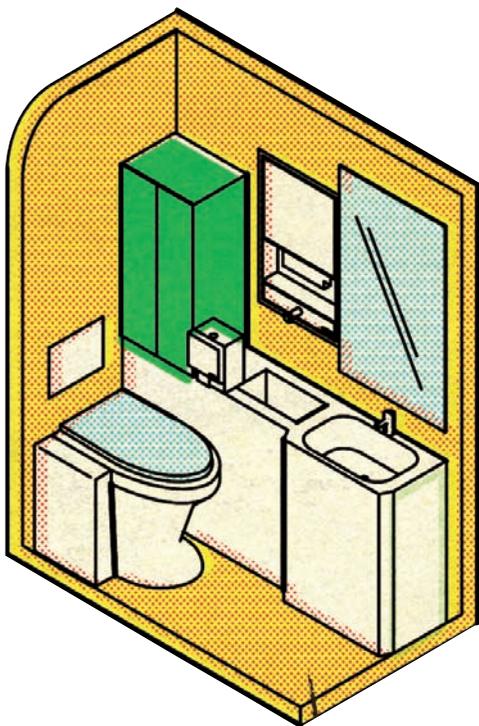
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## written in the stars

July's announcement that Zodiac Aerospace would buy German galley manufacturer Sell from Premium Aircraft Interiors Group was in line with the group's resumption of its external growth strategy in response to recovering aerospace markets. Originally founded in 1896, the company started expanding into the aircraft interiors market in 1980 with the acquisition of a major stake in Sicma Aero Seat, acquiring emergency slide maker Air Cruisers in 1987, seat-maker Weber Aircraft in 1992 and the rest of Sicma in 1993. Subsequent acquisitions include C&D Aerospace in 2005 and galley maker Driessen Aerospace in 2008. Zodiac's other subsidiaries include cabin furnishings supplier Adder and water and waste management specialist Monogram Systems.

The acquisition of Sell, with its 1,250 employees at Herborn in Germany and 2009 turnover of €179 million, further reinforces Zodiac's position in cabin interiors and equipment, which accounted for half the group's 2009 turnover of €2.2 billion. But the group's growth in that and the safety and electrical systems segments of the aerospace market has also attracted interest from Safran, parent of French engine maker Snecma: in July the Zodiac supervisory board rejected a merger proposal from Safran, citing a management board presentation on the industrial content of the project.



I THINK IT'S IMPORTANT FOR THE AIRLINES AND FOR THE PASSENGERS THAT IT'S ONE DESIGN LANGUAGE



continue – it will not be interrupted because we are not ready.” In any case, he adds, the company already has all the capabilities required to develop its own galley: “Of course it would take much longer compared to the acquisition of a galley company, but we could do it. We have a mock-up already in Laupheim of a galley we developed ourselves.”

In the meantime, Dasell is likely to become the subject of a third joint venture with Thales, von Borstel reveals. “We have an offer from Thales on the table, we are in discussions and of course we should be more than glad if Thales joins Dasell as well. We have really built on the joint venture in our Airborne Systems division, we have built on that relationship with Thales and we really hope Thales will join the Dasell acquisition – and anything that happens in the future as well.”

**WIN-WIN?** The advantages of giving a single supplier responsibility for a complete integrated cabin are obvious, von Borstel considers. “First of all you would have one design language, so there is no split any more between the

crew rest compartment and floor-to-floor, for example, or between floor-to-floor and the lavatory – it's all out of one design language. It may be just a question of appearance, but I think it's important for the airlines and it's important for the passenger as well that it's one design language.”

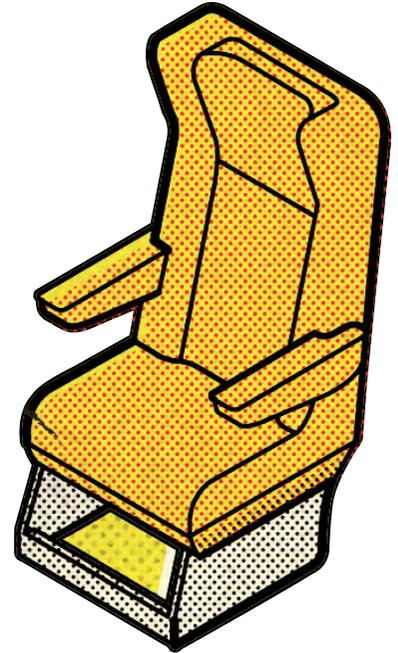
Then there will be technical advantages: “If it's integrated, most probably you can save weight. There will be fewer interfaces for the OEM – in total there may be the same number of interfaces because they are transferred to the supplier, but definitely for the OEM there are fewer interfaces and this is clearly an advantage. It's a win-win situation, if you like. And I'm quite sure that in future the integration of cabins, the physical installation in the aircraft, can be done in a much quicker way than today.”

The potential downside to increasing the scope of a supplier's offer is the increased exposure to delays. “As a main supplier in the cabin world we have suffered a lot from all the delays which happened on the A380, the 787 and so on,” von Borstel agrees. “I believe that the suppliers who are affected by those delays will take a much stronger position for any future programmes because of their delays.”

## big deal

Since its foundation in 1987, B/E Aerospace – named after the two original companies in the group, passenger entertainment and service system and passenger control unit (PESS and PCU) specialists Bach Engineering EECO Avionics – has grown to become the biggest provider of aircraft interior products with sales of more than US\$2 billion. During the 1990s, B/E expanded rapidly in the cabin interiors sector, acquiring seat makers Flight Equipment and Engineering (Feel), Aircraft Furnishing (AFL) and Burns Aerospace; and galley specialists Royal Inventum, Nordskog Industries, Acurex and C F Taylor Interiors. Other acquisitions included IFE equipment maker Philips Airvision, oxygen systems specialist Puritan-Bennett Aero Systems, Aerospace Lighting and other companies in the aircraft interiors and modification field. In 2000, the company sold its IFE business to Thales.

As B/E points out, the development of the Boeing 787 and Airbus A350 have seen the airframers move to reclassify equipment that was previously sold directly to airlines as seller-furnished equipment, with exclusive contracts for the production life of the aircraft. B/E, for example, is the sole source galley supplier for the Airbus A350. It is supplying oxygen systems for both A350 and 787; and LED cabin lighting for the Boeing 737 NG.



Tray table, coat hook, bottle holder, legrest, headrest options available



WHEN I WAS IN CHARGE OF THE CABIN,  
I SAW MANY SUPPLIERS STRUGGLE  
BECAUSE OF OEM RAMP-UP ISSUES



The quandary for suppliers is that there is one obvious way to solve the problem: “We could anticipate delays and build them into our business case for any future programme. But maybe then we are not competitive any more. So we have to see how a solution can be built up. We definitely will take a stronger position, definitely we have to be competitive, but what the final solution is for a future programme, I cannot predict. But most likely there’s going to be change.”

The joint ventures with Thales are working well, says von Borstel: “I joined only five months ago so I cannot tell you a lot about the history, but what I’ve seen in daily life is it really works.” The reason, he suspects, is that the French partner “does not interfere on a daily basis. We have a meeting structure, we have a clear way of working together, a clear relationship, which allows us some freedom on the daily work, but we have frequent reviews with Thales which enables them to judge whether we are on the right track or not.”

For von Borstel himself, moving from OEM to supplier represents a personal challenge. “When I was in charge of

the cabin, I saw many suppliers struggle because of OEM ramp-up issues. Many suppliers were simply struggling and could not follow the speed that OEMs were dictating, and this in combination with the fact that OEMs are giving more and more of the value chain to suppliers. I said to myself, ‘there’s a real challenge, for the next 10 years at least, maybe an even bigger challenge to manage complex programmes on the supplier side rather than on the OEM side.’”

And he is keen to correct any perception that Diehl is concentrating on interiors and neglecting the avionics side of the business. “We will continue to look at avionics as well,” he emphasises, “whether it’s cockpit avionics with Thales or cabin avionics that we do on our own. We have two major pillars in our organisation, one is avionics and one is cabin interiors, which is really unique to us, and we will try to use that combination in the market.” ☒

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# openhause

B/E Aerospace and Priestman Goode have developed the Open Concept Suite – a suave super-first-class product that wouldn't look out of place in your living room

ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL

 Home sweet home – if you want to encourage your premium passengers to feel relaxed when flying, why not give them a stylish product that reminds them of the best in domestic design? This would also ensure the cabin was cut from the same cloth as the contemporary pieces found in the smartest new airline lounges. However, when confronted by the well-documented certification, engineering and manufacturing constraints of the aircraft interiors industry, most airlines and their suppliers have struggled to achieve anything that even comes close to resembling the seductive forms of the most desirable designer furniture back on the ground.

The one exception was Swissair's 'Chair-in-the-Air', inspired by the classic lines of Charles Eames' famous lounge chair. However in reality the product was far too clumsy looking to ever be confused with the real thing. The trouble is airline seats need to be extremely strong and robust to comply with 16g certification rules; and equally bulky if they are to house all the motors, wiring and upholstery required to ensure they convert into a comfortable lie-flat bed at the press of a button.

At least that was the case until now. Or more precisely, since the Aircraft Interiors Expo in Hamburg in May, when US seat manufacturer B/E Aerospace and UK design firm Priestman Goode presented their 'Open Concept Suite' (OCS) – a super-first-class concept offering flexible privacy and a new direction in design language and attention to detail. "We wanted to get away from something that looked like an airline seat to more of a modern piece of furniture,"







“

WE WANTED TO MOVE OUR PRODUCTS AWAY FROM SOMETHING THAT LOOKS LIKE IT ONLY BELONGS ON AN AIRCRAFT

”



## key features

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- An enhanced passenger environment sees electrically controlled privacy panels (forward, aft/side) and video monitor deployment; stowage areas located in the forward and aft areas of the credenza; a bespoke reading light that can be swivelled and aimed; softly illuminated Ottoman; intuitive rotary dial function control offering capacitive switch function selection; and softly illuminated switches.
- Colour and trim details include leather appointed furniture components; wood veneer; chrome plating; and high-durability solid coloured white table and credenza surfaces.

explains Nigel Goode, senior partner at Priestman Goode. “There has been a tendency in the past to produce complex products loaded with features, but I think most passengers, particularly in first class, don’t want so many bells and whistles – or at the very least they don’t want to always be looking at them,” he says. “They just want a really comfortable seat in a very nice environment.”

**GROUND FORCE** “From my perspective, it really came about as a result of the investment that airlines are making in their airport lounges,” says Doug Rasmussen, vice-president and general manager at B/E Aerospace, which has been working on the project for nearly two years. “They’re spending significant time and effort styling their first and business-class lounges on the ground with designer furniture – so we wanted to move our products away from something that looks like it only belongs on an aircraft. We wanted to take both the clean lines and the openness that you see in high-end Italian furniture, while still providing suitable levels of privacy for the various stages of flight.”

Goode agrees: “I think a lot of carriers are coming round to this way of thinking,” he says. “They’re looking at what they’re offering their passengers in their lounges, which is a very relaxed, open and pleasant space. But too often, when they get on board, there’s this transition to an environment where you have to compromise with lots of different controls and finishes.”

Unfortunately aircraft cabins, even in first class, are rather cramped. This creates a conundrum for designers – privacy is all the more important in a confined space, but building high partitions around passengers only serves to increase the overall sense of claustrophobia. “The degree of privacy that you give your passengers is incredibly important,” acknowledges Goode. “Some airlines favour suites with sliding doors and full-height screens that almost create enclosed cabins within the cabin, while others prefer something a little more sociable.”

In response the OCS features electrically controlled privacy panels that enable the passenger to define his or her personal space for working, lounging or sleeping. The 20 to 22in-wide seat converts into a bed 31in wide and up to 84in long (depending on pitch). A 23 x 25in (584 x 635mm) table gently slides out from the credenza using a VIP assist mechanism, providing a generous space to work or dine with a guest. The table is available with forward and aft sliding motion upon request. Video entertainment is integrated into the suite with a vertically deploying monitor that can be stored away when not in use.

Seat functions are controlled via an integrated touch-capacitive switch panel and a chrome rotary dial. Privacy divider and video monitor deployment is achieved via illuminated up/down switches. The custom designed lamp swivels at the base and angles at the head to allow the passenger to focus light for a particular activity. The stylish chrome finish accentuates the minimalist, contemporary design.

# WORLD CLASS ENGINEERING SOLUTIONS



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**HIDDEN DEPTHS** The OCS features a 1-2-1 configuration for all wide-body aircraft, with the seat designed to fit into the existing seat tracks, while the surrounding structure attaches to a hard point, pallet or plinth. However, having such an open look places particular emphasis on ensuring the nasty bits are hidden away: “We’re going to have to be really smart about how we shroud electrical and environmental connections, so that we maintain the look of the furniture,” says Rasmussen. “It’s going to be done through dark shrouding and attaching things back in the guts of the product to ensure we maintain a clean exterior. If you know your attach points, you simply design your furniture to cover it.”

Rasmussen is confident such a design can be realised using existing methods: “It’s not about changing our manufacturing,” he says. “I think the challenge is going to be much more on the engineering and the industrial design side – how do we run wire and make structural attachments while maintaining that look?”

**THIN HEIR** Improvements in three areas have proved crucial, according to Rasmussen: “First of all, we’ve got a lot better at manufacturing and using composite thin-walled panels – and not just pinning things together using flat panels, but using formed composites,” he says. “We’ve had to learn how to run wire through thin composite panels while maintaining the strength of those panels.

## open to offers

Despite teaming with Priestman Goode on a number of very successful recent projects, B/E Aerospace says it has no plans for any official partnership with the UK design firm – or any other for that matter. “They’re not exclusively contracted and we enjoy a good relationship with many industrial designers,” says Doug Rasmussen. “Over the last two years we have worked on our show pieces with Priestman Goode but that’s a result of the fact that we have other projects going with them that provide a foundation for natural discussions. However, next year Expo visitors will probably see another industrial design firm play a prominent role in our first-class display.”

We’ve also done a lot of work in developing mechanisms that have a very thin profile – we can package lift mechanisms and so forth in very thin structures so you don’t need a big piece of furniture to cover up an actuator any more. The third thing really relates to the passenger control unit, which recognises that as the complexity of the technology goes up, we need to come up with ways to interface with the passenger in a very simple, straightforward manner. There was a very intentional design process that went in to the passenger control unit where we have tried to keep it as simple as possible.”

The advance in lift mechanisms is being driven by greater customer demand for ‘flexible privacy’ in the cabin:



## music maestro

The Open Concept Suite includes a set of speakers embedded into the seat: “The idea was to be able to play music at a background level when passengers first enter the cabin,” explains B/E’s Doug Rasmussen. “It provides a higher quality audio experience than the overhead speakers and it also allows the passenger to fall asleep listening to music without having to wear headphones. There’s still some development work that needs to be done regarding noise cancelling but it’s something we are interested in pursuing.”

“We’ve become much better at developing lift mechanisms that operate very reliably and that are very quiet,” explains Rasmussen. “When you design such an open concept, you have to be able to provide a higher level of privacy when the person wants to sleep or watch a movie or just wants more privacy.”

The concept also responds to a demand for simplicity: “We took some electric features out of the seat while still providing all the positions that the passenger would want, but in a way that was weight- and cost-sensitive to the airline,” explains Rasmussen. “We feel more and more motors and a confusing array of options is not always the way to go – instead this is an attempt to provide a simplified but more integrated experience for the passenger.”

**OPEN ROAD** Ironically, Rasmussen believes the recent trend for fully enclosed suites helped tip the industry on the path to such an open design. “There’s always been some reluctance to do anything that looks very different to what’s currently out there,” he explains. “For a long time we had seats with a back shell around them – that idea had been around for a good 15 years but then suddenly you

had all these private suites coming on the market. So you went from a seat that had a traditional composite back shell to an even higher level of privacy that started to move away from something that you would traditionally expect to see on an aircraft. It was then that we looked at trying to offer different levels of privacy: there are customers that believe high privacy is central to their offering and there are some that don’t – for the latter, we wanted to look at the situation with a fresh set of eyes. We also wanted to take advantage of some of the skill sets that we have specific to this business unit in terms of the ability to make high-end cabinetry.”

Rasmussen reports strong interest from those airlines that viewed the OCS during the Expo: “There was a real appreciation for pushing the product towards something that looks more like modern furniture,” he says. He is confident B/E Aerospace will “have an order very shortly” and that the resulting product could go into service by late 2011 or early 2012. ☒

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### CONTACT

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# screen**gains**

Airliners used to carry passengers – now they transport guests, customers or travellers – how can the IFE system help their operators redress the erosion of fare income by turning them into buyers?

**BERNARD FITZSIMONS, AIRCRAFT INTERIORS INTERNATIONAL**

Modern retailing is about engagement, and more and more of it happens online. One signpost to a possible future is the Philips Intelligent Shop Window, which supplements the static display of wares with related information triggered either explicitly by the user touching the interactive window or intelligently through detection of the shopper's interest in a particular product. The window senses the presence of people nearby and adapts its behaviour accordingly.

The interactive shopping experience is already here, though. UK airport technology retailer Dixons Travel has abandoned attempts to illustrate the value of its offerings through comparisons to high street prices. Head of commercial Andy Webb says online has become the dominant reference point for value, to the extent that 60% of consumers refer to the internet before buying. So his company has ditched the high street comparisons, guaranteeing instead to beat the prices offered by online retailers. And it has installed WiFi in all its airport shops so customers can verify the claim before they buy. The result, he says, is that Dixons Travel is trading well ahead of last year despite relatively flat passenger numbers, and customer engagement has improved 50% in 12 months.



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lottery

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car hire

attraction tickets

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01-02. Philips Intelligent Shop Window

Webb was addressing July's ARC2010 airline retailing conference in London, which looked at all aspects of selling to airline travellers, whether off or on airport, before, during or after their flight. Alex Cruz, chief executive of Spanish low-cost carrier and leading exponent of ancillary revenue generation Vueling, told the conference that as well as all the usual unbundled charges such as bag, catering and payment fees, and innovations such as seat selection, PayPal, business packs and connection fees, his airline is committed to adding a new one each quarter. And having seen how its customers have been increasing their non-fare based spend, he is very interested in finding ways to sell more products and services during the travel experience.

Cruz has ideas for every stage of that experience, from booking through check-in, departure gate, arrival airport and after travel. In flight, he lists the four top offerings as food, duty free and gifts, local transport, and products such as lottery tickets. Customised offers and airline products could be next, he says, but very few airlines have the technology to dynamically adjust offers to purchase patterns. Inflight ideas include offers on further airline tickets and car hire vouchers with guaranteed availability at the destination. Apart from identifying the product to offer, he adds, key questions are who takes in payment and whether it is possible to deliver away from the aircraft.

Fare revenue is not enough in short haul, Cruz concludes. But while airlines own the inflight shop and

attendants, they do not want the product, the marketing, the sales process, the fulfilment or the reporting: "Those who provide a painless, outsourced, high-value, multi-platform technology-enabled solution will win," he says.

Richard Cushing, senior vice president with onboard point of sale management specialist GuestLogix, cuts straight to the chase. He says unbundling fares to create new revenues is no more than a short-term fix that does little to enhance brand loyalty. For sustainable ancillary revenue growth, airlines must turn travellers into consumers.

**RED REVENUE** Virgin America likes to refer to its passengers as guests. The latest version of the airline's Red IFE system certainly makes it easier for them to be 'guest consumers'. The Red Store includes the first product line developed by partner SkyMall specifically for purchase through an airline seat-back entertainment system: initial offerings highlighted by the airline include Sony's PSP and the latest Michael Kors tote. But the Red system also offers other ways to spend. The inflight menu system suggests premium food pairings at a discounted price. A custom bar invites guests to order cocktails developed with the input of frequent fliers, social media fans and inflight team mates – a heady enough cocktail in itself – with the end product then delivered to their seat via tray service. And an open tab function allows them to order food, drinks and movies with a single swipe of a credit card.



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03

The custom cocktails, food pairings, open tab and shop have all not only been part of Virgin America's Red roadmap since launch, says president and CEO David Cush. "They have also been requested by our guests," he says. "Onboard ancillary revenue is a growing revenue stream for us and all airlines, and we want to drive it in a way that gives travellers more value-added options they will appreciate."

**GRAPHIC EXAMPLE** "The ultimate inflight application," is Panasonic Avionics product management director Steve Gladstone's assessment of the company's 'neXperience'. Described as a concept interactive business platform, neXperience "works with the aircraft's IFEC system to offer an event-driven, location-aware and content-rich seatback environment," according to Panasonic. It enables content such as inflight promotional offers to be customised to each passenger's preferences and presented within a visual inflight timeline to the destination.

For airlines, that means the application can offer new revenue opportunities, particularly when coupled with real-time broadband connectivity. Panasonic quotes the example of targeted advertising and shopping based on location, destination, activity or preferences, with delivery in flight, at home or at the arrival gate.

Panasonic says neXperience can also drive the onboard food and beverage experience. The application, originally named FlightPath, "elevates the passenger dining experience while enhancing revenue opportunities and improving workflow for the cabin crew," according to CEO Paul Margolis. Meal and beverage options are personalised, again in the context of a visual timeline, and suggested

## connecting consumers

To turn travellers into consumers, suggests GuestLogix senior vice president Richard Cushing, airlines need to provide a unique onboard shopping experience that is personalised, reliable and focused on travel-relevant destination-based offerings. The value this creates in their relationship with customers will result in increased brand loyalty and can drive sustainable ancillary revenue growth by enabling onboard shopping to be extended to all touch points that deepen the customer relationship. GuestLogix' research suggests that more than 50% of travellers will buy on board for reasons of convenience and privilege: they are most interested in tickets to attractions or events and entertainment and transportation offers.

Wireless connectivity has already enabled the onboard use of point-of-sale terminals to process credit cards and other transactions on a store and forward basis: real-time connectivity will facilitate the sale of higher value goods and services as credit card transaction thresholds will not be required to reduce fraud risk. Unharnessed, Cushing says, connectivity reduces itself to instant commodity and leaves significant money on the table: harnessed, it can spawn multiple offshoot products, all individually capable of generating recurring revenue and, in the process, fuelling retail business and brand extensions.

uses of the communication applications include engagement with crew members, friends and family for food pairing recommendations or a virtual wine tasting. Tourist information and restaurant reservations are other possibilities.

While neXperience remains a concept, the Panasonic eX2 IFEC system on the new Boeing 777-300ERs that Air New Zealand is about to introduce will be used to support a new food and beverage service that also involves new oven technology galleys. An order-on-board system rather than the buy-on-board model used by Virgin America, the ANZ approach should halve the number of cabin crew passes through the cabin and even out their workload rather than concentrating it around the meal service.

**TARGETED MARKETING** Having converted their customers into consumers, airlines should be in a strong position to make the most of them. Two years ago IFE system vendor Thales teamed with media specialist Jetera to offer targeted advertising on the TopSeries IFE system. The partners said at the time that discussions with airlines over the previous year had met with a strong response, but hopes of a 2009 launch were thwarted by the impact on the airlines of the ensuing recession.

Nevertheless, Jetera has completed development of the targeted content delivery system software. "It's designed and running," says president and CEO Jeff McChesney, and has demonstrated its ability to deliver advertisements on actual airline software at Thales' demonstration facility. "What we do in our Jetera targeting engine is provide the ability to marry up information from the reservation system of who's

03. 'City guide' screen on Panasonic's neXperience application



04. Receipt from Spirit Airlines with targeted advertisement

actually sitting in which seat with any information that the airline may have on that person that it wants to share with us. Then we append additional data available to buy from data sources, especially here in the United States, to provide highly targeted information that's more relevant and timely and actionable for that passenger. And we can do that dynamically through the IFEC system.”

Putting video advertising inside IFE systems today is very difficult, says McChesney: “You have to try and fit into a pre-roll system, tied into a specific TV show or movie, and then post-roll maybe attach two or three adverts on the back. With our targeting engine, you don't need to attach anything on the front or the back end. An airline can just go out and buy content and then we can dynamically present those ads, one, two, three, five, whatever you want, pre-roll or round the back end. So the ads are actually inserted on the fly on the aircraft, unrelated and unconnected to whatever else the IFE is doing.”

A Jetera video suggests applications of the technology could include offering a passenger with a known interest in wine and cooking a free fusion cookery show with advertising breaks sponsored by a cutlery company and an offer to order its knives. Or a teenager with a hand-held gaming device might be offered a free computer game in exchange for agreeing to watch targeted advertisements.

Introducing the technology does involve some expense on the airline's part: “They have to modify their GUI so that the it will allow us to put audio or video or banner type ads throughout the experience,” explains McChesney. The recession suspended airline interest in that sort of investment, so Jetera turned to another approach: “We've got our entire system built, all the back end, the

communications layer is all built, and we're actually delivering targeted advertisements on the aircraft today, but in a different channel.”

That channel is the receipts produced by the GuestLogix POS terminals that are increasingly common as airlines strive to go cashless. “We deliver the targeted advertisement in simplified form directly onto the receipt,” continues McChesney. A scaled down version of the IFE targeting engine “allows us to do location, time, airline, airport or region that you're going to, class of service and age. Then we built all the connectivity that enables us to put ads through to GuestLogix nerve centre in Toronto, then directly out to all the aircraft in an airline, and receive log data back.”

Spirit airlines went live with the system in April, and by August McChesney was waiting for a decision on a fleet-wide introduction by Delta Air Lines following a successful technical trial. “We're demonstrating targeted capability today on a limited basis,” he says, “but we built all that first in the IFE system and that targeting engine is sitting there ready to go for a full multimedia experience. The dwell time and the engagement time that you have with a passenger through IFE is going to be much greater than a printed receipt. So you could be on the aircraft and we could give you a five-minute microsite of a hotel at the location where you're going or an attraction. You see that Cirque du Soleil is going to be in NYC when you're there, you watch five minutes of what they're doing, you decide you'd like to actually buy some tickets, and you fulfil right there in the IFE.” ☒



04

CONTACTS

[www.guestlogix.com](http://www.guestlogix.com); [www.jetera.com](http://www.jetera.com); [www.panasonic.aero](http://www.panasonic.aero)



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## Panasonic

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# anglegrinder

Every trick in the book is being employed by vendors desperate to help airlines squeeze more seats into business class without any loss in bed length or comfort

ANTHONY JAMES, AIRCRAFT INTERIORS INTERNATIONAL

B/E Aerospace

## Staggered suite

"The impetus for the staggered suite was from a two-class operator with certain restrictions, who challenged us to develop a product that could help it compete using the highest quality seating offering for a premium-class configuration without having to step over a sleeping adjacent passenger," explains B/E Aerospace's Kent Kroener. Featuring a 2-2-2 configuration, B/E describes the suite as a high-density super-first-class (SFC) product, pointing out it offers all the features typically found in a 1-2-1 abreast configuration – i.e. high levels of privacy and direct aisle access. The latter also ensures the cabin crew benefit from direct passenger access to deliver the service.

Seat features include integrated electric seat back recline and translation; mechanically driven seat pan articulation/tilt; a pneumatic 'pillow' headrest; independent electric legrest rotation; mechanically controlled armrest motion; two or four-way lumbar

support/massage mechanism; and preset TTOL, lounge, bed and memory functions. There's also an electrochromatic glass privacy panel or vertically deploying privacy panel; a directional LED reading light; a touch-screen LCD suite control unit for seat, suite and lighting functions; and an integrated video monitor. A large single-leaf, translating table is combined with an ottoman for dining or meetings, with plenty of space underneath the ottoman for carry-on luggage.

All-business-class US carrier EOS offered 50 staggered suites on its Boeing 757 aircraft, before the airline ceased trading in 2008. Indian operator Kingfisher offers an in-line version, with 30 suites on its A330s across two zones; and 36 across two zones on its A340s. B/E estimates it could install 18 staggered or in-line suites in one zone on the 787-8; and 15 staggered units in Zone A on a 747.



**Width between armrests:** 21in  
**Bed width at shoulders:** 27.5in  
**Bed length:** 78in  
**Seat pitch:** 90in (including pass through area)  
**Table:** 19 x 16in



**Width between armrests:** 23.5in  
**Bed width at shoulders:** Withheld  
**Bed length:** 78in  
**Seat pitch:** 60in  
**Table size:** 22 x 12in

Diamond converts into a 78in fully flat bed at 60in pitch

## Diamond

Diamond is a full-flat seat designed for maximum density and living space currently in service with Continental. Diamond converts into a 78in fully flat bed at 60in pitch. Key components have been manufactured using advanced composite construction methods to reduce weight; and the product is scalable for various platform applications in track-mounted configurations. Multiple storage options are positioned for passenger convenience and comfort and include a lower (shoe) stowage, monitor shelf, console stowage and integrated power management with large item stowage.

Drop down armrests maximise bed width and passenger comfort in all seated positions, and B/E says two-motor actuation improves reliability. Privacy is provided through the seat orientation, shell design and privacy screen options; and a 15.4in IFE monitor can be integrated into each unit. Diamond is currently flying on Continental Airlines' Boeing 777 fleet and has also been selected by a major Asian carrier.

B/E Aerospace

## Cirrus

An individual mini-suite offering a fully lie-flat bed, Cirrus' unique reverse-herringbone format ensures passengers face away from the aisle, maximising privacy. Its 1-2-1 configuration also provides direct aisle access for every customer. Single seats face towards the window, providing greater privacy for passengers flying alone. Centre pairs face inwards, allowing passengers travelling together to socialise. However, those travelling alone in centre seats are also guaranteed plenty of privacy as the seats face away from the aisle, while screen dividers and nearly 3ft of space between passengers further ensure a peaceful journey.

An open armrest design provides greater passenger comfort and maximises living space: when the armrest is down, seat width is 27in – providing an extra 6.5in of space at elbow level from the 20.5in when raised. The extra-wide centre console provides additional stowage options and an enhanced sense of personal space. Sicma says the design also provides plenty of space around the passenger's upper body when seated "unlike traditional herringbone designs and other forward-facing seats".

Cirrus can be configured as a high-density 43in pitch business-class product or set at a more generous 53in pitch. Cirrus also provides weight savings of between 20 to 30 lb per suite and is adaptable to various aircraft cross-sections, allowing for continuity across the entire fleet. US Airways became the launch customer for Cirrus when it began offering its Envoy Suite in December 2009.

Cirrus provides weight savings of between 20 to 30 lb per suite

**Width between armrests:** 20.5in (27in when dropped)

**Bed width at shoulders:** 30in

**Bed length:** 77.5in

**Seat pitch:** 47in (varies according to aircraft type)

**Table size:** 20 x 10in (single slab) or 20 x 20in (bi-fold)





**Width between armrests:** 23in

**Bed width at shoulders:** 23in

**Bed length:** 79in

**Seat pitch:** 45in

**Table size:** 22 x 11in

## Vantage

"Vantage's clever design permits more seats in a given cabin space over all other seats in this class, while at the same time increasing customer comfort," says Brian Rogers, vice-president of sales for Thompson Aero Seating. Its staggered configuration allows each seat to convert into a 23in-wide, 79in-long fully flat bed, with all passengers facing forward.

Vantage is fitted directly into existing seat tracks with no pallet required. The seat features three actuators, weighs approximately 72kg and can be installed at a minimum 42in pitch. An IFE monitor up to 17in in size can be fitted as an option. The wide console, which doubles as the footwell for the passenger seated behind, also ensures plenty of workspace.

Launch customer SWISS recently increased its initial order to install Vantage on all its wide-body fleet: it offers 45 seats at 45in pitch in a mixed 1-2-1/2-2-1 configuration on its A330-300s; and 47 seats on its A340-300s at 45in pitch using the same four/five abreast layout, which ensures 90% of passengers enjoy direct aisle access. Complete installation is scheduled for mid-2011. All of SWISS's seats feature Lantal's air cushion technology for extra comfort. Meanwhile Delta has increased its initial order to cover all its B767 fleet. Complete installation is scheduled for 2012 – each aircraft will feature 40 seats at 44in pitch in a 1-2-1 configuration. The latest customer is Finnair, which has ordered five ship sets, and took delivery of its first units earlier this year.

Thompson Aero Seating



**Width between armrests:** 23.5in  
**Bed width at shoulders:** 26in  
**Bed length:** 78in  
**Seat pitch:** 80in  
**Table size:** 21 x 14in

## Zest

Optimares, a new seat manufacturer based in Italy, presented Zest, a yin/yang style concept at this year's Aircraft Interiors Expo in Hamburg. Zest is described by Alessandro Braca, Optimares' CEO, as a 'business/first' product: "Zest has been designed around the requirements and desires of first-class guests, while taking into account the airlines' need to compete in the long-range high-revenue sectors," he says. "We started with two people travelling together and created the seat to accommodate a palette of their possible interactions."

Each seat is 22-24in wide (depending on aircraft type) and converts into a fully flat bed up to 2m in length, with seat pitch at 80in. Every passenger enjoys direct aisle access as a result of its 2-2-2 configuration. Flexible privacy dividers can be lowered or raised as desired; and in-seat sensors recognise when the seat is occupied and even notify the passenger should they leave something behind in the storage tray. An IFE screen up to 16in in size can be installed as an option.

Optimares

Recaro

## Comfort Line 5510

Recaro's new Comfort Line 5510 is an innovative business-class concept seat offering more privacy, designed for medium-haul flights. "Up until now, the seats used in this segment have been based on the primary structures of economy-class models," says Hartmut Schuerg, Recaro's vice-president of product development.

In contrast, the CL5510 features a solid shell, allowing passengers to adjust their seating position without disturbing the person behind them. Schuerg says the shell also helps maximise available space for passengers: "Although the seat is designed for seat pitches at around 45in, airlines might take the living space advantage to reduce seat pitch without sacrificing passenger space."

The seat features kinematics similar to Recaro's popular CL6510 model, allowing passengers to switch between various positions. Lightweight materials (carbon fibre and aluminium) ensure it weighs less than conventional business-class models, helping airlines to reduce fuel burn. The CL5510 concept seat was first presented at this year's Aircraft Interiors Expo in Hamburg, Germany.



**Width between armrests:** 21in  
**Width at shoulder level:** 23.5in  
**Recline:** 9.6in (combined 1.7in aft & 7.9in fwd)  
**Seat pitch:** 42-45in  
**Table size:** 11 x 16in



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# bluewonder

JetBlue celebrates its 10<sup>th</sup> anniversary this year – and continues to hold true to its original values of service and product innovation

FIONA COHEN, AIRCRAFT INTERIORS INTERNATIONAL





When the first JetBlue A320 took off from New York's John F. Kennedy (JFK) Airport in February 2000, it launched a new idea in American air travel – low-cost flying with high standards of service. And it worked. By the end of this year, the airline plans to have 116 A320s and 45 Embraer 190s serving 61 destinations, most of them in the USA and the Caribbean. It is the largest carrier at Boston's Logan Airport, and it also has its own terminal at JFK.

A decade on from its launch, the airline continues with its manifesto of bringing 'humanity' to air travel. All 21,900 of its seats have their own DIRECTV screens with 36 channels of free viewing, plus 13 pay-to-view channels, and 100 XM Satellite radio stations. Passengers are cocooned in leather seats, eat unlimited snacks, and can walk aisles uncluttered by carts or curtains. JetBlue also offers more legroom in economy than other North American rivals: "It's a much more comfortable calm environment," says Rachel McCarthy, JetBlue's director of product development.

The seat pitch on its A320s is a generous 34in, while its Embraer 190s offer 32in pitch. Compare this to other North American low-cost carriers, which offer a miserly 29-30in pitch. JetBlue passengers can also choose to pay a premium (as little as US\$10 on some flights) to reserve a seat in the first six rows of its A320s or the first row of its Embraer 190s, which feature seating at 38in pitch.

No surprise then that for the past six years, it has won J.D. Power and Associates' award for the highest customer satisfaction in a North American low-cost carrier. It even won in 2007, when a February snowstorm disrupted flights on the eastern seaboard for days, making national headlines and briefly ensuring the airline became the butt of jokes on late-night TV talk shows.

**COMFORTING THOUGHT** The idea of travelling in comfort and style has always been central to the company's marketing – JetBlue holds trademarks on the phrases 'Lots of Legroom' and 'Even More Legroom'. This approach remains a central part of its strategy to keep growing and making money as other low-cost airlines expand, and as older, unionised airlines (the so-called legacy carriers) continue to reduce their ticket prices.



WHEN JETBLUE REMOVED A ROW OF SEATS FROM ITS A320S, IT PROMOTED IT AS A COST-SAVING STRATEGY



01



02

- 01. JetBlue offers LiveTV in every seat, offering 36 free channels and 13 pay-to-view channels
- 02. Seat pitch is a generous 34in – some of its A320s feature six rows of seating upfront at 38in pitch, available for an extra US\$10

With passenger welfare at its heart, JetBlue is often described as a ‘hybrid’ carrier – sitting somewhere between a legacy carrier and a rock bottom low-cost carrier, offering more services and charging fewer extra fees than classic low-cost carriers such as Allegiant and Spirit, and considerably cheaper than its legacy counterparts. “It’s a mushy swampy thing in between,” says Addison Schonland, president of Innovation Analysis Group.

It’s particularly refreshing to note that more comfort does not necessarily mean more cost. Take those leather seats, for example. They cost more to install than the usual upholstery, but they last longer and they’re easier to clean. And in 2006, when JetBlue announced it was removing a row of seats from its A320s, it promoted this as a cost-saving strategy – with fewer seats, the aircraft could fly with three flight attendants instead of four.

**ATTENTION TO DETAIL** In the close quarters of an economy cabin, design details make a difference. McCarthy says the company updates its interiors to be “stylish, fresh and witty”. Overall, the airline wants a modern look, distinct from the corporate colour schemes often associated with airlines. “You want the branding to be there but not in your face,” she continues. As a result, the airline favours light-coloured seats and carpeting to give the impression of space, but dark uniforms for flight

attendants. “You want the inflight crew member to be the one that stands out.” McCarthy says the airline is currently looking at updating the lighting and the placarding, and modifying the seat cover colours.

The extra legroom (38in pitch) seats on its A320s and Embraer 190s feature a slightly different finish than their standard counterparts: “We wanted to make it clearly noticeable,” says McCarthy. However, the airline is keen to avoid creating the impression that the extra comfort makes for a different class. McCarthy says it’s important to everyone’s comfort that the cabin feels “egalitarian”. So while the seats are different, they do not stand out too much. “We haven’t used completely different coloured seat covers,” says McCarthy.

**FUTURE PLANS** The company continues to grow cautiously. This year it has scheduled deliveries of four E190s and it plans to start six-year leases on six used A320s from General Electric Commercial Aviation Services. However, it also has longer-term ambitions. In a June interview, JetBlue CEO Dave Barger told the Chicago Tribune he was contemplating adding newer wide-body jets such as the Boeing 787 Dreamliner to handle longer flights. Currently the airline is not close to putting those ideas into action. McCarthy says the product development team is strictly concerned with E190s and A320s.



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03-04. JetBlue's T5 at JFK features a stylish range of dining and shopping options

03

JetBlue, an early adopter of live television, also has a strong interest in the IFE sector. In 2002, it bought its entertainment provider, LiveTV for US\$80 million, and the carrier continues to improve its IFE offer. Recent innovations include a channel guide and enhancements to the map channel, which is one of JetBlue's most popular entertainment offerings. "We've discovered that people are fascinated by watching that little airplane for hours on end," says McCarthy.

Later this year, the airline will announce further improvements, including elements that are part of the airline's plan to offer connectivity. Meanwhile, LiveTV has other customers, including Continental (which is in the process of installing the service on 220 of its aircraft on North American routes), Frontier, WestJet, AirTran, and ExpressJet in North America, Virgin Blue in Australia and Air One and Blue Wings in Europe.



04

## take five

At John F. Kennedy Airport's Terminal 5, opened in 2008, JetBlue aims to create an airport atmosphere that matches the relaxed attitude it cultivates in the air. "It's like our crown jewel," says Rachel McCarthy, JetBlue's director of product development. "We're seeing more and more customers arriving early."

The 72-acre terminal features 20 security lanes, designed for current security protocols. In the area where passengers have to shed their shoes, the flooring is rubber, and there is a broad bench for people to reorganise their bags and tie up their shoelaces.

There's also a range of amenities that reflect the fact that people are spending more and more time beyond the security gates. There's free wireless, lots of places to sit, and lots of places to eat, drink, or buy food for upcoming flights. The restaurants go well beyond the mall-style food court selection typical in US airports. There's a French café, a sushi bar, and a tapas place. You can sit down for dinner with a nice glass of wine, or you can use a touchscreen to have someone deliver food to where you are waiting to get on the aircraft. "It's fun. It feels like a happy atmosphere. It's clean. It's light. It's bright," says McCarthy.

There are no scratchy announcements on loudspeakers. Instead there are plentiful screens with flight information. The idea is to make the passage through the airport, often the most stressful part of a trip, relaxing, and even pleasant. "It's the sort of atmosphere you wouldn't necessarily expect," says McCarthy. "It sets the right tone. If you fly from JFK, I think you have high expectations."



THERE ARE SEVERAL CHOICES FOR HOW TO PROVIDE INTERNET ACCESS IN THE AIR – IT ISN'T YET CLEAR WHICH IS BEST



05. JetBlue provides leather seating throughout

**INFORMATION EXCHANGE** JetBlue was an early leader in providing inflight connectivity, but lately has been taking a more tentative approach. In December 2007, it became the first US carrier to offer WiFi, email and instant messaging, aboard a single A320, dubbed 'BetaBlue'. It did so for no extra charge. In June 2008, it bought Verizon's Airfone Network, through its subsidiary, LiveTV. At the time of purchase the airline said it would use the network as a platform for providing connectivity, but is yet to announce any further plans to widen its offerings.

However, the airline continues to monitor the situation: "We know that customers do want to stay connected," says McCarthy. "There are now several choices for how to provide internet access in the air and it isn't yet clear which is going to be the best one to stick with long-term."

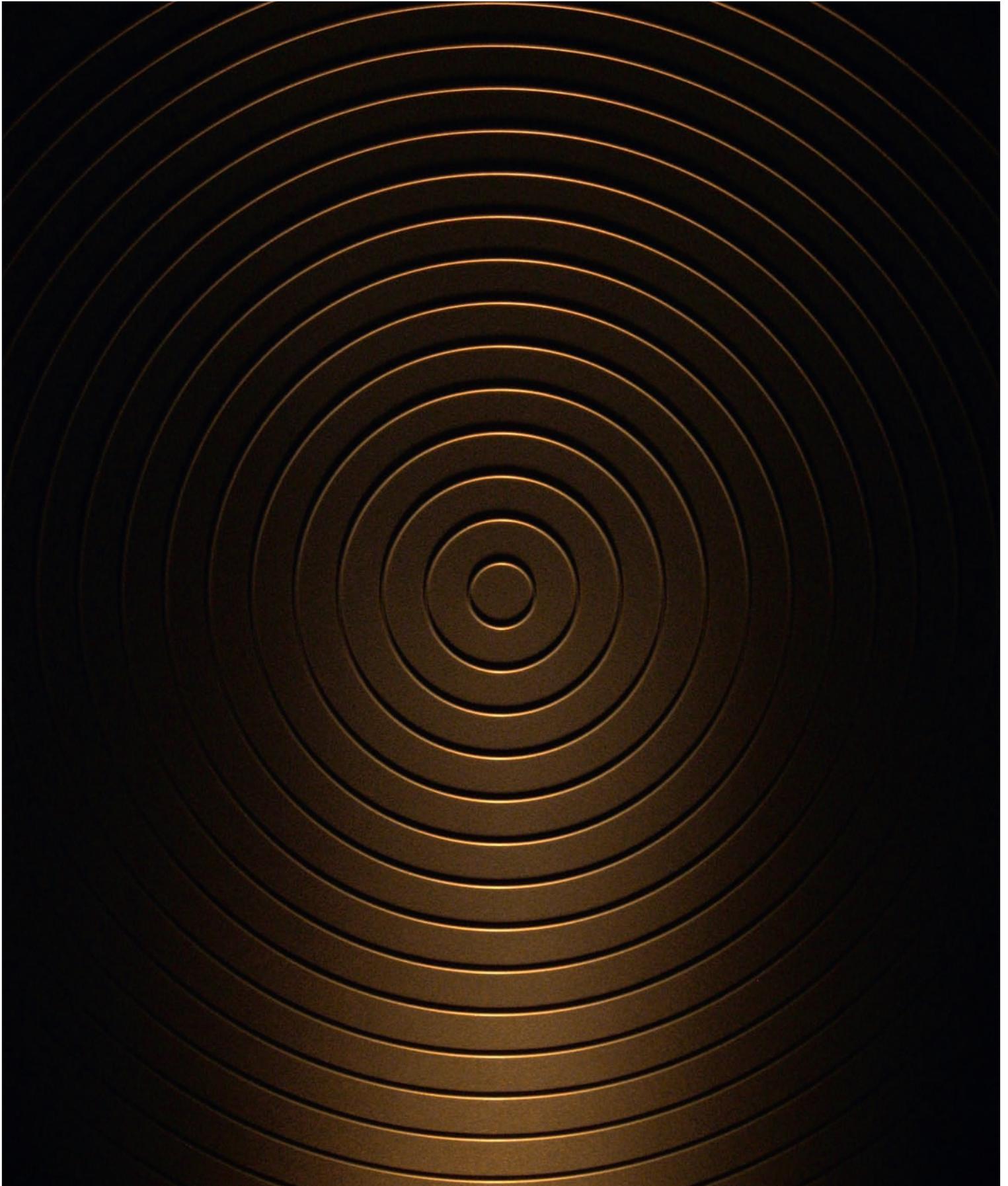
JetBlue has held discussions with several companies about different options: "We recognize that technology is moving at such a fast pace, we want to make sure we have a platform we can really grow from, and whatever we do will be something that is sustainable and something that customers really want."

McCarthy says the airline is planning an announcement in the next couple of months that will highlight changes to its IFE, including connectivity: "We sort of tie in connectivity, and what we want to do for connectivity." She isn't ready to give details but says it is clear that customers want more than just email: "It's about staying connected overall – we want it broader."

Also, customers don't yet expect internet access to be part of flights. McCarthy says that while travellers now take it for granted they'll be able to search the web from a hotel room, it is still a novelty on flights, rather than part of people's routines. Analysts report that typically less than 10% of passengers use the service when it's available.

In the long term, McCarthy says the airline wants to stay fresh, maintaining its commitment to comfort and treating passengers well: "We want to consistently refresh and innovate the product," she says. Welcome news for all passengers fed up with the poor service offered by some low-cost carriers. As JetBlue proves, there is an alternative – and long may it continue. ☒

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# jostling for room

Established giants are competing with an influx of new companies in the economy- and premium-economy seat market, resulting in ever more space- and weight-efficient products

IZZY KINGTON, AIRCRAFT INTERIORS INTERNATIONAL



## Pinnacle

B/E Aerospace's newest coach seating platform, Pinnacle, comes off the heels of its successful Spectrum seat. Pinnacle has already captured more than US\$300 million (£192 million) of awards from various international airlines and leasing companies, and entered service in June 2010. B/E Aerospace says that Pinnacle offers a 15% weight reduction over today's lightest fully featured seat, achieved through the increased use of composites, an integrated comfort suspension system, and a 25% reduction in parts. Pinnacle is designed to be scalable for both narrow- and wide-body aircraft. The seat is configured to order and its modular design allows customers to mix and match features, tailoring the seat to specific market requirements. Pinnacle can also accommodate a variety of IFE options.

B/E Aerospace

**Seat type:** Long- and short-haul economy

**Minimum/recommended pitch:** 28-36in

**Seat width:** Depends on aircraft

**Recline:** 6-7in

**IFE screen size:** Up to 10.6in for conventional, up to 12.1in for integrated seat monitors

**Weight:** Customisable



B/E Aerospace

## Premium Icon

The principal attribute of this premium-economy seat is the fixed shell, which features a seatback that slides down inside the shell without intruding on the space of the passenger behind. The video control box is incorporated into the seat, rather than beneath it, to enhance legroom. The seat uses a comfort system called liveback, designed to provide total support for every shape and size, through every movement and posture. Laptop power, a large tray table and individual, directional reading light provide an enhanced work environment. The seat is equipped with an adjustable-height legrest, an adjustable footrest, and a headrest that can be raised, with movable wings. Variations of Premium Icon are flying with Air France and Japan Airlines.

**Seat type:** Long-haul premium economy

**Minimum/recommended pitch:** 38in

**Seat width:** Customisable

**Recline:** 123° within the fixed shell

**IFE screen size:** 10.4in

**Weight:** Customisable



**Seat type:** Economy and premium economy  
**Minimum/recommended pitch:** 28in  
**Seat width:** 17.3in  
**Recline:** Fixed  
**IFE screen size:** 9in  
**Weight:** 13.7 lb (6.2kg) fully trimmed

## Low Mass Aircraft Seat

Cobra approached the development of its new seat from an ecological standpoint, using advanced materials (metal-coated composite polymer hybrid, no velcro) and manufacturing processes less damaging to the environment. Cobra says intelligent engineering and design has enabled it to produce a short-to mid-range economy-class seat with only 39 parts, for reduced weight, maintenance and part costs. The seat has a fixed back to eliminate passenger disruption, and incorporates an integral storage area for the lifejacket, freeing up room under the seat. There is also a range of cup holder, tray and magazine storage facilities. Seats can be fully customised to meet the needs of individual customers. Depending on certification, the company expects the seat to be available for delivery to market from the third or fourth quarter of 2011.

Cobra

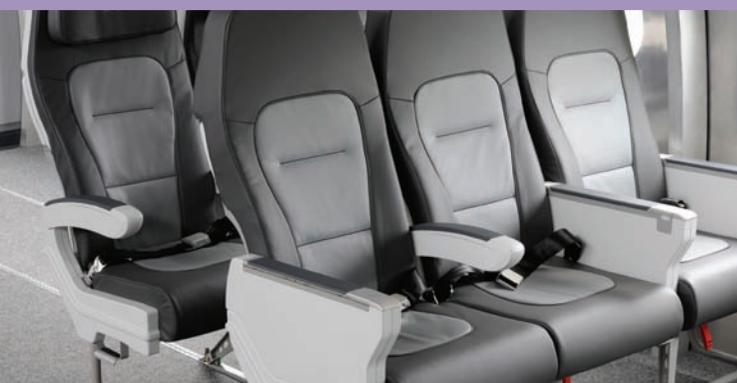
Optimares

## Cube

Optimares' long-haul economy-class Cube seat is one of a complete range of seats (ranging from single-aisle economy to long-range business/first class) unveiled by the company at this year's Aircraft Interiors Expo (held in Hamburg, Germany, in May 2010). Cube has a single-beam frame designed to offer more legroom for the passenger, just like its sister product Key, a single-aisle economy-class seat. The seat has been developed using the minimum number of components, to lower weight and ease maintenance. Optimares offers a long list of options including various IFE integrations, and iPod and computer ports. As well as Cube, Key, and Edge (its long-haul premium economy product), the company plans to unveil two further economy-class seats before the end of the year.



**Seat type:** Long-haul economy  
**Minimum/recommended pitch:** 29/31in  
**Seat width:** Depends on aircraft  
**Recline:** 6°  
**IFE screen size:** 10in  
**Weight:** 28.7 lb (13kg)



**Seat type:** Long- and short-haul economy and premium economy  
**Minimum/recommended pitch:** 28/30in  
**Seat width:** 15.3-18.5in  
**Recline:** 6-9in  
**IFE screen size:** Up to 10.6in  
**Weight:** 58.9 lb (26.7kg) per standard triple

## ECO-01

The development of the ECO-01 family of economy-class seats focused on trying to provide the lowest weight, best reliability, highest quality and passenger comfort. Factors such as the use of carbon fibre have resulted in a weight of 58.9 lb (26.7 kg) per standard triple. ZIM FLUGSITZ says that the modular design of ECO-01 ensures short lead times (a maximum of eight months including ETSO C127a certification), and makes the seat adaptable to all narrow- and wide-body aircraft. The concept enables complete assemblies such as armrests, bumpers and backshell to be customised within a very short time. A wide range of features – including headrests, recline, articulated seat pan, different kinds of backrest and seat bottom cushions, various armrests (full-length, slim) and footrests – completes the product range. In addition Lantal's Pneumatic Comfort System can be incorporated for premium economy. Currently ZIM FLUGSITZ is implementing new styling and additional weight savings for the next generation of ECO-01. THAI Airways is the launch customer for ECO-01 NG. The airline will install the seats on A330-300 and B747-400 aircraft.

ZIM FLUGSITZ



**Seat type:** Premium economy  
**Minimum/recommended pitch:** 36-40in  
**Seat width:** Withheld  
**Recline:** 9in  
**IFE screen size:** 10.6in  
**Weight:** Withheld

## Premium Line 3510

The Premium Line (PL) 3510 has been developed for the rapidly growing premium-economy segment. The seat was designed with an emphasis on passenger comfort and living space, with an optional articulated seat pan working in conjunction with the backrest recline to create a comfortable position. The PL3510 also features an aluminium backrest frame with comfort netting, a six-way adjustable headrest, bi-fold in-arm table with sliding mechanism, and one-piece literature pocket with metal frame. Customisations by airlines include a wide centre console with cocktail table, different backrest shape, armrest and endbay. Other optional features include the integration of a video monitor and handset integration in the backrest, a side-mounted handset for front-row seats, side-mounted audio jack in armrests, PC power, USB port, handicap armrest, literature pocket with net insert, legrest with ratcheting footbar, footrest with ratcheting mechanism, proximity light, and LED reading light. Customer orders so far include Qantas (A380 and B747), British Airways (B777 and B747), Air Austral (B777), Virgin Australia (B777), Alitalia (A330) and Jetstar (A330).

Recaro

Recaro

## Skycouch

The Skycouch is a trio of economy seats for long-haul flights that comes with a legrest that can be folded up to a 60° or 90° angle, creating a lie-flat space across the three seats. The seat features a newly designed backrest with matching armrests that can be folded away when the seats are configured for sleeping. Other features include an extended headrest, swivel-mounted video display and IFE system with PC power, USB and iPod connections. The seatback monitors tilt up 20° and down 30°, for easier viewing when the passenger is lying down. There is also a bi-fold table that enables the passenger to create different table configurations. Air New Zealand will start refitting its long-range B777-300 aircraft with 20 rows of Skycouch seats in December 2010.



**Seat type:** Long-haul economy  
**Minimum/recommended pitch:** 32-36in  
**Seat width:** Withheld  
**Recline:** 6in  
**IFE screen size:** 10.6in  
**Weight:** Withheld



**Seat type:** Economy  
**Minimum/recommended pitch:** 31in  
**Seat width:** 20in (24in at shoulder)  
**Recline:** Fixed back shell, recline is forward with articulating seat pan  
**IFE screen size:** Up to 12in  
**Weight:** 27.6 lb (12.5kg)

## Cozy Suite

The Cozy Suite has now passed its 16g Head Injury Criteria (HIC) development test and after a number of customer comfort trials, is ready to enter service in 2011. Top comfort features include a shoulder width of 24in (61cm), a dedicated sleeping area, and two armrests for each passenger. The seat also boasts a fixed backshell and reclines in its own space, to avoid annoying the passenger behind; as well as a tilt-up seat pan. Available seat customisation options include an adjustable headrest, passive base cushions, and passive lumbar cushions.

Thompson Solutions

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**Seat type:** Long- and short-haul premium economy

**Minimum/recommended pitch:** 38in

**Seat width:** Variable

**Recline:** Up to 16in

**IFE screen size:** 10.6in

**Weight:** 95 lb (43.1kg) for outboard groups,  
135 lb (61.2kg) for centre groups

## B3050 FeatherWeight

Brice Seating's new B3050 FeatherWeight seat has been developed specifically for the premium-economy cabin. B3050 features a flexible material on an articulating seat pan, designed to maximise passenger space below the seat behind while also minimising product weight. The seat is equipped with hydraulically controlled mechanical recline, and passive ergonomic lumbar support. For materials, Brice Seating chose machined and anodised aluminium, and no sheet metal. Many additional options are available to meet specific customer needs and style preferences.

Brice Seating

Brice Seating

## B3500 FeatherWeight

Brice Seating used a flexible material for the seat pan and back of this economy-class seat, which it says provides long-range comfort at a lighter weight. The company has also tried to give more legroom and space for luggage by means of minimal dress cover padding and the elimination of the traditional foam bottom cushion. B3500 is equipped with a fixed seat pan and centre-mounted, hydraulically controlled recline. The seat's high, 45in-profile is designed to enhance privacy, while shorter armrests and a curved tray improve egress. Brice's newest economy seat also features patented, quick-install front anti-rattle track fittings and is available with many additional options.



**Seat type:** Long- and short-haul economy

**Minimum/recommended pitch:** 29in

**Seat width:** Variable

**Recline:** Up to 7in

**IFE screen size:** 9in, compatible with  
top-mounted DPCU

**Weight:** 68 lb (30.9kg)



**Seat type:** Economy and premium economy

**Minimum/recommended pitch:** 28/32-34in

**Seat width:** Customisable

**Recline:** Up to 40°

**IFE screen size:** Customisable

**Weight:** 26.5 lb (12kg)

## Stella

Ancillary revenue generation is the driving force behind Blue Sky's new seats. The company's cabin layout management system enables airlines to upgrade seats, changing the ratio of premium to economy seats without physically changing the seat pitch or having dedicated numbers of seats. Stella converts between economy (with a limited recline), and premium economy, with up to 40° recline, full lumbar support and 6in more legroom – all within a fixed outer back. Armrests fold neatly into the back cushion and the modular construction is customisable for width and comfort. Also available is Sola for medium- and long-haul economy with a limited recline, and Luna, a fixed seat for short-haul economy. The seats are undergoing certification trials and should be in production early in 2011.

Blue Sky



## 5751

Weber's 5751 seat is a derivative of the very successful 5750 coach-class seat. The two primary motivations in designing 5751 were passenger comfort and seat weight. To achieve the reduced weight Weber used composites and aluminium alloys, which it says saves approximately 2.2 lb (1kg) per passenger place. For passenger comfort, 5751 offers a high pivot point recline, coupled with an articulating seat bottom pan, designed to offer maximum recline while reducing the aft intrusion of the seatback into the aft passenger's space. Other features include a flattened IFE installation under the seat bottom pan, which eliminates under-seat clutter from IFE brackets and shrouds. The seat bottom pan can also be easily disengaged by a mechanic and lifted up to allow full access to the IFE components. Additionally, there is a centreline-mounted recline lock to eliminate the racking normally experienced with side-mounted recline locks. The 5751 has been selected for installation on every commercial airliner produced by Airbus and Boeing.

Weber Aircraft

**Seat type:** Long- and short-haul economy

**Minimum/recommended pitch:** 30in

**Seat width:** 17.3-18.1in

**Recline:** Up to 6in

**IFE screen size:** 10.6in

**Weight:** 74 lb (33.6kg) per fully dressed standard triple

Weber Aircraft

## 5810

The 5810 premium-economy seat is designed for long-range aircraft such as B747, B767, B777, B787, A330, A340, A350 and A380s. Standard features include a 5in-wide centre console providing independent armrests for each passenger, in-arm food trays, cocktail tray, handicap access arms, ergonomic cushions, back-mounted bottle netting and literature pocket. Optional features include a video arm, laptop pocket, legrest (which deploys up to 60° above the vertical line), legrest with extendable footrest, aft-mounted foot bar, extended endbay and wide cushions. 5810 can accommodate screens sizes of up to 10.6in for the video arm and the back-mounted video. A handset, noise-cancelling headphone jack, PC power port and internet connection is also offered. The new video arm design incorporates upwards motion during deployment, allowing the use of lower seat tubes and a thicker bottom cushion. 5810 also provides the additional benefit of commonality with the 5751 seat.



**Seat type:** Long-haul premium economy

**Minimum/recommended pitch:** 34in

**Seat width:** 19.3in

**Recline:** 37°

**IFE screen size:** Up to 10.6in

**Weight:** 95 lb (43.1kg) per fully dressed standard double

Also  
making  
waves

### Spaceseat

Contour will manufacture Air New Zealand's new premium-economy seats. Positioned in a herring-bone configuration, the Spaceseat offers two options – an angled double seat for couples, or a more private option for single travellers.



### Gio

Aviointeriors' Gio premium-economy seat is typically installed at 36-38in pitch, and features a cradle system, legrest and extendable footrest as standard. An optional adjustable headrest can be provided.





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# insideout

The fuselage mock-up of its MS-21 single-aisle airliner exhibited by Russian manufacturer Irkut at Farnborough in July included a singularly well appointed cabin by C&D Zodiac

**BERNARD FITZSIMONS**, AIRCRAFT INTERIORS INTERNATIONAL



The MS-21 (MC-21 in Cyrillic) is the flagship project of the Russian aircraft industry, a rival along with China's Comac C919 for a slice of the single-aisle market currently duopolised by Airbus and Boeing with their A320 and 737 families. It aims to win that share by delivering cash operating costs 12-15% lower than its western counterparts when it enters service in 2016. To help achieve that goal, prime contractor Irkut and the Yakovlev Design Bureau, both now part of the country's United Aircraft Corporation, have enlisted the aid of leading western suppliers. In the case of the interiors and passenger equipment, that means C&D Zodiac.

For C&D, the cabin shown at Farnborough was the result of 18 months' work. Unusually, says sales and marketing director Steve Kearsy, it was an "inside out" development: "We designed the interior and the fuselage was sized to match." Of course, the design was done with awareness of industry standard tube dimensions, but C&D was able to optimise the seat-to-aisle width ratio, for example.

The result is a cabin width of 138.3in at head height and 143.83in at shoulder height – 5.39in and 4.86in more than the respective measurements for the A320, which in turn is an inch or two wider than the 737. Those few inches mean that the cabin can be configured either for maximum comfort, with a 20in aisle and 18.5in seats, or for faster turnaround, with a 22.5in aisle and 18in seats. The additional width makes it possible for passengers to pass by each other or to pass a trolley in the aisle, Irkut says, and could help reduce boarding and disembarkation times by as much as 30%.

**CABIN LAYOUT** Irkut is developing its new airliner as a family of three models. The baseline MS-21-200 is 36.7m long overall, the -300 is 5.58m longer and the -400 adds 11m in length. Nominal seating capacity of the three variants is 150, 180 and 210 passengers, though actual loads vary depending on the number of classes and the application. In mixed class, the standard LOPAs for the -200, -300 and -400 show 12, 20 or 24 premium-class seats



01

- 01. LED lighting helps highlight the interior design language
- 02. Galley unit rendering

respectively at 36in pitch, plus 118, 139 or 160 32in pitch economy-class seats for totals of 130, 159 or 184. With 16 premium seats at 38in pitch, the -300 could add another 16 economy seats for a total passenger count of 192. In an all-economy layout, the three models would accommodate 150, 181 or 212 passengers at 32in pitch and 168, 203 or 230 with the pitch reduced to the 29in typical of inclusive tour operators. The economy seat used in the Farnborough mock-up is fellow Zodiac subsidiary Weber's 5751 model with articulating seat pan as standard.

**MODULAR APPROACH** All three models feature a full galley aft and a half galley, plus one lavatory forward. The -200 has two lavs aft in mixed class or one in all-economy; the -300 has three and the -400 four aft in all configurations. C&D extended the modular approach to the lavatories, says Kearsey: "The sink and amenity boxes are modular, they're rotatable items so they are simple to reconfigure and it makes replacement very easy." There are touchless options for the faucet, waste flap and soap dispenser.

The baggage bins, too, are modular: "Integrating the low pressure air and oxygen into the stowage meant we could make massively voluminous bins in a fuselage diameter only



IRKUT ALSO OFFERS WHAT IS BECOMING THE INDUSTRY STANDARD 6,000FT CABIN AIR PRESSURE ALTITUDE



02

slightly bigger than the A320's," Kearsey comments. The bins are sized to accommodate four bags 15in wide, 25in long and 12in high, side by side. Overall, Irkut claims, the MS-21 has more effective stowage capacity per passenger than any currently available single-aisle aircraft.

The window positions and pan shapes are another element that C&D was able to optimise. "The window pan angle opens out so passengers, whether they are the size of US males or Asian females, can look out without having to crouch," Kearsey says. "The window surrounds are sloped so you get a really good look at the glass." The layout also provides passengers with an unobstructed line-of-sight from the seated position into the cabin, which contributes to the impression of spaciousness.

Artificial light comes from red, green and blue LEDs, with their advantages of long life, minimal power consumption and low weight. The lighting system was designed in parallel with the interior shapes so that the two work together. Irkut also offers what is becoming the industry standard 6,000ft cabin air pressure altitude, with three zones of temperature control and optional humidification.

C&D is responsible for the design of the flight deck, which was the result of a lot of studies with ergonomic experts, says Kearsey, and drew on C&D's previous work on



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# ■ JOINT LIFT-OFF



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31<sup>st</sup> May 2010 AES GmbH took over Schütt Elektronik GmbH.

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## ONE VISION

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03

“

WE ALSO TRIED TO GIVE IT A BUSINESS JET FEEL, SO IT'S LIKE WALKING INTO A GULFSTREAM BUSINESS JET

”



04

03. Six abreast main cabin seating  
04. Four abreast premium-class seating

Bombardier's Learjet 85 and CSeries. Everything is extensively configured to fit the pilot, he says, and the larger windows will enable it to accommodate pilots the size of the 95th percentile US male or an Asian female. "We also tried to give it a business jet feel, so it's like walking into a Gulfstream business jet – we tried to achieve that Mercedes Benz feel."

**INTEGRATED IFE** Both premium and economy seats in the MS-21 mock-up feature the 10in screens from fellow Zodiac subsidiary Sima Aero Seat's Seat Integrated Technology (SiT) range. "Each screen has 250GB of self-contained hard drive storage," says Kearsey. "They are optically linked seat to seat, so if one hard drive goes down another can drive the screen. They also run off a driver, so movies, daily news and so on can be updated from one station."

The single access point is the SiT interface box, which can manage up to 720 TV screens. The 1.04kg box has a single 1 gigabit content loading access point and three optical network outlets. The ARINC 802 1GB backbone optical network is certified by Boeing and Airbus. Used to transmit safety announcements and cabin communications as well as content upload, it has single-point Elio optical

## beyond interiors

The Zodiac group's input into the MS-21 programme encompasses much more than the interior design and equipment. Intertechnique is responsible for the fuel, oxygen and neutral gas systems, while another subsidiary, electrical systems specialist ECE, is partnered with Hamilton Sundstrand on the power generation system and distribution complex. ECE is also responsible for the windshield wipers and the overhead panel in the cockpit, while Air Cruisers is supplying the escape slides. "We're very lucky in having a lot of equipment on board," comments C&D sales and marketing director Steve Kearsey.

C&D Zodiac is also heavily involved in the Bombardier CSeries regional jet. The company is responsible for the design and production of the aircraft's interior package, which includes the seats, interiors – including the linings, monuments, bins, galleys and lavatories – plus the oxygen, lighting, insulation and waste and water systems.



SICMA SAYS THE 250GB STORAGE IS ENOUGH FOR 400 HOURS OF MP3, 260 HOURS OF MPEG4 AND 30 GAMES



06



05

- 05. Luggage bins can accommodate four roller bags side by side
- 06. Rendering showing forward lavatory

contacts for ease of installation, connection and maintenance and is free of electromagnetic susceptibility or compatibility issues. An optional pancaked installation maximises legroom under the economy seat.

An electrical optical module or seat power box incorporating a high-speed Ethernet switch forms the seat-to-seat optical and network communications link. Either box converts optical to electrical signals and can connect up to four SDUs. The SDU itself has built-in connections for headphones and USB devices, as well as a 250GB hard drive. Under development are 8-inch/250GB and 15.4in/500GB SDUs: the 10in unit weighs 1.98kg and has a typical power consumption of 24W.

Sicma says the 250GB storage is enough for 400 hours of MP3, 260 hours of MPEG4 and 30 games, with 20% of the storage left free for updates. The associated passenger control unit combines graphic interface navigation with video games joystick, display control, credit card reader and QWERTY keyboard.

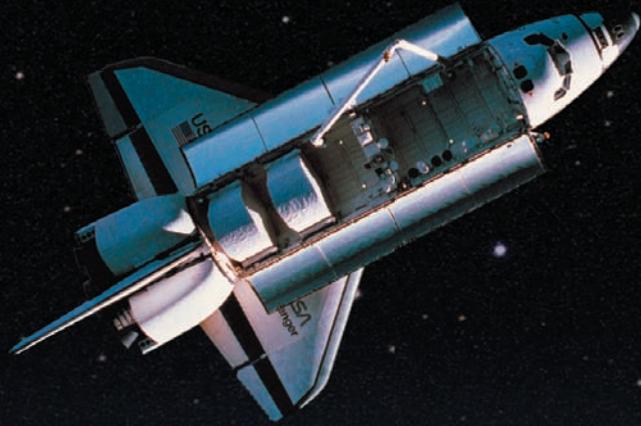
**PASSENGER APPEAL** The MS-21 exhibit at Farnborough underlined the complete transformation of the Russian civil aviation industry over the last 20 years. In the early 1990s,

following the end of the Cold War, Ilyushin, Tupolev and Yakovlev brought their airliners to the show in the hopes of opening up western markets. The interiors of those aircraft, their seats grotesquely uncomfortable in comparison with western equivalents, did little to encourage sales prospects, and the Soviet standards and practices that had gone into their design and construction meant there was little prospect of the western certification their manufacturers hoped for. Instead, a long and painful process of consolidation has resulted in the creation of United Aircraft and the rationalisation of the product line, with the MS-21 representing the next stage of development after the Sukhoi Superjet regional jet.

Like other new programmes in China and Russia, the MS-21 underlines both the global nature of the aerospace business and the extent of supplier consolidation that has resulted in the same names being duplicated across the supplier lists of all current projects. The elaborate mock-up, meanwhile, confirmed the importance of passenger appeal to the success of any commercial aircraft programme. ☒

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# USA 2010

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SkyRider seat

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A two-bunk crew  
rest from TTF

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IMS's Rave AVOD  
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Formation's new  
lie-flat seat

# SHOWPREVIEW

## Three in one

Products to see and events to attend at this year's Aircraft Interiors Expo Americas, which takes place alongside both the APEX and IFSA shows



California's Long Beach will be the setting for the 2010

Aircraft Interiors Expo Americas (AIX), which this year is co-locating with annual conferences and exhibitions hosted by both the Airline Passenger Experience Association (APEX) – formerly the WAEA, and the International

Flight Services Association (IFSA). The event will run from 14-16 September 2010.

When AIX Americas joined forces with the WAEA Annual Conference and Exhibition in 2008, the event attracted representatives from nearly 100 airlines and more than 300 suppliers. With the additional weight of IFSA behind the

event, organisers are expecting to see even greater numbers from both airlines and industry suppliers responsible for cabin interiors, from seating and galleys to IFEC and catering.

"By simultaneously hosting these events, IFSA, AIX and APEX afford attendees the benefit of conducting important business related to the inflight

experience in one location, at one time," says Victoria Stennes, vice president of inflight experience at JetBlue Airways, and president of IFSA. "It is our hope the co-location will prove invaluable to both exhibitors and conference attendees, and will pave the way to more streamlined events in the future."

### SAFETY FIRST

**AmSafe** will display its newest product, a lightweight aviation seatbelt. The product is a streamlined version of its traditional design and nearly 25% lighter in weight. In addition to its seatbelt airbag system and the new lightweight seatbelt, the company designs, services and manufactures cargo nets, tie downs, cabin interior textiles, escape slides and equipment.



### THAT'S ENTERTAINMENT

**Spafax**, which produces IFE content across print, video and digital platforms, will showcase its new content provisioning and loading service. The scheme is already operational at Toronto, Montreal and Vancouver airports, and services the entire AVOD-equipped Air Canada fleet. The company will also present the Spafax Journey Cycle – its approach to IFE that uses consumer media to help airlines to engage more with passengers. The Journey Cycle connects the inflight mode with the rest of the journey experience, using branded content and interactivity. The company believes that content can be part of the customer dialogue across multiple user channels, helping airlines to generate precious ancillary revenues.

### show stand

**Aviointeriors** will unveil SkyRider, a new seating concept designed for airlines that want a stand-up cabin without compromising on passenger comfort. The seat can be configured at 23in pitch, or less with partially overlapping rows. As well as hooks for coats, the seat also boasts a foldable shelf for baggage. The lightweight seat structure is made of tungsten inert gas (TIG)-welded chrome-molybdenum steel tubes, for stability under tension and compression. The company will pursue certification using its in-house dynamic testing facilities in cooperation with the airframe manufacturer and/or the STC applicant.



### LIGHT THE WAY

**Emteq** is featuring ELW83, a 115VAC high-intensity wash light. ELW83 is designed as a replacement for fluorescent systems on aircraft, and is especially suitable for interior ceiling and sidewall lighting for wide- or narrow-body upgrades. Operating directly off aircraft power, ELW83 eliminates the need for ballasts, dimming modules and power supplies. The product also delivers built-in step dimming to 10%, 50% and 100% intensities and currently boasts three colour temperatures.



### WATER BARRIER

**Polymer Technologies** will showcase its Polydamp hydrophobic open cell melamine foams (PHM and PHM-UL), which are designed to provide acoustic and thermal insulation within the aircraft while not readily absorbing moisture. The company says the foams reduce weight, fabrication and installation labour, and eliminate thousand of fasteners. Polydamp PHM can be used with traditional materials such as fibre glass, and also on its own in many areas of the aircraft as self-supporting insulation.



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## Rest assured

**TTF** will display a mock-up of a two-bunk, lower lobe crew rest module; as well as B737, B767, and B777 overhead stowage bins. All products on its display are built by TTF and supplied as part of interior reconfiguration kits. The image shows a modular, cargo system-mounted B767 pilot lower lobe crew rest. This model is built for two pilots and provides each with a seat and 30 x 80in private bunk. Each bunk has a PSU and additional comfort options, such as a padded headboard, custom lighting, personal stowage and air outlets.

The pilots descend from the main deck vestibule into the pilot rest common area. To the left is a full-length hanging locker with door and mirror. Indirect LED lighting and careful placement of controls allows each pilot to have a dark space for sleep, or a lighted area for sitting. The proprietary sound-damping panel construction reduces noise levels to below 70dB.

The company says the installation can be performed in two hours using the cargo lock-down system. The module weighs 525 lb (238.1kg) and is 112in (284.5cm) long, 60in (152.4cm) wide, and 64in (162.6cm) tall.



## AIX Americas forum

The first day of AIX Americas' educational forum will include a panel discussion on the relationship between seat innovation and certification, with Jonathan Norris, vice president of Airbus's cabin design office, and Jean-Pierre Foulon, executive vice president of Recaro Aircraft Seating Americas. Later in the day Neil James, executive director, corporate sales and product management at Panasonic, and Chris Pirie, programme manager at Teague, will talk about collaboration between seat and IFE suppliers. Teague and Panasonic teamed up with Weber Aircraft to develop the Integrated Smart Monitor (pictured), which won a Crystal Cabin Award this year in the industrial design/interior concept category. The Integrated Smart Monitor is a slimline, lightweight seat with a fully integrated touchscreen IFE system. The in-seat monitor and passenger seat were purposefully designed with one another in mind.

The second day will cover topics such as life after beds, and cabin products and

services of the future; plus a speech on what comes first – product or service.

Other scheduled speakers include Kent Craver, regional director of passenger satisfaction and revenue at Boeing; Baden Smith, head of commercial at Altitude Aerospace Interiors; Sanjay Mazumdar, CEO of Lucintel; Wayne Exton, senior vice president super first/VIP at B/E Aerospace; Wendy Sowers, economist at Boeing; Bob Lange, head of airline marketing at Airbus; and Reza Soltanian, president of Regent Aerospace.



## NICE TIME

**Lufthansa Technik** will feature its niceview moving map system and a new camera surveillance system called 'aerosight'. Aerosight enables pilots to monitor cockpit access, cabin and cargo areas. The system can handle up to 16 interior cameras simultaneously, and automatically switches between a colour day-view mode and an infrared night-view mode. Lufthansa Technik developed aerosight for an undisclosed launch customer and will start to offer the system for other customers in the first quarter of 2011.

Niceview provides worldwide high-resolution 3D maps, virtual flight views, and customised flight information. Every passenger can experience a virtual 3D view from a window seat or from the cockpit, day or night, independent of weather conditions. Destination and airport information, such as connecting flights and weather conditions, can be uploaded before or during flight. Information can be presented as overlays, including ticker or banner views. Additionally, niceview is able to show pictures, movies and multichannel audio.



## TOP FLIGHT

**Thales** will show its TopSeries next-generation IFE system featured in seats from leading manufacturers. The company says the system's seat-centric, modular design makes it the sleekest, most flexible, and reliable Thales IFE system ever. The seat display has interface ports for personal electronic devices, and tilt mechanism.

Thales will also feature its new Touch Passenger Media Unit, a handheld capacitive touchscreen device that provides system control and delivers entertainment and communication capabilities much like the seat display. The unit incorporates open source, web-based software that can port thousands of applications similar to consumer devices.

The company will also show the field test results of GateSync, a ground-based wireless connectivity solution created with CSC and Proximity. The solution is now ready for broader deployment.

**CONFERENCE CALL**

**AeroMobile** will be co-exhibiting with Panasonic Avionics Corporation. Senior executives will be on hand to provide information about the AeroMobile service, which enables passengers to safely use their mobile phones and smartphones in flight to send and receive voice calls and SMS text messages. The Panasonic eXPhone hardware, which incorporates AeroMobile technology, will be on display at the Panasonic booth within the Global Communications Suite section. AeroMobile will be using a live counter at the show to illustrate the increasing number of phones connecting to its network on aircraft across the globe. Over three million users have connected to the AeroMobile service since the company launched its service in March 2008, and the system is now installed on 80 aircraft operating over 200 flights every day.

**IFEC UPDATES**

**Rockwell Collins** will feature a variety of IFEC offerings, including its dPAVES single-aisle system. The company recently announced enhancements to the system that include a high-definition (HD) media server, an updated touchscreen flight attendant entertainment control panel, and USB ports for easier data on- and off-loading. dPAVES is also offered as a 737 Boeing Sky Interior IFEC solution. For Boeing, the system also features retractable 12in 16:9 LCD HD-ready displays. In addition, Rockwell Collins will showcase updates to its Airshow moving map system. Airshow Version 2 enhancements include a more realistic 3D viewing experience, with real-time day and night imaging on all maps, more detailed aircraft models, and 10 times more map data, providing more information and detail for passengers during their flight. Airshow Interactive 3D, including new 3D time zone, relative location indicators, and enhanced points of interest, will also be featured.

**rave on**

The **IMS** Company will display its new embedded AVOD system – Rave. The system has a simple architecture, which the company says makes for ease of installation, low acquisition and lifecycle cost, and high reliability. The system is available for installations ranging from a premium-class in-seat upgrade to full aircraft installation.

The company will also show its latest portable media players (PMPs), and its fourth-generation terminal data loader (TDL-G4). IMS says the TDL-G4 provides the latest solid-state and wireless technology for high-speed, bi-directional data management and content loading services while interfacing with different types of embedded IFE systems.

**APEX conference and awards**

APEX's conference will be held on 13 September, covering the latest trends in media programming, inflight broadband strategies, and more. One keynote speaker, Sarah DaVanzo of the Kaplan Thaler Group, will explore how consumer behaviour and social networking is impacting the future of the airline and entertainment industries.

Attendees will also be treated to a number of networking events, as well as the Passenger Choice Awards gala. The

awards, which recognise achievements in the IFEC industry, are decided by consumer voting. Categories include best collateral, best user interface/interactivity, best internet, best video, best cabin ambiance, best ground experience, best overall IFE and best IFE in region. Other honours include the Avion Awards, as well as lifetime achievement and outstanding contribution awards. The conference will also see the organisation officially retire WAEA and transition to APEX.

**SOFT LANDINGS**

**Ultramain Systems** will demonstrate eCabin, a new paperless cabin log and passenger information tracking software product that is accessible via handheld devices such as the iPad. This enables cabin crew to view passenger manifests, track cabin faults, and log new faults at the touch of a button. It can also be integrated with the company's efbTechLogs paperless tech log software, so cabin crew can report technical faults without going through the flight crew.

**ELECTRICAL OUTLET**

**Air Cost Control** (A2c) will showcase new technology products for the aircraft cabin, which can be found on new programmes such as the A380 and A350. The company began 10 years ago as an electrical parts purchasing platform for Airbus and its electrical harness manufacturers. The company stocks standard electrical hardware in its two warehouses in Toulouse, France, and Miami, Florida, USA, for shipment anywhere in the world.



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**CUSTOMER CARE**

**Celeste Industries** will showcase a range of disinfection products – including its Sani-Cide hard surface disinfectant, Sani-Cide food surface contact sanitiser, and Glyco-San potable water tank disinfectant and descaler. Its popular Sani-Com product also offers a new application as a hand sanitiser.

The company will also feature a complete line of products designed to clean, disinfect, and preserve airline potable water systems; as well as its established range of interior cleaners, exterior cleaners, and soaps and sanitisers in disposable bottles. New products in these lines include a no-drip transparent surface cleaner, and a leather conditioner and protector.

**SHOW FLOOR**

**Lonseal**, a vinyl flooring specialist, will introduce two new products – Lonpetite and Lonpetite Eclipse. A twist on Lonseal's line of coin-stamped flooring, Lonpetite features a matte surface with lighter embossing and smaller coin patterning for greater subtlety. Lonpetite Eclipse features the same distinct embossing with the addition of a scattered flecking pattern. Both lines are part of Lonseal's Featherweight collection for aviation, which the company says features vinyl sheets that are 30% lighter than standard non-textile flooring. Furthermore, Lonseal says that all products in its Featherweight collection boast a three-layer construction with excellent slip resistance, sound absorption and dimensional stability properties, as well as both Lonseal's GreenMedic formulation for improved anti-microbial properties, and GreenAir formulation for improved cabin air quality. In addition to its selection of embossed and smooth products, Lonseal offers custom colouring and patterning, wider sheets – both 6ft (1.83m) and 8ft (2.44m)-wide rolls – and a continually updated stock to ensure the fastest order shipment possible.

**fine form****Formation Design**

**Group** will exhibit a full-flat business-class seating concept. The configuration features fully flat beds arranged to allow seat counts comparable to traditional lie-flat-at-an-angle seat products. The arrangement is enabled by a small elevation change incorporated into every third seat. Having filed for patent protection in early 2008, Formation continues to develop the concept and is actively seeking potential airline and/or manufacturer licensees. Formation has extensive aircraft interiors experience and will be discussing its design process and the consulting



product development services it offers. The company works closely with clients, translating concepts into viable production solutions using an integrated digital process and full-scale mock-up facilities.

**IFSA events**

IFSA is hosting numerous networking events at Long Beach – including golf and tennis tournaments (at El Dorado Park Golf Course and Billie Jean King Tennis Center, respectively), various receptions, and evening events. For the second time, it will also run an 'Iron Chef' style contest (on 14 September), with showcases on subsequent days.

IFSA's Government Affairs and Education Committee will also provide an update on world food safety guidelines, with FDA and USDA representatives available for questions. Other educational events will include a presentation by J.J. Sherman

(founder of the law offices of J.J. Sherman and Frank Skinner (strategic marketing professional and mixed media information systems expert) on the marketing benefits and legal restrictions of social networking; speeches by Paul Foley, executive vice president and COO of Mesa Airlines, and Dr Rob Britton, principal of AirLearn; plus a panel session on achieving maximum cost savings through logistics.

As well as announcing the winner of the Chef's Competition on the Thursday (16 September), the organisation will also announce this year's President's Award and foundation scholarships.

**SITTING COMFORTABLY**

**Aeristo**, which specialises in aviation leathers and sheepskins, will unveil further products designed to enhance inflight seat comfort. The company says the new European-made products also allow for weight savings through the use of lightweight materials. The new products include VentiMesh, a passive seat ventilation and comfort material designed for excellent fire-blocking capabilities; and Fyairheat, a nanocarbonfibre heating foil system with no magnetic fields. Aeristo says that as well as qualifying as an RFI shielding material, Fyairheat is suitable for seat, panel and flooring installation. Another new product is Aerovitt, a pneumatic seat adjustment system for lumbar and side support, combined with optional massage systems.

**HEAR NO EVIL**

**Phitek Systems** will show its new lie-flat premium noise-cancellation earphones, which are designed specifically for aviation. The company says the earphones provide up to 18dB of active noise cancellation, blocking 85% of the aircraft interior background noise while allowing passengers to lie down comfortably. The product features easily replaceable earpieces, which allows rotatable use by airlines. The earphone connector is available in multiple ARINC configurations, ensuring fleet-wide compatibility.





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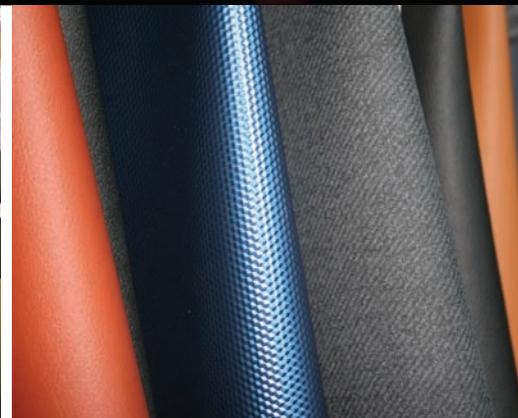
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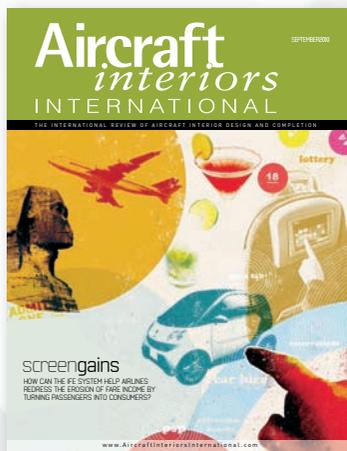
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A concept for a stand-up cabin, designed to satisfy economic and comfort requirements

## vertical take-off

Aviointeriors of Latina, Italy, has introduced a new concept for airlines that want a stand-up cabin. The SkyRider concept is designed to take up less space than classic high-density seating, and can be configured with a pitch of 23in, or less with partially overlapping rows. "It is a winning argument for airline economics and passenger comfort," says Dominique Menoud, director general of Aviointeriors. The company is already reporting strong interest for the concept from airlines around the world, including the USA.

"The SkyRider seat is the result of an in-depth ergonomic study where the passenger's body assumes a dynamic upright position, which is not only comfortable but also very healthy," says Gaetano Perugini, research and development director at Aviointeriors, who developed and patented the new cabin concept.

The company says that airlines could offer reduced ticket prices in the low-fare SkyRider section, maintaining profitability in the regular economy-, business- and first-class cabins, and enabling them to fill the aircraft to the maximum certified passenger capacity. SkyRider also boasts a short parts list, for maintenance economies.

As well as passenger space, the seat also provides space for luggage. A foldable shelf provides support for the baggage without eating into the passenger's foot space. Coat hooks are provided in the aft top area of the backrest.

The seat structure is made of tungsten inert gas (TIG)-welded chrome-molybdenum steel tubes, for stability under compression and tension. The structure is engineered as a vertical

truss to carry the load at the height of the centre of gravity, thereby withstanding horizontal overhang loads and transmitting these to the floor attachments. The lower structure is similar to a triangle in shape – with its top vertex very close to the seatbelt attachment, and the corresponding legs connected to the floor tracks. The two legs are loaded by a widespread axial stress, the front in compression, the rear in tension, exploiting material characteristics.

The company says the seat's geometry enables easy egress in an emergency, even at 23in or less pitch. The seat has also been designed to minimise the likelihood of injuries. For the dynamic 14g down test, the saddle-like seat bottom is linked to two horizontal tubes to absorb the vertical inertia load. Aviointeriors also says the seat yields a lower amount of injury to the head, as the distance from the passenger's head to the front backrest is less than with a standard seat. Meanwhile the backrest structure, made of a honeycomb-core sandwich panel, is held by a thin peripheral tube, designed to contribute to the reduction of injuries.

For certification, Aviointeriors will liaise with the airframe manufacturer and/or the STC applicant, addressing all the aspects this novel design may require, and test the concept in its in-house dynamic testing facilities.

Aviointeriors offers a full range of economy-, premium-economy, business- and first-class seats designed, engineered and manufactured in house, and has to date supplied nearly a million aircraft seats worldwide.

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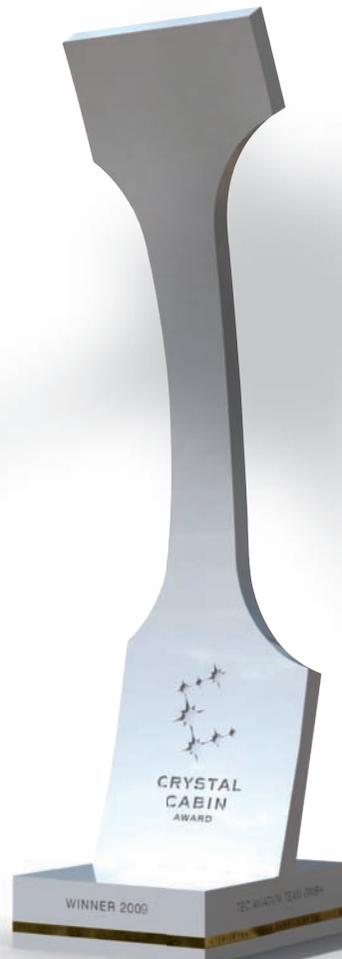


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IFE supplier Lumexis has weathered various storms and is now preparing for delivery to flydubai

## into the light

Over the years, a number of start-up companies have toiled to secure a place in the IFE industry. "Most have survived less than a few short years," says Doug Cline, CEO at Lumexis. "High barriers to entry include expensive environmental qualification and regulatory approval cycles, multiple-year order/delivery cycles for retrofit installations, as well as lengthy and expensive qualification requirements for installation on the production lines of major airframers."

Lumexis, a Californian manufacturer of fibre optic-based AVOD IFEC systems with strong financial backing, is one of the success stories. Created in 2003 by a team of IFE veterans, the company weathered not only repeated industry storms, but continued to advance even through the recent global downturn. Indeed in November 2009, Lumexis landed not only a major new investment of US\$22.5 million (£14.4 million), but also a new launch customer – low-cost carrier flydubai.

Cline ascribes these successes entirely to the company's cadre of managers who had worked together, either at Sony Trans Com (Cline was president during the 1990s), or at Airshow. "Potential investors and customers alike love the management team's broad experience in key functional areas including design engineering, manufacturing operations, FAA qualification/certification, customer support and content services," he says. "That hard-earned expertise immediately establishes confidence in proceeding with us 'old hands' who know the territory."

From inception, the team fully understood the challenges confronting it. "We had to introduce a quantum step up in every element of cost,

including acquisition cost, weight, reliability, software maintenance, and so on," says Cline. "Operators needed a strong incentive to take the risk of striking out in a new direction with an unproven supplier, so we needed to assure them our cost of ownership would be only half of earlier systems – and we are achieving that."

Now flydubai – with its fleet of single-class, 189-seat B737-800s – plans to take advantage of Lumexis' platform to host a variety of revenue-producing applications. The airline plans to exhibit much of its graphical user interface (GUI) at Lumexis's stand at the 2010 WAEA annual conference and exhibition (co-located with Aircraft Interiors Expo Americas) in Long Beach, California in September.

When asked what additional orders have been received, Cline responds that the company, in respect to confidentiality requests, would not announce even signed orders until the customer agreed for them to do so. "But, in addition to any of those, we have seen further, substantial increase in major industry interest since the Aircraft Interiors Expo in Hamburg earlier this year and are in extensive discussions with a number of other airlines," he adds.

At this point, the major activity at Lumexis' new headquarters in Irvine, California, is in putting the finishing touches to flydubai's software. All installation design activity is complete and in-seat components have been shipped to Recaro for installation. Because of the system's simple architecture and low box count, Lumexis has committed to completing its post-delivery modification in less than a week in October 2010.

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Images: Klaus Jordan

A VVIP galley that marries functionality and looks

## finedining

One of the highlights of Aircraft Interiors Expo 2010 (held on 18-20 May in Hamburg, Germany) was a VVIP galley/bar concept integrated into an A340 fuselage mock-up made for the fair. It was an impressive show debut for Loher Raumexklusiv and Loher Engineering, which set out to prove that a galley in the VVIP segment does not have to be restricted to technology and functionality – it can be the centrepiece of the cabin design.

The design goal behind the art deco-style galley and bar was “unostentatious luxury”. This is pursued by combining a subtle lighting concept with precious materials such as Onyx Fantastico, Macassar veneer, gold dust and mother of pearl.

The company has not neglected functionality and ergonomics in the pursuit of style. The galley is designed to allow culinary delicacies to be freshly prepared to the highest standards. Functional elements such as a teppanyaki grill and induction cookers have been incorporated. An extractor hood is included next to the cooker – after use, both are concealed by the sliding red Onyx marble worktop. Specially made pull-out cooling units have also been built in under the bar top. Meanwhile a coffee machine, microwave and induction oven are integrated into the back wall. Care has been taken to ensure these appliances fit in with the overall design – they are hidden behind flexible glass light panels finished with the same Onyx used elsewhere.

Loher Raumexklusiv – run today by Alfred Loher and his sons Alfred Loher Junior and

Roland Loher – was founded in 1931 and specialises in creating high-end interior fittings and one-off pieces of furniture. The company has over 75 years experience in developing and manufacturing exclusive interiors and furnishings for villas, boardrooms, yachts and private aircraft, and prides itself on its dedication to quality. Managed now by the third generation of the founding family, the enterprise has developed into a forward-looking, internationally oriented firm of craftspeople, with a workforce of around 215.

Since April 2006 the company has been licensed by the German Federal Aviation Authority as a manufacturing firm for aircraft interiors under Part 21 Main Section A Section G for C1/C2 Ratings, and can therefore operate as an independent supplier. Loher Raumexklusiv also obtained a licence in December 2007 as an approved maintenance company under Part 145.

Loher Engineering was set up in 2009 and certified as a development company by EASA under Part 21, Main Section A, Section J – enabling the company to offer expertise from a single source, even with complex projects. Aircraft Interiors Expo 2010 was the setting for the ceremonial handover of the certification by EASA, to which numerous guests from aviation and interior design were invited.

The company is gearing up to expand in the aviation and yacht segments, and plans to open another production hall, specifically for these divisions. The 37,000m<sup>2</sup> facility is due for completion in 2013.

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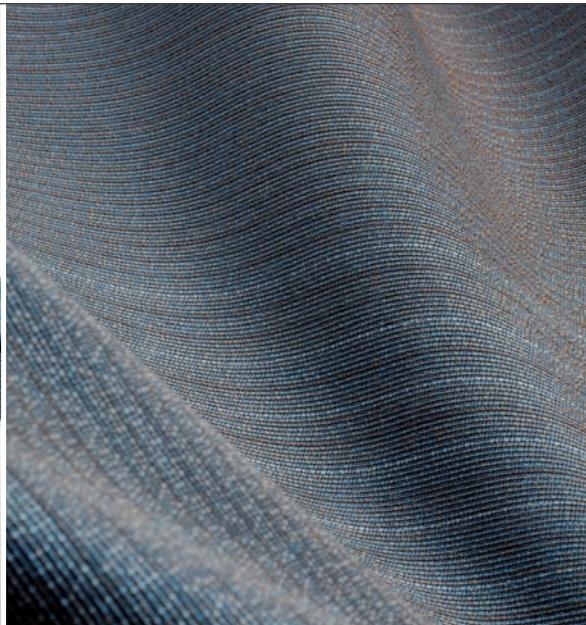
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rohi and Anker  
have just won a  
red dot design  
award for their  
new textile  
concept

## joining the dots

Each year, a jury nominates products from 12 different categories for the red dot design award. Companies such as BMW Group, Siemens and Sony have won this internationally recognised award. In 2010, rohi and Anker received the award for its textile concept, Concept in Harmony.

The concept was designed taking into account an increased demand for premium economy. "For many of those travelling for work, the difficult economic situation has called into question the expense of business class, with its many perks and luxurious surroundings," says Thomas Kaminsky, sales director aircraft textiles at rohi. "In response, more and more airlines are introducing a new class, premium economy, providing business travellers with a premium experience but at a more reasonable price."

rohi and Anker's concept offers three distinct textile environments. "The concept combines interesting textures, a three-dimensional appearance and interacting colours with the interplay of different pattern-repeat lengths, neither monotonous nor brash in appearance, dispensing with customary bold patterns," says Kaminsky. The textiles offer individual looks for each seat, yet are designed for maximised yield during cut and sew.

The appearance of the new textiles changes according to the angle at which the observer looks at it. "Modern textiles are all about subdued woven textures and innovative weave styles that help to create a relaxed but entertaining interior experience," says Kaminsky. "With this concept, the overall impression upon boarding the cabin is

harmonious, but once seated, the passenger begins to interact with and notice the individual character of their textile surroundings. The cabin interior is thus perceived as a consistent concept despite the differences between cabin classes."

rohi and Anker, which are commercially and legally separate entities, cooperate closely every year to produce a joint collection of matching seat upholstery fabrics, curtain materials and carpets for aircraft cabins. The two companies' design teams work together intensively to offer the client a complete textile concept from what is effectively a single source. In addition, the collections can provide inspiration for further development on joint projects for clients. The seat upholstery, curtain fabrics and carpeting are suitable (in both pattern and colour) for use in combination, the aim being to create a consistent visual effect in the cabin despite the need to make distinctions between the classes.

rohi is a family owned and managed company located in Geretsried, Germany, approximately 40km south of Munich. The company employs eight full-time designers, and operates a modern weaving mill.

The company's core business (80%) is in developing and manufacturing seat cover and curtain fabrics for aircraft cabins. The remaining 20% of its business is in providing upholstery fabrics for high-end furniture manufacturers and public project outfitters, for applications such as auditoria and theatre seating. The company is approved by Airbus and Boeing and is certified as per EN (AS) 9100.

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## wastenot

Celebrating its 15th year in business this November, Avianor has come a long way from its beginnings manufacturing catering equipment. Now located in the Mirabel Aerospace Center just north of Montreal in Canada, the Avianor Group occupies four facilities and has over 250,000ft<sup>2</sup> of hangar space, shops and facilities to support its interiors integration strategy.

In addition to interior engineering and manufacturing services via the Avianor brand, the group offers maintenance services through subsidiary Mirabel Aero Services. These services can be performed simultaneously to reduce aircraft downtime. "This 'single-stop' service allows the aircraft owner to take advantage of our extensive on-site interiors capabilities, while at the same time getting maintenance tasks completed along a parallel timeline," says Earl Diamond, executive vice president and COO of the Avianor Group.

While a relatively small player in a sector dominated by a few giants, Avianor has a few distinct niches. For example, the company boasts a successful seat manufacturing operation. Currently supplying crew and troop seating for the Bombardier amphibious group CL-415 water bomber, the company has also kept busy with contracts for search and rescue operator seating. "These capabilities provide strong leverage when it comes to interior and seating modifications, as this skill set can prove invaluable when looking at the 'outside the box' modifications often demanded by today's clients," says Diamond.

While many companies specialise in interiors, Avianor tries to differentiate itself through an adaptive engineering approach. This means that with its team of in-house engineers, the company

endeavours to marry its clients' requirements with both traditional and non-traditional solutions and materials. "The beauty of this approach is that the conception, design, prototyping and installation can all be completed in one place, ensuring a smooth installation and approval process," says Diamond.

For example, in 2009 Avianor was approached to design and manufacture a seat fixture to secure a holder for the Olympic flame, which was to be flown from Greece to Vancouver in February 2010. This fixture was built and deployed in multiple copies for the event, and proved successful – the flame reached its destination without coming out of the seat.

Avianor is also focusing on environmental responsibility. Diamond recently participated in a panel on interiors recycling at the 2010 Aircraft Fleet Recycling Association conference. As a company that buys and sells used interiors as well as manufacturing and refurbishing new interior components, Avianor contributed first-hand market knowledge relating to end-of-life interiors.

The company is currently developing new cabin products that will offer end-of-life recycling using existing facilities and technology. While these innovations are not quite ready for market, the company is currently marketing a range of seat covers and curtains made from dimensionally stable fabrics. "Using these fabrics means that the covers and curtains can be machine-washed rather than dry-cleaned," says Diamond. "The environmental benefits are clear, but in the long run, the life of the covers is extended as machine-washed fabrics are not as limited by flammability issues as dry-cleaned fabrics."

Avianor is trying to save time and the environment

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## The case for laminated seat covers

# wrapstar

Sabeti Wain Aerospace has been designing and manufacturing seat covers for over 28 years, for major airlines and almost all the seat OEMs. One of its most successfully marketed product ranges is its collection of laminated fabric and leather seat covers.

So why are these laminated seat covers proving popular? "For a start, traditional non-laminated seat covers require a lot of attention to look right. They have to be fitted to a foam back and then manipulated for the right fit," says Paymen Sabeti, co-director at Sabeti Wain Aerospace. "Lamination solves this problem. It takes the limpness out of the fabric or leather and allows a 3D shape to be tooled so that every seat looks identical and maintains its fresh and neat appearance for longer."

Both fabric and leather can be laminated, allowing airlines to choose materials that suit their budget and the class of service. "The flexible nature of laminate also makes it very easy to incorporate customised add-ons such as life vest pockets, seat supports, arm caps or acoustic panels to facilitate rest," says Sabeti.

Cost savings are always high on the agenda for airlines. Each laminate cover comes with a 5mm bonded foam backing so the traditional foam back that sits on the seat structure can either be reduced or removed. "Not only does this keep the initial cost of the seat down, but it also reduces the total weight of the seat, which translates into a direct reduction in fuel costs," says Sabeti.

Airlines flying with Sabeti Wain Aerospace laminated seat covers include Emirates, Etihad,

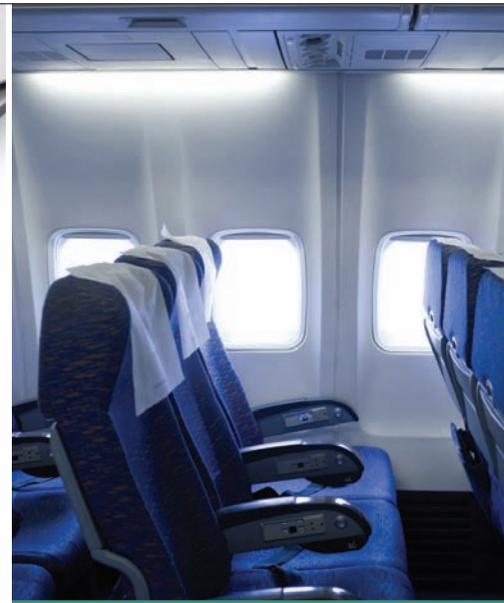
Qatar Airways, British Airways, Thomas Cook, First Choice, Qantas, Jetairways, Jet 2 and Fly Dubai. Sabeti Wain Aerospace has its own in-house lamination facilities, which coupled with its expertise in traditional pattern making, allows the company to incorporate bespoke design and style features into the seat covers. "Our robust lamination process has not only been tried and tested in house over the last 13 years, but also for 10 years with a major airline," says Nick Wain, co-director of Sabeti Wain Aerospace.

On their first purchase of Sabeti Wain Aerospace's laminated seat covers, Emirates, Thomas Cook and First Choice undertook detailed studies of the benefits of laminated seat covers. "When they came to replace the seat covers, they all chose laminated seat covers again. The enduring visual appeal was just as important as the ongoing cost savings," says Sabeti.

The company says the easy-fit design of the laminated seat covers makes them popular with maintenance staff too. In recent years, Sabeti Wain Aerospace has been researching the requirements of airlines with regards to cleaning, maintenance and the replacement of laminated seat covers, so that it can offer a comprehensive post-sales service to customers.

The company designs and manufactures from two facilities – one in the UK and one in Dubai. This gives it the flexibility to switch production from either facility to suit customers around the globe. Both facilities have EASA part 21 Subpart G approval, and both follow the same strict inspection procedures for all products.

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# soundbarrier

Improving the passenger experience is a strategic initiative for most aircraft manufacturers and airlines. Part of that effort involves reducing the noise level within a commercial aircraft. "Acoustic design and noise mitigation is now imperative to providing a successful passenger experience," says Mike Brock, product manager for Rogers Corporation's Bisco range of silicones. "Good acoustic design reduces noise levels with unique design techniques that often require targeted materials. In addition to reducing noise, the materials must offer the flammability, smoke, toxicity, weight and durability performance demanded by the aircraft industry."

There are various ways to mitigate noise within the aircraft interior. One method is to isolate vibrating components such as luggage bins or galley compartments. Often, cellular or solid elastomeric materials are used to isolate this vibration from the source. "One key material characteristic often overlooked is an elastomer's ability to resist taking a compressive set," says Brock. "If the material lacks resiliency and 'bottoms out', over time the vibration transmits and the elastomer has failed to complete its function, ultimately creating noise in the cabin. Many elastomeric materials will permanently deform under compression."

Brock says one of the key benefits of a silicone elastomer is its ability to maintain its structure under compression. "Cellular silicone materials exhibit excellent memory, making them a long-term solution to reducing vibration-induced noise in aircraft interiors," he says. "The test method often used to test a material's resiliency is ASTM D1056, and silicone materials typically rebound to

95% of their initial thickness after 22 hours of 50% compression at 100°C. But not all silicone foam materials are created equal. Platinum-cured foams with post-curing offer significantly better resiliency than peroxide-cured materials."

Silicone foams and rubbers can be directly cast onto reinforcing materials such as aluminium foil or fibre glass. "The ability to cast directly onto another material eliminates a potential source of failure – adhesive delamination," says Brock.

Another method to reduce noise is to block sound generated from a source such as the engine or airflow over the fuselage. "With new composite aircraft this is especially important as the acoustic performance of composite material is different from aluminium," says Brock.

Rogers has developed reinforced solid silicone materials engineered to act as sound barriers in aircraft. "Solid silicone materials are often an excellent choice for aircraft applications because of their reliability in flame, smoke and toxicity testing," says Brock. "In addition, silicone-based polymers maintain physical properties over a wide temperature range, and exhibit extremely low water absorption. Silicone properties have been known to show very little ageing, making them a reliable choice for installations that need to be in place over an extended lifetime."

In conclusion, as airlines look to improve the customer experience, material solutions are helping to mitigate vibration. "Engineered silicone foams and rubbers offer a resilient, long-term solution to many vibration or acoustic needs," says Brock. "Applications throughout the cabin include carpet padding, vibration isolators, thermal or acoustic barriers, and many others."

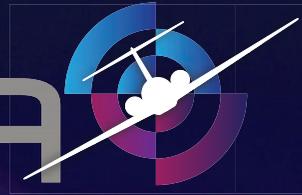
Engineered silicone polymers are being used to reduce noise in aircraft interiors

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## looking up

For Isovolta, modern aircraft interiors must not only be passenger pleasing, but also consistent with the airline's corporate identity, and of course safe in accordance with international aviation rules. The company is producing laminates designed to meet all these challenges.

"Originally decorative laminates were used to raise fire safety on board aircraft, as they fulfil all requirements laid out by FAA regulations. But as airlines need to differentiate from each other, the design aspect of decorative laminates has become more and more important," says Alexander Segel, marketing manager at Isovolta. "Whereas in the 1970s airlines used more simple motif-decorated wallpapers with red and brown colours, the interior of today has moved to white and light grey tones. Motifs, airline logos, and natural images like wood or stone became modern as printing technology improved over the years. The focus has also moved to new textures and surfaces that interact with the lighting, colour scheme and the interior architecture."

Segel says that technically, laminates have not changed much over the decades, but innovations in mood lighting, colour arrangements, and of course the shape of the cabin, have resulted in a greater focus on every detail. New printing technologies had to be implemented, as well as new ways of texturing the décor film.

"Interior demands, for example with the A380, have raised the bar for many designers around the world, and of course for us as a decorative laminate manufacturer," says Segel. "Business-

and first-class cabins have improved the most – not only with better seats, but also with lavish designs. New gold and silver colours, wood and stone images and to finish, special colour tones and new textures had to be realised."

For the A380, the company was tasked with producing new luxurious laminates. "All parties – designers, monument manufacturers and us as the decorative film manufacturer – had doubts, but with right focus, concentration, and by stretching the limits where necessary, we unveiled results beyond even the customer's expectations," says Segel. "Stair houses with beautiful colour and texture arrangements, sidewall linings with modified textures for 3D formability, and metallic designs for other cabin facing walls are just a few of the innovations."

The designs are already in service. "These experiences strengthen our confidence that ongoing design developments for the A380 and other interior programmes will be as successful as the ones already flying," says Segel.

Looking to the future, Segel notes it is difficult to predict trends in colour and design. "In any case, a lot of passion, creativity and technical improvement will ensure that the cabin of the future will be safe and well designed," he says. "Over the decades, decorative laminates have proven to be the perfect solution for both cabin interior design and cabin safety. Every time we raise the bar with new designs, colour schemes and textures, we open up a new door that inspires us, our customers and partners."

Laminates, once a purely practical choice, are now being used for aesthetic effect

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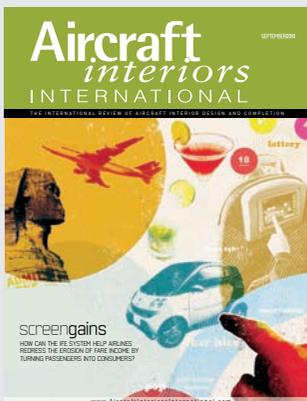
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Cobra has burst onto the scene with a new 5.2kg economy seat

## grandentrance

A Welsh automotive parts maker has made a real impact in the aviation industry with its plans to create an economy-class seat weighing 5.2kg, fully dressed. Cobra UK, based on the Wales/England border at Welshpool, displayed its new seat this year at Aircraft Interiors Expo in Hamburg, and the MAKS Airshow in Moscow.

Managing director Gary Seale has been overwhelmed by the response, which includes interest from two of Russia's largest aircraft makers, Chinese organisations, a major OEM and leading seat buyers.

Seale claims the Superlight Economy Seat will save the industry millions. "As well as the financial aspect there is also a huge reduction in carbon output, because of our advanced ecological manufacturing processes," he says. "Take a B737 with 180 seats and you have an average fuel saving of £840,000 per year. Add that to the fact that the seats will be cheaper to buy as well and it is little wonder that everyone wants to know about this new product."

The company says there is currently strong interest from China, which is keen to fit the fleets of its rapidly expanding domestic airlines. "The Chinese have expressed a desire to sign Cobra to a joint manufacturing venture in China, but we would like to retain as much manufacturing as possible in Wales, having secured a consolidation loan offer of £500,000 from Finance Wales to help expand the business," says Seale. "They have identified a requirement for 225,000 seats and I will be flying out to hold more talks with them. We are also exploring the possibility of setting up joint ventures with other companies in the UK to

sell seats for land, sea and rail transport as well as aircraft."

Seale says Cobra has used advanced materials and manufacturing processes to limit the effect on the environment, whilst not compromising on passenger comfort and cabin aesthetics. "Intelligent engineering and design has enabled us to create a seat that is both comfortable and stylish, weighing only 5.2kg and containing only 39 parts," says Seale. "We have used carbon hybrid polymer technology, which in essence encapsulates carbon components in plastic."

The fixed-recline seat enables 31in of legroom on a 28in pitch and is designed for the short- and medium-haul market. "This will be a huge leap forward for airlines, with massive fuel savings as well as greatly reduced maintenance and part count costs," says Seale. "Considered use of materials and simplified seat assembly will help redefine standards within the industry."

Cobra has not limited itself to seats. The company has already produced a new lightweight seatbelt (129g) and can offer various cabin finishes, such as chrome, precious metals, and limitless colours for seat accessories.

Cobra built its reputation in the automotive sector making sunblinds and load floors for MG Rover, Volvo, Audi, Bentley, Volkswagen, Ford and General Motors. When the downturn struck Seale went looking for alternative markets. "We were an automotive parts firm going through the pains of recession so we decided to look at where our core skills led us," he says. "The aviation industry can learn much from the advances made by the automotive sector."

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## airsupport

The Pneumatic Comfort System from Lantal replaces traditional aircraft seat cushions with air-filled cushions, the firmness of which can be adjusted according to passenger preferences throughout the flight, regardless of the seating position. Other comfort features include a massage function and lumbar support.

It's over a year since the system went into service with Swiss on its long-haul fleet. The airline chose the system for both first- and business-class cabins on its A330 and A340 aircraft. In that time, Lantal reports, the air cushions have enjoyed a faultless track record.

"Business- and first-class passengers seek comfortable sleep and relaxation features like massage and lumbar support," says Roland von Ballmoos, vice president, Pneumatic Comfort Systems at Lantal. "Offering these key features at an unprecedented level, the Pneumatic Comfort System boosts customer loyalty and is a key marketing asset for increasing the airline's passenger load factor in a highly competitive environment. The air cushion system offers significant weight savings and durability, which translate into lower operating costs and reduced CO<sub>2</sub> emissions."

And now it is not just first- and business-class passengers who can enjoy the air-filled cushion

system. Lantal has teamed up with German seat manufacturer ZIM FLUGSITZ to present a premium-economy-class seat featuring the Pneumatic Comfort System. "Because of the individually adjustable firmness of the cushions, passengers feel no pressure points even on the longest flights," says von Ballmoos. "This high level of comfort is available across the entire product lifecycle. Airlines can differentiate themselves with the Pneumatic Comfort System and appeal to a broader segment of passengers."

As well as the Pneumatic Comfort System, Lantal is well known for the design, production, and distribution of textiles and services for the international community of aircraft, bus, railway and cruise ship operators. The company places great emphasis on single-source convenience. Airframe makers and airlines around the world rely on the company for fabrics, carpets, leather, fit-and-fly products, laboratory services, design counsel, and the Pneumatic Comfort System. "Customers also appreciate the option to obtain an EASA Form One with each delivery of ready-made parts," says Daniela Grunder, responsible for brand communication at the company. "Lantal's all-in-one soft interiors address the needs of the civil aviation community and provide the ultimate in passenger well-being."

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# smooth transitions

Aerospace Design and Engineering Consultants (AeroDEC) was conceived by chief operating officer Ian Richards, a veteran in managing modification programmes on behalf of the aircraft lease industry, and Neil Wiggins, a design engineer trained by an aircraft manufacturer and experienced as an engineering manager for UK airlines. In operation since 2005, the UK-based company has flourished, gaining EASA part 21 Design Approved Organization (DOA) status and FAA Designated Engineering Representatives (DERs), and was this year honoured with the Queen's Award for International Trade.

The majority of the company's business stems from its reputation in the lease business. "The strength of AeroDEC comes from knowing the lease business model, and offering packaged solutions that are responsive, cost-effective and meet the customer's needs," says Richards.

In one recent case, AeroDEC provided a lease transition service for two A320s that were taken off lease early and were on the ground for four months before being assigned to a new lessee. AeroDEC provided on-site technical specialists who removed the aircraft from storage; developed a maintenance workscope; managed the MRO; developed and approved a cabin STC and as many as 11 other minor modifications; managed the installation of an IFE system; compiled the aircraft records; and finally delivered the aircraft on behalf of the lessor.

Richards attributes the company's success to its focus on partnerships, in-depth knowledge of

the industry, understanding of the challenges faced by aircraft owners and operators, and its experienced engineers and certification staff.

The company aims to help clients to keep up with all the latest requirements in the ever-changing aerospace industry. "Everyone has lots of questions that need answering and issues that need solutions. By understanding our customers' needs and providing the answers and practical solutions, AeroDEC has grown into one of the UK's major aerospace engineering, design and compliance organisations," says Richards.

The company has also adapted to support B737-NG lease transitions by developing a package of work that converts the B737-NG from an FAA to an EASA Type Certificate. The package includes an in-house STC for a dual battery installation, designed to save customers' money.

"AeroDEC has also partnered with an EASA Continuing Airworthiness Management Organisation (CAMO) that has probably the longest list of approvals in the world, including the A380," says Richards. "Along with our FAA Designated Airworthiness Representatives (DARs) and DERs, AeroDEC is poised to transition aircraft for lessor and airlines alike."

AeroDEC has also expanded to better support customers in the Far East – opening an office in Singapore in 2009. "Asia is a region that has great aerospace growth potential," says Richards. "The office in Singapore is in the right time zone for communicating around Asia, and we like to think we can now offer a local service."

AeroDEC has a firm grasp of what's needed in the lease market

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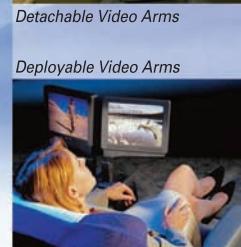
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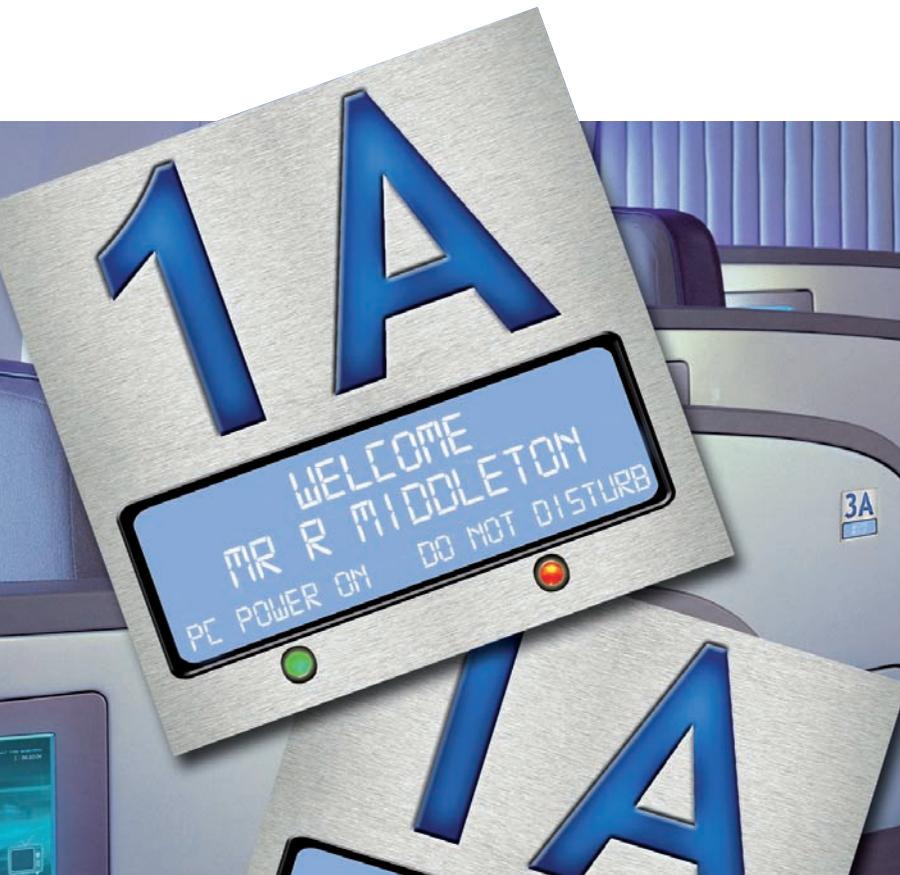
## tabletalk

With a wide range of modular, scalable food-tray table solutions available, Bucher Aerospace Corporation is helping aircraft seat manufacturers to adapt their first- and business-class products to meet highly demanding market requirements. Six years ago, building on its successful IFE deployment mechanism business, Bucher Aerospace Corporation began offering VIP, first- and business-class table products. Today, tables designed and built by the company fly in the luxury classes of multiple airlines around the globe.

Bucher Aerospace Corporation believes that the key to the successful development and integration of a food-tray table solution into a luxury-class offering is partnership. Whether it is with the seat manufacturer, the airline, the industrial design consultant or the aircraft manufacturer – often it is with all – Bucher Aerospace Corporation approaches each programme with a team mentality, and has achieved many notable successes. The company understands, for instance, that industrial design consultants have a vision for the overall product that encompasses not just the aesthetics, but also the touchpoints and quality of operation. Bucher Aerospace Corporation is continually striving to find creative ways to work with the industrial design community earlier in the thought process, to create an environment where the end product matches the conceptual vision as closely as possible.

With its existing modular products, new developments in the pipeline, a dynamic market to work in, and a clear understanding of how to achieve success for all partners, Bucher Aerospace Corporation is looking forward to delivering many successful new food-tray table solutions in the years to come.

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## signofthetimes

Following the successful launch of its extended seat/suite lighting range at the 2010 Aircraft Interiors Expo in Hamburg, Wessex Advanced Switching Products (WASP) has developed a new Seat Information Panel (SIP). SIP is designed to provide clear, illuminated seat and row numbers, and can now also be used to welcome passengers, give flight information and even be extended to provide inflight information such as menu details. Other indicators, such as the availability of PC power or 'do not disturb' signs can also be incorporated, as independent LEDs or as part of the LCD matrix.

Integrated into the seat/suite panelling, the SIPs use LEDs, in the carrier's colour of choice, to provide backlighting for the row and seat numbers, while the information is displayed on a backlit LCD panel that can be supplied in a number of size, colour and line combinations. The light intensity of the panels is controlled independently to suit flying conditions, take-off and landing.

Easily altered by cabin crew, or potentially at check-in using established wireless uploading systems, the seven-segment LCD characters can even be changed to provide passengers with personal messages such as birthday or honeymoon greetings.

The new SIPs are an addition to WASP's growing range of low-power cabin lights, which also includes snake lights, eyeball lights, puddle and wash lights.



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## curtaincall

At this year's Aircraft Interiors Expo in Hamburg, Tisca Tiara presented a range of ready-to-fly, steam-pleated curtains. The Swiss company offers a large variety of these curtains. Customers can choose from various pleat sizes; snap fastener, slider and hook systems; single or double layer curtains; light-blocking; and noise-reducing curtains. There are no restrictions with the design and colour of the fabric, which is produced in house. "We are the only producer worldwide who first weaves the fabrics and then produces steam-pleated, ready-to-install curtains – all under one roof without subcontracting other companies, resulting in significant cost and time benefits for our customers," says Matthias Tischhauser, the third generation of his family to own and run the Tisca Tiara group. "Our curtains are steam-pleated, not stitched, and thus are much more elegant and keep their excellent appearance at all times even when washed, as the pleats are a permanent feature," says Tischhauser. "Moreover, the curtains are permanently and inherently flame-retardant."

As well as customised fabrics, customers can choose from over 1,500 types of curtain material held in stock. Tisca Tiara also offers matching carpets and seat cover fabrics.



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## joiningforces

Aircraft Elektro/Elektronik System (AES) from Bremen, Germany, has broadened its product and services portfolio with the acquisition of Schütt Elektronik, which is situated in Hamburg. AES itself is an internationally established supplier of services and products for the aviation industry. The company was founded in 1997 by its owner and director Christian Thal, and is situated at Airport City, a new technology park at Bremen Airport. AES offers comprehensive electrical engineering services, and also develops and manufactures electrical and electronic products for the aircraft cabin – focusing mainly on power supplies, light control units and LED lights.

Schütt Elektronik supplies cabin electronic systems including lighting systems (cabin management systems, control panels and lights) and communication systems for VIP aircraft. The principal items of such a communication system are the digital airborne cabin telecommunication unit, which enables satellite connections; and control and configuration units, which act as an interface for telephones, fax machines and computers with internet connection. Schütt Elektronik specialises in developing and manufacturing individual, non-standard solutions; and providing subsequent maintenance and updating services.

Through the acquisition of the Schütt Elektronik, AES is no longer just an OEM, but also a system supplier for MRO and completion centre business. It can produce complete lighting and telephone systems for the VIP market. In return, Schütt Elektronik's site in Hamburg will benefit from AES's years of experience in electrical engineering services, including its expertise in various authorisation processes.

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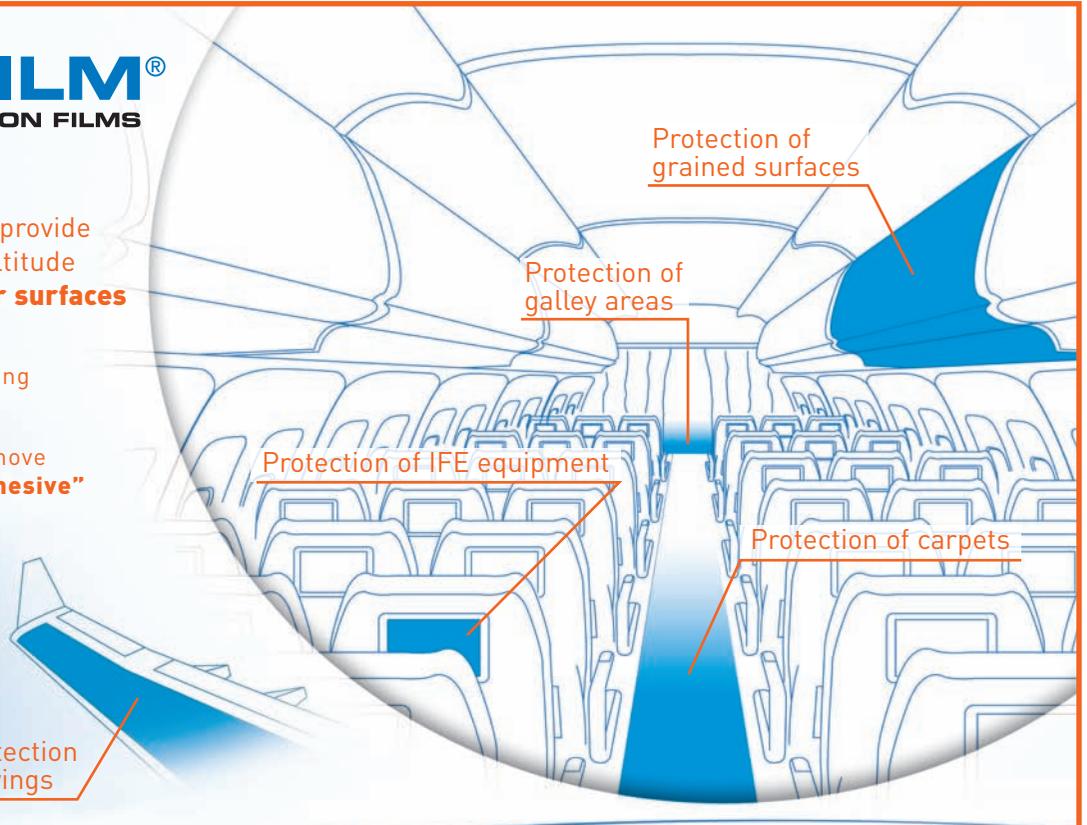
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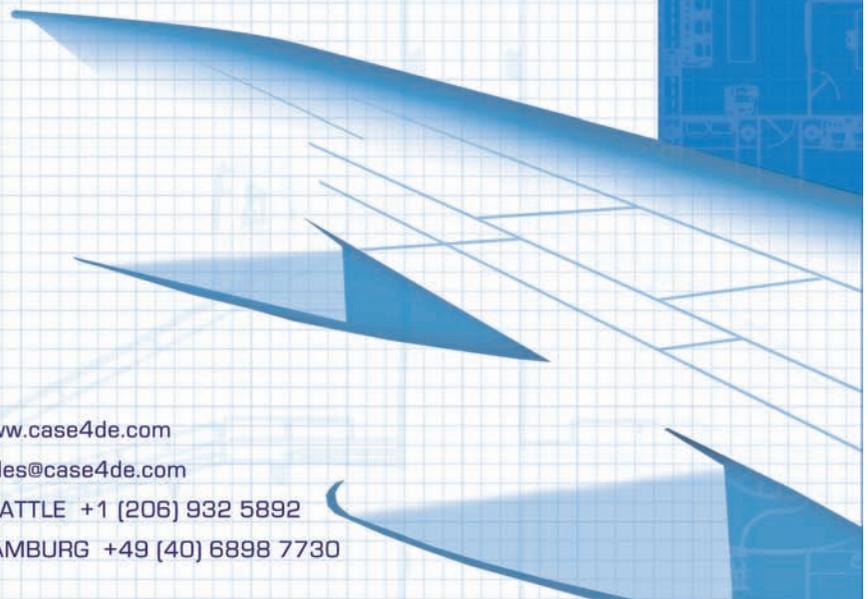
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# goeast

NCM Aerospace, part of the NCM Group with offices in New Delhi, Mumbai, Hong Kong and London, is quickly becoming a one-stop shop for airlines in India and the surrounding countries. The company supplies products and services to both full-service carriers and budget airlines, and through Aviaexpert provides services including ground handling at Delhi International Airport.

NCM's collection of inflight products includes amenity kits, blankets, galley and meal service items, insecticides, sanitisers and paper products such as baggage tags and boarding passes. It specialises in creating customised solutions for its customer airlines and partners.

The company says that the commercial aviation business in India and surrounding countries is showing vast potential for increased aircraft and passenger numbers. NCM now represents an impressive array of companies of high international standing, and provides additional services such as MRO, cabin refurbishment, aircraft painting and component supplies. The company wants to help companies who wish to foray into India and other Asian countries. NCM is winning new customers in these countries and to capitalise on this advantage, seeks and welcomes new vendors and service providers to work with, as an agent.



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# christinafoerster



Want to know more about key industry individuals, but haven't got the time to search for their Facebook profile or LinkedIn page? September's 'FaceSpacer' is Christina Foerster, general manager, intercontinental product management at Lufthansa – a self-confessed perfectionist, Christina relishes the variety of her job and the opportunity to travel.

**01 WHEN DID YOU FIRST START WORKING IN THE AIRCRAFT INTERIORS INDUSTRY?** After working in the hotel industry and as a strategy consultant, I started my life as a 'Lufthanseat' in October 2002 in the corporate strategy department. I have always been fond of the travel and tourism business – I grew up on the Canary Islands and so I was always flying to Germany to visit my extended family. In my eyes our industry stands out through its very open-minded, international and service-oriented people – it is a pleasure working among them.

**02 WHAT WERE YOUR INITIAL IMPRESSIONS?** I have been leading 'product management and innovation long-haul' since mid-2005. On the one hand I was excited to do something that is so tangible, wide-ranging and close to the customer. On the other, the extent of regulations, certification requirements and the subsequent length of development work shocked me right off the bat – after two weeks in the job I was told that changing the colour of a passenger control unit would add one year to the development process – I couldn't believe it!

**03 WHAT DOES YOUR JOB ACTUALLY INVOLVE?** My department is responsible for the entire onboard experience of the long-haul fleet. This encompasses the development of food and beverage, as well as all hardware. It extends from selecting our Star Chefs and the menus for all flights, to developing amenities and bedding, to creating new seating and selecting materials and colours for the cabin interior (e.g. carpets, curtains, etc). I love the variety of projects my team and I get to work on – from a whisky tasting for first class to the development of a new economy-class seat for Lufthansa's A380s.

**04 WHAT'S YOUR FAVOURITE BIT?** The fact that I get to work across so many boundaries, with customers and designers – the job is just so diverse and creative. I'm also a bit of a perfectionist, so the breadth of the role allows me to ensure everything fits together perfectly. For example, in our new first class, all the bedding, the seat and the cabin interior work together perfectly in terms of functionality, as well as design.

**05 AND THE MOST CHALLENGING?** Fundamentally we're in the business of change – as such we have to liaise with a lot of interfaces within the company – maintenance, cabin crew, occupational safety, cleaning, corporate design – to name just a

few. The greatest challenge is to integrate everybody's views and concerns while still maintaining the original vision for the final product... I think my team and I could find new careers in the diplomatic service without too much difficulty!

**06 WHATEVER THE PROJECT, WHAT DO YOU ALWAYS HAVE TO BEAR IN MIND?** Our brand values, customer expectations and product lifecycles are the key determinants for new projects. We identify strategic gaps and determine which projects we need to address them. We co-create our products with our customers by involving them in every step of our development projects – concept and innovation workshops, international online tests and customer advisory boards, prototype tests in our mock-up centre and onboard trials.

**07 WHERE DO YOU SEEK INSPIRATION?** I am a big fan of restaurants and hotels with an integrated vision – spaces and concepts that feel considered. And it's not always about luxury: I particularly enjoy authentic environments with a difference – a tree house 'hotel' in Provence or a mountain hut in the Alps. I also like modern, clean and quirky design, best exemplified by Ian Schrager's hotels. I follow the latest developments in food, furniture and lifestyle trends but I also love just observing and talking to people of all ages and walks of life.

**08 WHAT FEEDBACK HAVE YOU HAD SO FAR ABOUT YOUR WORK FOR THE A380?** It is exciting to see that customers appreciate the features that we developed together. In particular, in our new first class, the luxurious atmosphere, high-quality materials and craftsmanship, sleeping comfort, spaciousness and sense of calm, as well as the bathrooms, are all receiving rave reviews and top ratings from passengers. In all other classes, the living space, the design and the IFE are proving the highlights.

**09 HOW FRUSTRATING HAVE THE DELAYS TO THE A380 BEEN?** It was tough to keep everybody – especially our suppliers – on their toes during the numerous smaller delays. If we had known earlier on that we would receive our A380s so late we might have done things differently – for example we might have planned to install them with a new business class. On the other hand the delays gave us the opportunity to get the first-class bedding and amenities just right.

**10 BEYOND WORK, WHAT DO YOU DO TO RELAX?** I enjoy nature – whether hiking in the mountains or walking barefoot on a long beach. My last vacation in May 2010 took me to Bhutan – I was very impressed with its striking nature, the interesting cultural and religious experiences and the extremely friendly and happy people. During the summer, I try to spend as much time as possible outside – riverside picnics, open air concerts and cinema screenings, as well as cycling around Frankfurt. I also devour movies – especially those offering new and interesting ideas about the future. I'm a big Seinfeld fan and I like reading books by John Irving or Nick Hornby.

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